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ECONOMIA E GESTÃO DE CIÊNCIA, TECNOLOGIA E INOVAÇÃO

TRABALHO FINAL DE MESTRADO

DISSERTAÇÃO

DIGITIZATION AND INTERNATIONALIZATION: A STUDY ON PORTUGUESE COMPANIES DURING THE COVID-19 CRISIS

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RESUMO

Nos últimos anos a globalização se mostrou uma ferramenta muito utilizada por empresas como facilitador da internacionalização, visto que o processo auxilia a integração entre as diferentes partes do globo. Com isso nasceram diversas teorias que buscam explicar como funciona o processo de expansão das empresas para além-fronteiras, como A teoria do Ciclo do Produto de 1966, o Modelo Uppsala de 1977, a Teoria do Paradigma Eclético de 1980. No decorrer dos anos, o contexto mudou com a utilização dos meios de comunicação e, consequentemente, o surgimento da internet.

Teorias que estudam a internacionalização e a digitalização, como as Born Globals e Born Digitals Companies, surgiram com o intuito de trazer uma abordagem mais atualizada dos processos que se tornaram mais dinâmicos e velozes, atrelado muitas vezes as empresas menores, mas não menos competitivas, diferente do que era visto nas primeiras teorias.

Em um momento em que muito se avançou em relação as trocas internacionais, surge a pandemia de Corona vírus, levando o mundo a entender a sua interdependência e levando todos a uma espécie de caos generalizado gerado pelo fechamento de escolas, comércios, indústrias, levantando incerteza e imprevisibilidade. A digitalização dos negócios, antes vista como uma evolução lenta, tornou-se obrigatória e acabou por salvar empresas que tiveram agilidade para entender o momento em que se encontravam. As gigantes da tecnologia valorizaram-se graças a busca por soluções para negócios, estudos e relações.

O trabalho a seguir busca, através de uma abordagem quantitativa, entender se o grau de digitalização apresentado por empresas portuguesas durante a crise de Covid-19 mitigou o impacto negativo gerado pela crise. Para isto, foi realizada uma pesquisa através de questionário, com 260 empresas internacionalizadas portuguesas, observando aspectos estruturais (visão internacional, capacidade de gestão operacional e de gestão), estratégias (grau de digitalização, internet como facilitador de internacionalização, internet como fator relevante no combate a crise, rápida internacionalização e impacto geral do covid) e performance destas empresas (crescimento do grau de internacionalização e performance durante a crise).

Foram criadas 8 hipóteses a partir dos três grupos(aspetos estruturais, estratégias e performance), para identificar possíveis relações que influenciassem os resultados no combate a crise, sendo que 75% das hipóteses obtiveram comprovação estatística. Os resultados encontrados demonstram que a performance durante a crise é impactada diretamente por dois fatores: o impacto generalizado da Covid na empresa e a rápida internacionalização. Já a digitalização (grau de digitalização, internet como fator relevante e internet como facilitador de internacionalização) não foi um fator diferencial para mitigar os impactos negativos, ressaltando que a pesquisa foi realizada com empresas portuguesas de diversos setores, podendo diferenciar-se em outros contextos ou em áreas específicas.

Palavras-chave: Covid-19 em Portugal; Internacionalização; Digitalização; Born Globals; Born Digitals; Modelo Uppsala;

ABSTRACT

In the recent years, globalization has proved to be a tool widely used by companies as a facilitator of internationalization, since the process helps the integration between different parts of the globe. With this, several theories were born to explain how the process of expansion of companies beyond borders works, such as The Product Cycle Theory of 1966, the Uppsala Model of 1977, the Eclectic Paradigm Theory of 1980. Over the years, the context has changed with the use of the media and, consequently, the emergence of the Internet.

Theories that study internationalization and digitization, such as Born Globals and Born Digitals Companies, emerged in order to bring a more up-to-date approach to processes that have become more dynamic and faster, often tied to smaller but no less competitive companies, different from what was seen in the early theories.

At a time when much progress has been made in relation to international trade, the Corona virus pandemic arises, leading the world to understand its interdependence and leading everyone to a kind of widespread chaos generated by the closure of schools, shops, industries, raising uncertainty and unpredictability. The digitization of the business, once seen as a slow evolution, became mandatory and ended up saving companies that had the agility to understand the moment they were in. The technology giants have valued themselves thanks to the search for solutions for business, education and relationships.

The following work seeks, through a quantitative approach, to understand whether the degree of digitization presented by Portuguese companies during the Covid-19 crisis mitigated the negative impact generated by the crisis. For this, a questionnaire was conducted with 260 Portuguese internationalized companies, observing structural aspects (international vision, operational management and management capacity), strategies (degree of digitization, internet as a enabler of internationalization, internet as a relevant factor in combating the crisis, quickly internationalization and overall impact of covid) and performance of these companies (growth of the degree of internationalization and performance during the crisis).

Eight hypotheses were created from the three groups (structural aspects, strategies and performance), to identify possible relationships that influenced the results in combating the crisis, and 75% of the hypotheses obtained statistical proof. The results show that performance during the crisis is directly impacted by two factors: Covid's widespread

impact on the company and rapid internationalization. On the other hand, digitization (degree of digitization, internet as a relevant factor and internet as a enabler of internationalization) was not a differential factor to mitigate the negative impacts, emphasizing that the research was conducted with Portuguese companies from various sectors, being able to differentiate in other contexts or in specific areas.

Keywords: Covid-19 in Portugal; Internationalization; Scanning; Born Globals; Born Digitals; Uppsala Model;

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List of Abbreviations

CFI – Comparative Fit Index

BD – Born Digital Firms

BG – Born Global Firms

SMEs – Small and Medium Enterprises

SPSS – Statistical Package for the Social Sciences

x^2 - Chi-square Statistic

x^2/df – Normed Chi-square

WHO – World Health Organization

JIBS – Journal of International Business

CAGE – Cultural, Administrative, Geographical and Economic police distance

MNC – Multinational Companies

GDPL – General Data Protection Law

INV – International New Venture

OECD – Organization for Economic Co-operation and Development

IV – International Vision

DMC – Digital Management Capabilities

DOC – Digital Operational Capabilities

DOD – Degree of Digitalization

EI – Early Internationalization

IIE – Internet International Enabler

IRC – Internet Relevance in Crisis

DOI – Degree of Internationalization

1 INTRODUCTION

In recent decades, internationalization has motivated interest from several scholars who have brought up different theories, while searching to understand and design the process that leads companies to seek markets for their business in other countries. From this, works such as the Product Cycle Theory (Vernon, 1966), the Uppsala Model (Johanson & Vahlne, 1977), the Eclectic Paradigm Theory (Dunning,1977), among others that followed, served as the basis for the most recent theories that include the evolutions brought by computers and the internet. The reformulation of the Uppsala Model held in 2009 (Johanson & Vahlne, 2009), as well as Born Global and Born Digital developments (Madsen & Servais, 1997; Knight & Cavusgil, 2004 e 2005; Luostarinen & Gabrielsson, 2006; Laudon & Laudon, 2015; Cavusgil & Knight, 2015; Kraus, Palmer, Kailer, Kallinger, & Spitzer, 2019) emerged bringing a strong foundation based on networks and new relationships and processes derived from the digital transformations suffered in recent decades.

Thus, many studies presented the fact that internationalization suffers positive impacts from the inclusion of technology (Ghemawat, 2001; Barbosa, Fuller, & Ferreira, 2005; Johanson & Vahlne, 2009; Chiao & Yang, 2011), supporting the theory that these innovations reduce distances and provide faster, reliable, automated processes, including a giant network of relationship between suppliers, customers, partners, among others that could translate into new opportunities and market diversification. Not only that, but there are studies showing that internationalization could be performed by different companies, such as small and medium-sized enterprises (SMEs), excluding the idea that only large companies could start an internationalization process (Sinkovics, Sinkovics, & Jean, 2013; Gregory, Karavdic, & Zou, 2007; Prasad, Ramamurthy, & Naidu, 2001), and the internet was responsible for mitigating divergences that were previously not possible to be overcome.

For instance, Guo, Yang, Huang, & Guo (2020) highlight the implications of digitization as a solution tool during a public crisis, namely during Covid-19 pandemic crisis. The business practices and rules changed according to context. Therefore, in the face of the worldwide changes that we have faced since March 2020, when the World Health Organization (WHO) decreed a pandemic of the new coronavirus (Covid-19), business digitalization enabled SMEs to show better performances (Guo et al., 2020).

The also called Sars-Cov-2 virus (BBC News, 2020), started what would be the most serious crisis of the 21st century. Initially, without proven drug solutions to fight the virus, the solutions found to cease the spread were: social isolation, distancing, mask use and hygiene measures such as the use of alcohol gel and face masks (WHO, 2020).During this period, the way we live has altered, changing the forms of consumption, logistic operations, availability of raw materials and other basic activities carried out. Thus, the world economy suffered an unimaginable situation in times of globalization and opening of borders, where several obstacles were stipulated resulting in closures of trades, industries, schools, among others, creating a widespread crisis, where uncertainty, unpredictability, and the need for rapid responses to contain major losses (Guo et al., 2020).

The present study was carried out only with internationalized Portuguese companies and that was founded from 2005 onwards. The relevance of studying this country is particularly relevant because the country that is still having some consequences of the severe 2008 global financial crisis, was hit hard by the health, humanitarian and economic crisis caused by Covid-19. This country starts from the beginning to implements actions in favor of the non-spread of the disease, since in neighboring countries, such as Italy and Spain, a rapid spread of the virus was observed. Thus, the country chose to accelerate the closure, negatively surprising areas such as trade and services that represent more than 65.5% of its local economy, in addition to employing about 70% of the population (World Bank, 2021). In the search for solutions to overcome distance, the internet and digitization are tools used by companies to reduce the effects of the crisis.

This research intends to answer to the following research question: Does the digitalization reduce the damage caused by Covid-19 crisis in international companies from Portugal?

It is from the complexity of the internationalization processes and the particularities of each context that the interest in carrying out this theme for the thesis arises.Although it is not such a recent topic, in recent years the evolution of digitization processes has directly impacted on the way companies implement its strategies of internationalization and their performance have taken advantage of technological revolutions to boost their businesses. Therefore, the main objectives of this study are to understand the influence of technology and digitization in the company's performance during this period of crisis, and the role of digitization for international companies facing this pandemic crisis. Just as it seeks to understand whether international companies keep growing during the first year of the pandemic. Thus, crucial points such as structural aspects, strategies and results were measured to reach the results.

In terms of organization, after this introductory chapter, in chapter 2 we will present the literary review, addressing the internationalization, theories related to the internationalization process in times of digitization, as well as digitization in the internationalization processes. In the following chapter, the conceptual model and the research hypothesis will be addressed. In Chapter 4, the research methodology, including the sample, method and measurement instruments will be presented. In chapter 5 the analysis of data and results are executed and in chapter 6 we will discuss the findings. Finally, in chapter 7 we will present the conclusions, limitations, and future research avenues.

2 LITERATURE REVIEW

This work involves a new theme within the internationalization field, for this reason it was decided to explore the themes of internationalization, Uppsala Model, and the assessment of born global and born digitals, as well as the discussion about the influence of digitalization and internet in the internationalization process.

2.1 Internationalization

Global connectivity is an undeniable reality whether affecting political, economic, cultural, or social environments. Globalization, the name given to this process of "shortening" distances and lowering barriers, is closely related to the development of technologies and innovations, especially in the communications and transport sectors (Vasconcelos, 2021; Daly, 1999). Based on two fundamental pillars, free movement of people and free movement of goods, in the last decades there has been an increase in trade between countries. Therefore, the assessment of themes resulting from this globalization, such as the internationalization of companies turns up to be much more complex (Vasconcelos, 2021; Tuncer,2020).

Morales (2020) analyzes in his study 26 definitions for the term internationalization, confirming the lack of a single definition and highlighting that the term goes beyond the extension of borders (Dickeh, 1998; Juscius et al., 2007), and includes the use of new features and capabilities. The concept for each one stems from a range of factors, depending on the context in which it is found, the speed that the information reaches each company and how it is absorbed by them.The study of this subject seeks to address different aspects, such as motivations, moment of internationalization, mode of entry and characteristics of companies and entrepreneurs, factors considered fundamental for the success of internationalization. In the

next section, we will explain 3 theories of internationalization: Uppsala Model, Born Global Firms and Born Digital Firms.

2.2 Uppsala Model

The Uppsala Model (UM), is also called Theory of the Internationalization Process (Schwwens,Steinmetz & Kabst, 2010), Process Models (Mejri & Umemoto, 2010), Incremental Model (Coviello & McAuley,1997), Sequential Model (Wickramasekera & Oczkowski,2006), Gradual Theory (Morgan &Katsikeas, 1997), Theory of Evolution, Swedish School, among others. It was created by two Swedish authors, Jan Johanson and Jan-Erik Vahlne (1977). Since over the years, the initial model became somewhat obsolescent, the same authors decided to revisit their work (Johanson & Vahlne, 2009) 32 years after the original model (Soares, 2013). Both publications (Johanson & Valhne,1977; 2009) generated the JIBS (Journal of International Business Studies) Decade Award (Wach, 2021).

2.2.1 Original Uppsala Model

On the inicial work,of Johanson and Vahlne (1977), analized four Scandinavian companies (Volvo, Atlas Copco, Facit and Sandvik), and concluded that their internationalization processes had occurred in a gradual manner. The study focuses on the development of these companies and their particular path with the successive acquisition, integration and use of knowledge about foreign markets and operations, and their growing commitment in international markets. According to the authors (Johanson & Vahlne, 1977), internationalization is associated with the acquisition of knowledge and experience by the company through the relationship and learning with the foreign market in question, as well as the initial experience in its domestic market.

Johanson & Vahlne (1977) present a model based on observations, which reiterate the graduality of internationalization: first, export begins through an agent, afterwards that sales could be established via subsidiary and, eventually, they could begin to produce in the foreign country. Another relevant point of the document (Johanson & Vahlne, 1977), is the question of time in relation to the psychic distance between countries (domestic vs destination), defined as obstacles that hinder the flow of information to and from the chosen market. Such obstacles can be exemplified by cultural aspects, geographical proximity between the exporting country and the importer, religious aspects, pre-existing trade, language distance, diplomatic relations

between countries, origin of the population, colonization heritage, among others (Johanson & Vahlne, 1977). This distance, addressed by Ghemawat (2001) has four dimensions (CAGE): (1) cultural distance - that covers points such as religion, language and social norms and indicates that greater proximity is a strong point for direct investment abroad; (2) administrative distance - relating to formal and formal institutions between countries, in the case of Portugal, for example, the European Union facilitating exchange between country members; (3) geographic distance - that directly interferes with transactional costs, operating less costly when closer relationships occur; and (4) economic policy distance - that takes into account points such as credit release, opening of capital, skilled labor, partnership between countries, among others. These dimensions influence the amount of information that makes it easier of harder going to a given country, because it allows capturing the environment as a whole, such as information of the place to be explored, language to be used for relationships, aspects such as consumer behavior and openness to new companies. Thus, the lack of knowledge about them can lead to the failure of internationalization process to a specific market.

During the next years following the development of the original model presented by Johanson and Vahlne (1977), other authors confirmed the model. While the psychic distance obtained adherents (i.e.,Ghemawat, 2001) who led to a deepening of the issue, other points such as the particularity of the Nordic countries that clashes with other regions of the globe, also corroborated by Larimo (2003), was criticized for not being in agreement with much of the reality worldwide (Soares, 2013).

Other considerations were made about the 1977' work, for instance Kuo & Fang (2009) reaffirmed the need to recognize itself locally, its strengths and weaknesses, before moving to international markets. On the other hand, Chiao & Yang (2011) argued that the access to various markets favors the rise of economies of scale. Hemais and Hilal (2004) point out that the lack of information from nearby markets can lead to internationalization in more distant markets.

More recently, in 2001, Rowden presented a paper on companies that "skip" (leapfrogging) stages of the gradual internationalization process, making room for further research focused on this type of companies. These results are contradictory to the idea of continuity given by the incremental model (Benito & Welch, 1997; Forsgren & Hagstrom, 2005; Rezende, 2002). These studies are complemented by Petersen & Welch (2002) who seek to demonstrate that the combination of methods, the non-correlation between them, segmentation or complementarity and competition are possible realities. There is no single and generic form practiced by all

companies, but rather a range of different possibilities that lead to internationalization and the success of the internationalization process.So, regardless of counterpoints or confirmations about the Uppsala Model, only in 2009 the model was revisited. The increasing relevance of networks and the development of information technologies impacted on companies that emerged in years prior to 2009, escaping the rules stipulated by Johanson and Vahlne (1977). Therefore, the authors decided to update the model so that, according to the authors, they would return to explain the theory of internationalization in a generic and universal way.

2.2.2 Revised Uppsala Model

Johanson & Vahlne (2009) sought to highlight the generic and universal character of his theory that, in contrast to the criticism received in the years following the publication, led to a revisit to the initial work in order to maintain the foundation with a comprehensive character, allowing all companies to be present within the profile stipulated by the work.

First, when referring to the original model, Johanson and Vahlne (2009) admitted some negligence, such as cost strategies (Aulakh, 2000), "that improve and intensify the performance of export activity in developed country markets (Soares, 2013, pp. 345)"; and the differentiation strategy (Aulakh, 2000) "that improve the same performance in developing countries (Soares, 2013, pp.345)". So that they could delve into divergent themes related to systematic changes, such as the importance of networks for the internationalization of business.

Networks have taken space in the modern world, influencing not only the shortening of physical distances, but also the relationships between people and, consequently, between companies and their stakeholders, and the fluidity of information promoted by the networks. It is in this sense that the update of the Uppsala Model is "redone" in the search to maintain it as a current and comprehensive model. In the original Uppsala Model, the acquisition of knowledge is seen as a fundamental issue for the expansion of business boundaries. In the review of the Uppsala Model this thought is maintained (Johanson & Vahlne, 2009), being this point reinforced by the importance of the network relationship in the retention of knowledge, building trust and increasing the commitment among stakeholders. Another fundamental point of this revisited version is the relevance of the mode of entry (Johanson & Vahlne, 2009). This decision was eventually replaced by the process of idealization of the position within the network, which has

knowledge about the external market, for the internal benefit of the company (Johanson & Vahlne, 2009).

Thus, relationship partners are a source of information, whether about other partners and/or distant actors or about foreign markets (Johanson & Vahlne, 2009; Soares, 2013). The exchange is considered the core of the process, leaving aside the production (Soares, 2013).. The success, according to Johanson and Vahlne (2009), is to be included in one or more networks exploring commitment, trust, identification, and opportunities through the relationships between market, customer, and companies. the major difficulty is the lack of ability to insert the company into these networks. Thus, the idea remains that experiential knowledge (learning) is closely linked to success in foreign markets. However, it is now the network that makes this role of acquiring information and knowledge in an increasingly fluid way, allowing, according to Barbosa, Fuller, and Ferreira (2005), that small and medium-sized enterprises (SMEs) could be introduced to competition in the global market. Thus, the authors try to encompass the companies that were not previously incorporated in the original model, which covered mainly multinational companies (MNCs).

Although the improvement coming from networks has shortened paths, the idea remains that the greater the psychic distances, the greater the difficulty in building new relationships (Johanson & Vahlne, 2009). National legislation, for example, imposes itself as obstacles to the conquest of spaces and, thus, the creation of new networks. It can be said that some aspects of CAGE (Ghemawat, 2001) are more easily overcome with the internet, but many other barriers have been created, and the General Data Protection Law (GDPL) is just one of these examples.

In addition to the revisit made in 2009, in the following years the authors include additional changes, not to mention minor modifications made by the authors before and after 2009. Despite this, the 2009 publication was the one with the greatest impact, with the inclusion of networks within the model. The changes that emerged in the following years include topics such as international entrepreneurship, dynamic entrepreneurship development, international network coordination, dynamic, multinational, and transnational capabilities, among others (Soares, 2013). Despite the criticism, the Uppsala Model is still the most used in empirical studies and its recent alterations seek to encompass all companies, maintaining its original character in the search for universality.

2.3 Born Globals

The emergence of Born Global firms (BGs) research dates to the 1990s. Rennie (1993), introduced the term in its publication about Australian companies that exported in a large scale and were internationalized at the foundation or on a date shortly after its foundation. Still in the 1990s, some studies were conducted with the aim of testing other theories of the development of these companies, concluding that these did not belong to any theory already described above. Also in the 1990s, several authors (e.g. Coviello & Munro, 1995; Welch, Welch, Young, & Wilkinson, 1998), developed studies on the role of networks and alliances in the internationalization of small businesses that have started to have representativity in the international markets (Knight & Liesch, 2016).

The revised Uppsala Model (Johanson & Vahlne, 2009) seeks to explain the early internationalization of some companies, justifying the phenomenon by the emergence of networks. Still, new theories such as the case of Born Global firms (BGs), also called International New Ventures (INVs) or Global Start-ups, have emerged (McDougall & Oviatt, 1996). The definition given to BGs considers the time of internationalization, considered by Knight and Cavusgil (2004) as being a maximum of 3 years from its foundation, and should have a minimum of 25% of its total sales in external environment.

In this case, the number of countries with which the company enters, the size of the company, the mode, or the pace of internationalization (in case of being gradual) are not considered to influence internationalization, as seen in "traditional" companies (Emeterio, Juaneda-Ayensa, & Fernández-Ortiz, 2020). Globalization influenced the reduction of the cost of internationalization, based on the opening of markets and alliances in the search for better resources, production, labor, among others, being seen as homogenization of the market by buyers, globalization facilitates going abroad (Knight & Cavusgil, 2004). The technology used in areas such as communication, production, transportation, and logistics is also another factor of cost reduction in transactions, not to mention the diffusion of technologies made possible by the development of the Internet, such as e-mail and instant messaging exchanges that make exchanges more viable and effective, even if alone are not enough for success (Knight & Cavusgil, 2004).

Although the contemporary Uppsala Model seeks to explain the same point as the theory of BGs, the vast majority of studies consider these theories to be opposed (e.g. Casillas, Barbero, & Sapienza, 2015). In recent years, INVs have attracted researchers, that try to understand the reasons behind the break with the traditional s Uppsala Model, which has associated the idea of domination of large companies with many resources (Eurofound, 2012; OECD, 2013; Knight & Cavusgil, 2004; Madsen & Servais, 1997), as well as the paths that lead to the characteristics that set them apart. Even with so many works related to the theme, there are still gaps to be explored through factors such as the continuity of these companies in a competitive environment, namely in crisis periods (Gabrielsson & Kirpalani, 2004; Gabrielsson M. , Kirpalani, Dimitratos, Solberg, & Zuchella, 2008); or through a more quantitative approach related to the theme (Emeterio et al., 2020).

According to Knight and Liesch (2016), the term Born Global comes up to give the necessary importance to the new global economic paradigm - globalization. Globalization has opened markets around the globe due to the evolution of new technologies and innovations, especially with the emergence of the Internet. Hence, markets have become more competitive, allowing the internationalization of many companies, regardless of the size of the company and its domestic market (Shimbun, 1995; Knight & Liesch, 2016; Rialp, Rialp, & Knight, 2005).

Thus, factors such as: the size of domestic markets, the nature of the target market, the extent of internationalization of competition, as well as the growth and global interconnection of industries and firms, seem to influence and induce early internationalization (Efrat & Shoham, 2012; Fan & Phan:, 2007; Fernhaber, McDougall, & Oviatt, 2007; Kudina, Yip, & Barkema, 2008; McDougall, Oviatt, & Shrader, 2003; Mudambi & Zahra, 2007; McNaughton, 2003; Knight & Liesch, 2016). It is no coincidence that the increase in INVs occurs in a period of more fluid communication, namely the communication provided by the Internet, which offers opportunities for the creation of tools helping to access to information, processes, and new markets, to compete with competitors in broader markets.

The literature about BG success confirms that despite the international success, these companies have tangible limitations in their resources, face internationalization constraints, including insufficient economies of scale, in addition to inexperience in international business and general shortage of financial and human resources (Knight & Liesch, 2016). Nevertheless, they usually hold distinct intangible resources and capabilities (Knight & Cavusgil, 2004; Jantunen,

Nummela, Puumalainen, & Saarenketo, 2008; Rialp, Rialp, & Knight, 2005; Zahra, Matherne, & Carleton, 2003), in addition to assertiveness in resource allocation with asset parsimony (Cavusgil & Knight, 2015).

Being opposed to incremental model companies, BGs take more risks and act actively in the search for new markets. The founders of these companies are considered intuitive and proactive, and most of them have international business experience (Knight & Liesch, 2016; Luostarinen & Gabrielsson, 2006; McDougall, Oviatt, & Shrader, 2003). It is at this point that the dynamic capabilities of the founders, nurtured by international entrepreneurship as key points to support and encourage early internationalization (Knight & Liesch, 2016) are highlighted. Born as an exception to the rule, BGs account for more than 20% of new companies in Europe, more than half of new companies that born in Belgium, Denmark and Romania are BGs (Knight & Liesch, 2016).

INVs contributes to innovation, learning and development of cognitive tools, improving industries, and facilitating the increase of the value chain (Knight & Liesch, 2016; Eurofound, 2012; OECD, 2013). Studies related to the theme are still under development, influenced by their wide scope (size, age, experience, and resources) and the increase in globalization that results in the success of cross-border agreements.

In this model, which is composed mostly by small companies, flexibility and speed in decision making, due to the fluidity of information, adaptability of strategies to reach new markets, firms internationalize in a shorter time than those that follow the gradualism of the Uppsala Model.

2.4 Born Digitals

The ecosystem of international business has changed significantly since the emergence of computers and, consequently, the Internet. The evolution of the Web has resulted in the creation of mobile operating systems, cloud storage solutions, development of learning algorithms and the increased importance of data, just to name a few aspects that marked the beginning of a new global panorama (Hervé, Schmitt, & Baldegger, 2020).

In recent years, several improvements have occurred, such as the optimization of production and distribution, management and decision-making, more assertiveness in the definition of users and partners, in addition to the targeting of advertisements and prospecting for demand

(Kraus, Palmer, Kailer, Kallinger, & Spitzer, 2019; Aagaard & Harrison, 2019; Watson, Weaven, Perkins, Sardana, & Palmatier, 2018; Hervé, Schmitt, & Baldegger, 2020). These developments are the result of this "storm" of data collected and processed by the technological systems in operation. Thus, Born Digital firms (BDs) also emerged from the continued evolution of networks and their increasingly indispensable and inevitable presence.

It is through this scenario, full of innovative nuances that digital companies emerge. These companies depend on the internet for their production, operation, and delivery processes, and are included in this group: platform companies, digital solution companies, e-commerce, or retail companies, as well as digital content producers (Monaghan, Tippman, & Coviello, 2019). According to Monaghan et al. (2020) digital enterprises have 2 main features: the first is the digital infrastructure, i.e., having a digital presence on the network; the second is the dependence on this digital infrastructure so that there is an accumulation of resources, whether in communication, collaboration, and computing, which make it feasible to sell and do business in a digital business configuration (Laudon & Laudon, 2015; Nambisan, 2017). Therefore, BDs use digital technologies to improve their business models, increase efficiency and accuracy, bring more control and transparency to their activities, resulting in new revenues and greater opportunities with relevance to the company's value chain (Vadana, 2020). Such companies are not only in the field of information and communication technologies, but also in the most diverse industries, where even physical products become digital (Vadana, 2020).

Monaghan et al. (2020) approach BDs from different points of view: first, they observe the direct engagement with stakeholders, highlighting the importance of networks, in the same way as approached by Johanson & Vahlne (2009), but with greater complexity of participating actors even closer and more direct relationships than those addressed by the authors (Parker, Alstyne & Jiang, 2017; Chandra & Coviello, 2010), decreasing the relevance of intermediaries in the internationalization processes. Monaghan et al. (2020) also highlight a peculiarity of BDs, as companies with this profile are not necessarily internationalized.

The interaction among stakeholders produces insights that are absorbed almost instantly by companies, enabling the recognition of opportunities to expand their activities in other countries or deepen them further in the markets where they already operate (Monaghan, Tippman, & Coviello, 2019). Unlike the Uppsala Model (Johanson & Vahlne, 2009), companies are also opening up to the market at this time, as in the case of open-source programs such as the Apple

Store and Google Play that allow users to develop products and services together with the company, fostering a systematic gain of this network (Monaghan, Tippman, & Coviello, 2019), not only internal (Johanson & Vahlne, 2009).

2.5 Considerations of internationalization models

The final perception is that the original Uppsala Model presented an initial model for further study with regard to internationalization. In recent years, the world has been changing more and more rapidly, driven by innovations in all sectors, mainly by the emergence of the internet and digitization of businesses and products and/or services. The evolution of internationalization models and theories is just a reflection of that same development, being today clearer that the older theories, namely the Uppsala Model, focused mainly on larger companies, such as MNEs,because those were more common back to that time. Over time, the processes accelerated and allowed opening the international competitive field so that SMEs would also implement internationalizations processes and take part in international transactions.

Technology and digitization are intrinsically related to this strengthening of companies' power. While BGs seek to explain the beginning of this process, BDs seek to explain even more recent and highly connected businesses dependent on the digital environment, full of automation, network effects and even "excess" information (Vadana,2020). It is as if the study models used a magnifying glass to identify the differences and focus more and more on specific models to be able to aggregate concepts more correctly for each type of company. However, there are still many divergences regarding nomenclatures, excluding some profiles of firms that do not yet fit the existing literatures.

Finally, there is room for many researches, using both qualitative and quantitative methods to understand what drives companies to success more quickly, but mainly, what keeps them in success. In any case, the relevance of the model presented by Johanson and Vahlne (1977;2009) is indisputable, after all, it is what provided a starting point for additional models.

In summary, the essence of BDs is the digitization of the value chain since its inception, while BGs turn to internationalization also since the foundation or close to it (Vadana, 2020). Basically, what explains the difference between the models is the way companies are organized

and their business models, as well as their set of strategies, which in the case of BDs is more focused on parameters oriented to the online business, such as the penetration index (Wentrup,2016), while BGs is more focused on accelerated internationalization and the Incremental Model focus on most reasoned internationalization, based on experiential learning that eventually takes more time.

2.6 Digitalization and Internationalization

During the last two decades, the way we live, interact and do business has been heavily modified. We are today in phase 4.0 of the Web (Rockcontent, 2018), where decision-making is automated by artificial intelligences filled with data collected by systems and sensors (Digital Literacy, N/A), exposing us to an immense amount of information.

Together with the evolution of information and communication technologies (ICT), methods and tools have been developed in a way that provide companies of all sizes and resources, process optimization, increased productivity, flexibility and scalability, as well as faster and more assertive decision-making based on data collected instantly, the result of interactions between users and platforms.

It is through technologies such as big data, artificial intelligence, data analytics, among others, that it has become possible the emergence of new companies that have digital business models, more flexible than traditional ones.

The context we are against today is arguably different from what was in the 1970s, when Johanson and Vahlne (1977) presented the first version of Uppsala Model. But also, to a lesser extent, it differs from the 2009's version where the Web was about to start phase 2.0, and there was in this period an increasing use of Internet by users. The opening of the market, resulting from the dissemination of the Internet, provided leverage to the globalization process, opening spaces for companies, regardless of size or amount of resources, to compete globally.

The reduction in costs to access digital tools influenced the promotion of small and medium-sized companies, but agile and digitalized, which through technology and direct interaction with users have achieved markets, with available information provided, often, by free. There was democratization of knowledge (Coviello, Kano, & Liesch, 2017), which previously required time and resources for its acquisition (Johanson & Vahlne, 1997, 2009). Today, a bif part of it depends only on the will and availability of equipment to research within the Web. Although possible, not all digitalized companies seek the international market, and not all internationalized companies are 100% digitalized, but it is possible to affirm that to a greater

or lesser extent there is, even minimally, digitalization. According to the study by Sinkovics, Sinkovics, & Jean (2013), there is a strong positive impact of the internet on the performance of low-tech companies, even with little experience in online business, which facilitates export, creating opportunities for early internationalization and a closer relationship of customers/users.

In view of this, the internet and resources related with technology are not able to impact performance by itself, still they are vital to mitigate the existing barriers in the internationalization of SMEs (Sinkovics, Sinkovics, & Jean, 2013; Gregory, Karavdic, & Zou, 2007; Prasad, Ramamurthy, & Naidu, 2001). It is through the Internet that the psychic distances addressed by Johanson and Vahlne (1977, 2009) are broken, even though new forms of distancing have emerged. Moreover, it is possible to create parallels between the technological context and the emergence of new business models, increasingly exponential, through digitalization and its consequent dissemination.

In this work we will use the term digitization as the use of tools in a digital scope (online) in a more generalized way. Considering companies with a higher degree of digitalization, those that use digitalization in different sectors of the company, inserting different types of digital artifacts end-to-end.

3 CONCEPTUAL MODEL AND RESEARCH HYPOTHESES

3.1 Model Development

On March 11, 2020, the World Health Organization (WHO) decreed a pandemic of Sars-Cov-2, a new type of coronavirus that causes an infectious disease. In December of the previous year in China, more specifically in Wuhan, the first case of the virus was identified and from then on it took only a few months for it to take global proportions, initiating a widespread crisis of broad spectrum (World Health Organization, 2020).

Firstly, the priority implemented by most countries was the containment of the disease with a direct objective of saving lives; and the maintenance of essential supply chains as well as essential services (Aubyn, 2020). This demonstrated the sanitary character, but also economic, resulting from the measures to control the spread of the virus: social distancing, quarantine and isolation.

The impossibility of movement quickly generated a cut in supply and production chains, affecting several sectors; there was also a pause in investment and private consumption, due to

the layoffs and uncertainty during the period (Aubyn, 2020). Another fragile point caused by the crisis was the profile of the companies affected, which in Europe are represented mostly (99%) by SMEs (European Parliament, 2021), that are known to have a lack of financial resources needed to keep the company in times of crisis, in addition to receiving smaller financing alternatives.

On the other hand, according to Microsoft Director Satya Nadella, in the first two months of the pandemic, the digital transformation suffered was equivalent to a two-year period. The company's data shows that in April 2020 more than 200 million meetings were performed through the Microsoft Teams program generating more than 4.1 billion minutes, with more than 75 million daily active users (Spataro, 2020). It was at the very beginning of the pandemic that the importance of digitalizing business was understood in order to survive the hostility of the crisis, having as its north the great appreciation of the Big Five, the world's largest companies, which are not occasionally in the technological sector

Since the emergence of the Internet, we seek to understand the relationships between this tool and the new forms of business as well as everything that encompasses it, namely, decision-making, strategies and internationalization process and pace (Bouwman, Nikou, & Reuver). The context has always been favorable to the development of the Internet, but its acceleration reached unimaginable levels during a pandemic, where digital tools were the only means of deviating from the measures imposed by social isolation. Even so, many spaces were left without concrete answers in the areas of international business, international entrepreneurship, international management and international marketing.

In Portugal, according to the National Communications Authority (ANACOM, 2020), data related to internet access, increased in the last quarter of 2020 about 25.6%, and compared to the same period of the previous year, and the increase in this navigation through PC/Tablet/pen /router reached 40.1%. The containment measures expanded the importance of the Internet, which became an environment of entertainment, information, communication, service provision, e-commerce, remote work, distance learning and even telemedicine (Cetic, NIC, & CGI, 2020).

Although the increase in internet use is visible in the European countries, Portugal is not going unharmed to the crisis, based on the services sector, and saw the economy decline 7.6% in 2020 and 3.3% in the first quarter of 2021 alone, according to Reuters (Gonçalves & Kobylinska, 2021). The use of digital artifacts is fundamental in the search for a resumption by the economy, where remote work is possible. However, this is just not enough.

In recent years, globalization has gained strength and led companies to seek process optimization and cost improvement in order to internationalize their value chains. This movement has led to increased industrialization of Asian countries such as China. In 2003, the country represented about 6% of the world's industrial aggregate, already in 2017 exceeded 23% (Lantau, 2020). We started to focus on certain parts of the globe, such as the electronics industry, and with the arrival of the pandemic we observe the standstill of several sectors around the globe that have become dependent on resources manufactured by the Asian countries. This is how the world has felt the domino effect, which began in China and has not returned to normality since then.

It is in this context that this work seeks to complement some gap left in the themes that link the digitalization and internationalization bringing the discussion to the actual Crisis of Covid-19 and seeking to understand how structural aspects of companies influence their strategies and, consequently, their performance and international growth during this period. The work was carried out with Portuguese companies already internationalized and founded since 2005.

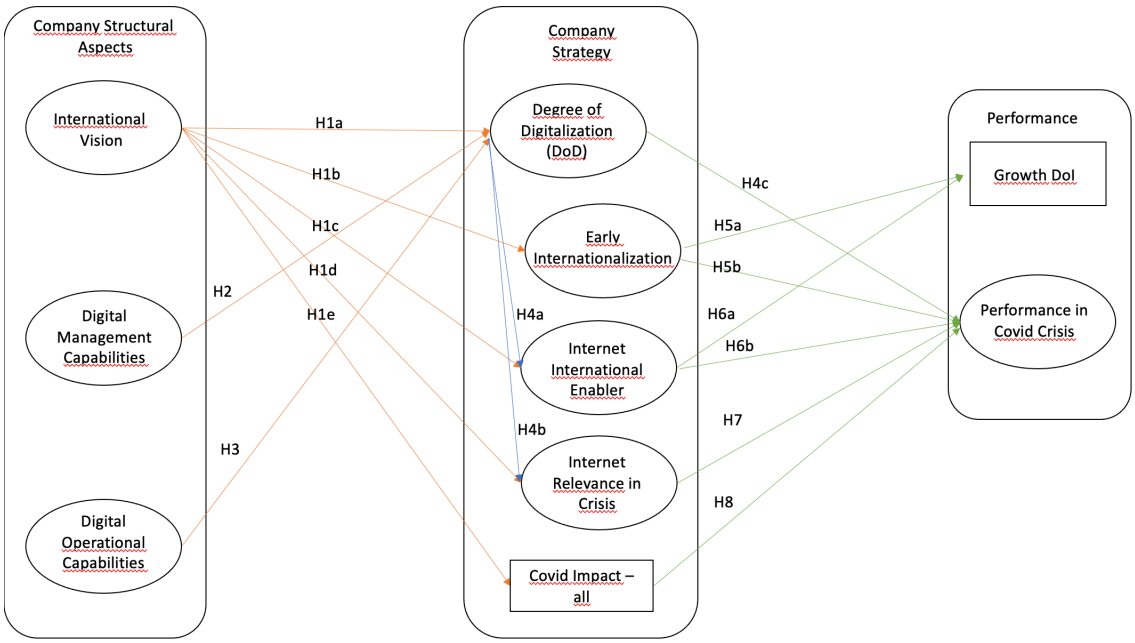

Figure 1- Conceptual Model

3.2 Research Hypotheses

3.2.1 Structural Aspects of the Company

A business model describes the logic of creating and capturing value by an organization (Osterwalder & Pigneur, 2012), thus being a structure that guides the formulation of strategies to be implemented, through organizational structures, processes, and systems (Osterwalder &

Pigneur, 2012). Therefore, the company's standards and characteristics are embodied in the organization itself. It is this way that the structural aspects are understood in this work: some characteristics implemented by the leaders or founders, in order to foster value, as well as to capture opportunities. In this case, three characteristics on digitalization and internationalization of companies were raised: international vision of managers/founders, digitalization of business management and operational digitalization of companies.

Early internationalization has been associated with the orientation of companies since its inception, and the International Vision (IV) is a managerial characteristic, part of the company's culture. This feature follows a pattern of harnessing guided opportunities through pro-activity by winning new markets through targeted strategies (Knight & Cavusgil, 2004; McDougall, Oviatt, & Shrader, 2003), encouraging points such as process digitalization and the search for new markets. According to Weerawardena, Mort, Salunke, Knight, and Liesch (2015), the international vision provides greater learning, which therefore leads to the development of dynamic capabilities. That said, the hypotheses raised related to International Vision are:

Hypothesis 1a: International Vision is positively related to Early Internationalization.

Hypothesis 1b: International Vision is positively related to the use of the Internet as a Enabler of Internationalization.

Hypothesis 1c: International Vision is positively related to the use of Internet Relevance in the middle of the Crisis.

Hypothesis 1d: International Vision is related to the positive impact of Covid-19 on companies.

Hypothesis 1e: International Vision is positively related to a higher Degree of Digitalization.

Chuang and Lin (2015) argue that the managers need to get used to digitalization so that, under cascading effect, such organizational culture can be introduced in a systemic way, influencing the structures, as well as the strategies and the results. In addition, the knowledge about the digital tools used by the company, makes the managers taking more risks regarding these same technologies, as well as finding solutions to improve them (Ukko, Nasiri, Saunila, & Rantala, 2019). Furthermore, the adaptation of the digitalization manager also involves the information

generated by technological artifacts that, well managed, help in the agility of decision-making, as well as in the development of strategies and valorization of the value chain. From this point of view, the following hypothesis are presented:

Hypothesis 2: The Digital Management Capabilities are positively related to the Degree of Digitalization of the company.

Digitalization is seen as a differential when it is established in the various parts of the value chain of companies, that is, from one end to the other. This digitalization is part of a well-structured and prepared organizational system, and it is also a tactical issue that increases the ability to deliver data to management, enabling the gain of time and knowledge of operations, as well as the reduction of uncertainties (Chuang & Lin, 2015; Ukko, Nasiri, Saunila, & Rantala, 2019). Therefore:

Hypothesis 3: The Digital Operational Capabilities are positively related to the Degree of Digitalization of the company.

3.2.2 Strategies and Results

The strategy is a guide to reach the goal, it is the definition of route to be followed, that is chosen by the managers/founders of the company, and afterwards leads it to a specific organization of business resources to to compete across the market (SEBRAE, 2019). That said, the strategy would reflect what the company's summit believes, how it positions itself and how it values every aspect of the progress of the business, as in this case: degree of digitalization of the value chain (Rosin, Proksch, Stubner, & Pinkwart, 2020; Guo, Yang, Huang, & Guo, 2020) and speed of internationalization (Weerawardena, Mort, Salunke, Knight, & Liesch, 2015). Therefore:

Hypothesis 4a: The Degree of Digitalization is positively related to the use of the Internet as a Enabler to Internationalization.

Hypothesis 4b: The Degree of Digitalization is positively related to the use of the Internet as a relevant factor in times of crisis.

Hypothesis 4c: The Degree of Digitalization is positively related to Performance during the Covid-19 Crisis.

Hypothesis 5a: Early Internationalization is positively related to the Growth of the Degree of Internationalization.

Hypothesis 5b: Early Internationalization is positively related to Performance during the Covid-19 Crisis.

However, the strategy is not static, it can also adapt to context changes generated in the markets, such as the Covid-19 pandemic. The rapid perception of the need for change, the almost immediate response to it and the most assertive decision-making as possible are factors that lead the company to circumvent unusual situations full of insecurity and undefinitions. In the specific case of the Covid-19 crisis, the internet turns to be an important tool to be used, nevertheless its inclusion and relevance in the market were already recognized (Sinkovics, Sinkovics, & Jean, 2013).

In addition, the use of the internet to leverage the internationalization processes (Sinkovics, Sinkovics, & Jean, 2013) has been studied for some time, demonstrating the ability to enter new markets faster, as well as increasingly promoting security and commitment through networks. As previously stated, using either strategy alone does not solve any problem, but a consistent use is what takes the company forward. In line with the previous argumento, the following hypotheses can be presented:

Hypothesis 6a: The Internet as a Enabler for Internationalization is positively related to the Growth of the Degree of Internationalization.

Hypothesis 6b: The Internet as a Enabler for Internationalization relates positively to Performance during the Covid-19 Crisis.

Hypothesis 7: The Relevance of the Internet in the Covid-19 Crisis is positively related to Performance during the Crisis.

The entire tangle of structural capabilities added to the strategies is what will result positively or negatively the company (Shirokova, Osiyevskyy, Laskovaia, & MahdaviMazdeh, 2020). This study seeks to observe the overall performance of companies from the respondent's perspective, as well as how the growth of the degree of internationalization between 2019 and 2020 impacted by the characteristics and decisions made in the course. Hence, it is possible to advance the following hypothesis:

Hypothesis 8: Covid's Overall Impact positively relates to Performance during the Covid-19 Crisis.

4 RESEARCH METHODOLOGY

This chapter addresses the methodologies used in this work for the focus research, which seeks to understand the relationship between the digitalization of Portuguese internationalized companies and their performance during the Covid-19 crisis. Despite the vast literature related to the subject, it was still possible to find gaps to insert research questions, encompassing them in the theories visited and enabling new paths within the subject.

The implementation of this research uses a quantitative method, which according to Sukamolson (2007) is the method that explains the phenomena through the collection of numerical data that are analyzed mathematically. Through this method it is possible to carry out immediate studies, guarantying the independence of the researcher, because it is external to the data and the phenomenon, enabling the exploration of theoretical structures and well-structured hypotheses (Queirós, Faria, & Almeida, 2017). On the other hand, it may not explain contextual issues with a great depth, even if it allows an easier access to groups and individuals and makes it impossible to have some flexibility in the most exploratory analysis (Queirós, Faria, & Almeida, 2017).

Data collection for the present study was performed through an online questionnaire directed to the top management of companies that have part of their business performed through online channels. The decision for a online survey was reinforced by the serious nature of the health hazard presented by the virus, also providing low cost and impartiality in the answers (Sukamolson, 2007). The questions ncluded in the questionnaire resulted from the topics covered by the literature review, cited at the beginning of this study, being operationalized by using scales already validated or adapted from previous studies to the recent nature of the theme.

4.1 Sample

The original sample of contacts was composed by all types of Portuguese companies, internationalized, which were founded from 2005 until today, and was obtained from Informa Dun & Bradstreet. A total of 4,318 companies fit this profile and present email for contact. An email was sent with the request for a response and more 5 reinforcements to obtain 315 responses, during 5 weeks starting in 2nd April.

4.2 Measures and Design of the Questionnaire

Given the quantitative nature of this work, the Likert-type scales (from 1-"Totally disagree" to 7-"Totally agree") were used to measure the answers, and the questionnaire was designed with the objective of collecting the necessary data concisely and assertively, so that the respondent's time was valued while the information was sufficient for a relevant analysis. The literature studied in the previous chapters helped the construction and adaptation of variables included in the questionnaire.

The questionnaire was organized into 6 sections, from A to F: section A included questions about the characteristics of the respondents; section B, was designed to obtain information about the characteristics of the company. The section C included questions regarding the level of digitalization of the company. Both variables *digital management capabilities* and *digital operational capabilities* were measured using, each one, a 3-item scale used by Ukko et al. (2019). The variable *degree of digitalization* was measured using a 7-item scale adapted from Guo et al. (2020).

Section D represented aspects related to the Covid-19 Crisis, such as results compared to previous years and internal tools that could possibly be influenced by this period of crisis.

The variable *overall impact of Covid-19* was adapted from a single item scale developed by Saebi (2017), where the respondent was asked about the impact of the Covid-19 crisis, compared to the company's situation just before the crisis. The answers were codified from 1-"Negatively affected, in a severe and harsh way" to 7-"Positively affected, in a strong way". The variable *growth of DOI (degree of internationalization)*, was also measured through a single item measure, using similar response anchors. On the other hand, the variable *internet relevance in crisis* was measured through a 4-item construct adapted from Sinkovicks et al., 2013.

The section E referred to questions that were related to the internationalization of companies. The variable *early internationalization* was operationalized through a 7-item measure, and the variable *international vision* was measured using a 5-item scale, both of them were developed by Weerawardena et al. (2015). The variable *internet as an international enabler* was measured using a 7-item scale adapted from Sinkovicks et al. (2013).

On the other hand, section F includes aspects related with performance. The variable *performance in Covid crisis* was measured using a 10-item scale that was adapted from Shirokova et al. (2020).

4.3 Data Collection, Participants and Procedures

The data collection took place through the LimeSurvey digital platform. The initial invitations and the subsequent reminders were sent by email directly to the companies. Before that, we built and revisited the questionnaire a few times in order to make it complete and at the same time fluid. The number of variables used in the survey was higher than the final model, since we wanted to guarantee the inclusion of some redundant variables for the possibility of some of the critical variables present some issues.

At the end of the period, 316 responses were obtained (initial response rate of 7,3%), but after cleaning the data, due to the inclusion of missing values in some responses or due to non-compliance with the selection criteria by the responding companies several responses were excluded. The number of final responses was 260, what translates into a final response rate of 6,0%.

4.4 Methods for data analysis

The data were collected through the Lime Survey, and then the IBM Software called SPSS was used, together with the AMOS software, for statistical analysis. Initially the table was "clean", where missing responses, resolution time below expected errors or non-adequacy to the initial rules imposed were eliminated.

According to IBM's own website (s.d.), SPSS is a software for advanced statistical analysis and AMOS enables, together with the software, the realization of structural equation modeling (SEM) in a simple way enabling the test of hypothesis that support relationships between complex latent variables, providing opportunities for insights. SEM has been widely used in academic research, especially in the areas of entrepreneurship, international business and international entrepreneurship. In addition, the tool allows a confirmatory approach instead of an exploratory one (Byrne, Structural equation modeling with AMOS: Basic concepts, applications, and programming., 2013).

It was through these tools that different techniques were performed, such as multiple regression, factor analysis and multivariate analysis of variances, among others, and can simultaneously

analyze different relationships while formulating a conceptual model that explains them (Aurelio, 2015).

5 DATA ANALYSIS AND RESULTS

The following chapter uses figures to identify characteristics of respondents and the companies included in the sample.

5.1 Characterization of Respondents and Companies

5.1.1 Characterization of Respondents

The respondents were characterized through the following particularities: age, gender, number of foreign languages known, educational level, position within the company, whether they were founders of the company and, finally, how long they work within the organization.

Initially, it was possible to notice on Figure 2 (p.58), that the respondents are concentrated in the range between 26 and 55 years: the age group between 36 and 45 presents the highest incidence (38%); followed by the range between 46 and 55 years (27%) and 26 to 35 (19%). After this, the ranges between 56 and 65 years (9%), 18 and 25 (4%) and between 66-75 (3%) followed. Gender, on the other hand, is represented by 42% of women and 58% of men, not obtaining answers outside the binary spectrum (Figure 3, p. 59).

The educational level on Figure 4 (p. 59), is represented mostly by respondents with the bachelor's degree (43%), followed by complete high school (16%), master's degree (15%) and post-graduation or specialization course (11%). The respondents with vocational courses is the next group (7%), flowed by the 9th Year (5%), respondents with the PhD (2%) and the 4th Year (1%) is less expressive. Still related to the educational question is the number of foreign languages (Figure 5, p. 60), 41% answered to have fluency in 2 foreign languages, followed by 30% who speak 1 foreign language, 18% speak 3 foreign languages. To a lesser extent, people who speak no foreign language represent 7%, and people that speak 4 and 5 languages represented, respectively, by 2% and 1%; and, finally, 6 languages, which was represented by 0.4%. According to Aurelio (2015), the international experience of the manager ends up influencing the company's trajectory at the international level, as well as its cultural knowledge about a given country and, consequently, its language, which also ends up being tied to a higher educational level.

Most of the answers obtained were given by the founders of the companies 54%, like we can see in Figure 6 (p.60), enabling closer answers to the organizational reality of the company, taking into account their proximity to the business. Complementarily, the time of the respondent in the company, visible on Figure 7 (p.61), the majority answered to work between 3 and 9 (48%) years long in the company, followed by the groups with a range between 9 to 12 years (17%), between 12 to 15 (15%), less than 3 years (14%), and 15 to 18 (6%).

The survey was mostly answered the following position, like we can see on Figure 8 (p.61) by Entrepreneurs (28%), other positions not mentioned in the survey (21%), Chief Financial Officer (12%), Chairman of the Board of Directors/CEO (9%), Administrator (8%), Manager (7%), Financial/Accounting Officer (5%) along with General or Executive Director (5%), followed by Marketing Director (2%) and Commercial Director (2%) and Export Director (below 1%).

The companies were analyzed about the following points: mode of entry (Figure 11,p.63), size of digital space (online) (Figure 12, p. 63), sector (Figure 13, p. 64), degree of internationalization(Figure 9, p.62), year of foundation (Figure 10, p. 62).

The entry mode is mostly portrayed by exports(70%), corroborating the work of Johanson and Vahlne (1977), which affirms the beginning of internationalization as a construction being initiated by export, followed in a smaller proportion by international agreements for the development of new products and services (14%), subcontracting of production abroad (6%), license agreements (4%), commercial offices (2%) and subsidiaries wholly owned by the company (2%), franchising contracts (1%) and subsidiaries held in partnerships, also known as Joint Ventures (1%).

The degree of internationalization is the data used to understand the proportion of internationalization of the organization and was operationalized as the percentage of foreign sales in total sales (of products or services). Thus, 20% of companies internationalize 90% to 100% of their sales of products or services; 17% internationalize up to 10%; 11% internationalize between 10% and 30%; in sequence, just over 8% internationalize between 30 and 40% and 70 and 80%; while 7% internationalize between 40% and 60% of their total sales.

The year of internationalization was analyzed in relation to the year of foundation of the company: therefore 47% of the companies internationalized since its foundation, followed by the ones that went to foreign markets during the 1st (22%) and 2nd year (9%); 7% of the companies stop working exclusively to the domestic markets in the 3rd year, followed by 6%

that internationalized after 6 years, 5% internationalized until the 4th year and 4% until the 5th year of existence.

From the participating companies, 65% are represented by the 3rd sector (trade and service); the industrial sectors are represented by 31% of the companies and the companies from the primary sector account for almost 4%. About 56% of the companies that answered the questionnaire have less than 10% of their business accomplished through online chanels, and 46% do not have any online participation. As opposed to this, 20% of companies have 90 to 100% of their business accomplished due through online chanels. Also, 6% of companies obtain between 10 and 20% in online chanels; 4% have between 70 and 80% of their sales via online, followed by a less expressive percentage between of companies between 20 and 70%.

Regarding the number of employees before (2019) and after Covid-19 (2020), 39% of the companies kept their employees, 30% of the companies lost part of them, and 31% acquired more intellectual capital during the period.

5.2 Initial Data Screening

5.2.1 Missing Values

Within the program responsible for the survey, the LimeSurvey, all questions were mandatory, thus no errors related to missing values exist in the final database.

5.2.2 Descriptive Analysis Measures

The descriptive analysis aims to summarize and provide relevant information about the data (Selau, N/A). In this work, we used as descriptive measures: mean standard deviation, asymmetry, and kurtosis presents in appendix 9.1.

5.2.3 Outliers

Known for causing anomalies in results, outliers differ drastically from the rest of the set and can skew results (Watercolor, 2017). First, the way to check outliers was the response time, which eventually excluded 25 participants. Then, the premises of the answers were investigated, as the case of the company being founded from 2005 until today and if it is already internationalized. Another factor analyzed was the repetition of responses, which removed 3 more participants, who also presented lack of engagement.

5.2.4 Normality

According to Kline (2005) problems with normality are identified when asymmetry has values greater than |3| and the kurtosis greater than |10|. Thus, all the values are within the normal range.

5.2.5 Non Response Bias

To find possible sampling biases, a comparison was made between the average filling times of the questionnaire between the first 75% of the responses and the last 25%. The average times are very similar, what suggests that there are not significant problems of non-response bias.

5.2.6 Common Method Bias

To assess possible common method bias, the Harman's one factor method was used. For this test, all variables presented in the model were included in an exploratory factorial analysis. Common method bias could be a problem is only one factor emerges, or if the first factor explains more than 50% of the variance. The result did not suggest any problem, since 8 factors with eigenvalues above 1 appear, and the first factor explains about 29% of the variance.

5.3 Assessment Of Measurement Model

5.3.1 Reliability

To calculate the reliability of the questionnaire, we used Cronbach's alpha coefficient and composite reliability, which in this case are analyzed in all constructs. According to Vieira (2015), Cronbach's alpha value for all constructs should be above 0.70. We found that our data is reliable, because all the Cronbach's alphas performed above 0.70. The lowest value was presented by International Vision and Early Internationalization (alpha = 0.936). As for the composite reliability. The minimum value presented was 0.877 (digital operational capabilities).

5.3.2 Convergent Validity

Convergent validity is the significant relationship between the items of the same construct, or related constructs used in the conceptual model, using different methods or evaluation instruments (Pasquali, 2003). To assess validity, the items should present loadings above 0.60-

0.70 (Bagozzi & Yi, 2012; Garver & Mentzer, 1999). In appendix 9.4. e 9.3 all constructs and items are above the recommended threshold, with 0.63 as the lowest value (Crisis_Imp_7) and 0.94 as the highest value (Crisis_Imp_1), both in the latent variable Performance With COVID-19 Crisis.

5.3.3 Discriminant Validity

Divergent or discriminant variable presents the degree to which one measure does not correlate with others of which it is previously assumed to differ (Sanchez & Sarabia, 1999) The mean of the extracted variance (AVE) was measured in all constructs in this study, with the objective of evaluating discriminant validity. Subsequently, the correlation of each pair of construct was compared with square root of AVE. Thus, Fornell & Larcker (1981) bring in their work as accepted values for AVE those above 0.50. In the present study the AVE ranges between 0.53 and 0.77. Complementarily, the square root of AVE for each contruct was higher than the estimated values of the correlations between pairs of variables (Hair et al., 2009; Ping,2004; cited by Aurelius, 2015). Therefore, the discriminat validity was guaranteed.

5.3.4 Overall Fit

The measurement model is evaluated by analyzing if the data are adjusted to the chosen model, thus using absolute and incremental adjustment indexes (Bagozzi & Yi, 2012; Hair, Black, Babin, & Anderson, 2009). Thus, several indexes were used to validate the data, providing the confirmation of the minimum quality required. The first to be used was the chi-square statistic (χ^2) where the p-value (Probability Value) is 0.000. This low value (<0.05) shows that the effect is great or that the result is of great theoretical, clinical or practical importance, since it rejects the null hypothesis, so the results are statistically significant (Davis, 2021; Bagozzi & Yi, 2012).Another important index is the normed chi-square (χ^2/df) which represents the statistical χ^2 adjusted according to the degree of freedom, and it is necessary to be lowered from 2.0 (Hair, Black, Babin, & Anderson, 2009)the value found was χ^2/df=1.787.

The Root Mean Square Error of Approximation (RMSEA) indicates how far the hypothetical model is from the perfect model, and it is ideal to be below 0.05 (Xia & Yang, 2018) or 0.06 (Bagozzi & Yi, 2012; Hair, Black, Babin, & Anderson, 2009), also having MacCallum, Browne, & Sugawara (1996) considered that values between 0.05 and 0.10 are fair and above 0.10 represent mediocre models. The value found in this study referring to RMSEA was 0.055, which indicates an appropriate adjustment model. The Goodness-of-Fit index evaluates the

adjustment between the hypothetical model and the covariance matrix obtained and should be greater than or equal to 0.8 (McDonald & Ho, 2002), a value also surpassed at work (GFI=0.809).

On the other hand, the NFI, CFI and IFI incremental indexes were also used. The Normed Fix Index (NFI), also known as Bentler and Bonnet's Normed Fit Index, measures the quality of fit by comparing the interest model with a completely unrelated variable model (Ullman, 1996), and values above 0.9 (Bagozzi & Yi, 2012; Hair, Black, Babin, & Anderson, 2009) or even 0.80 are adequate (Forza & Filippini, 1998). In our measurement model the NFI=0.873. Another incremental measure used was comparative fit index (CFI) that compared two models, the hypothetical, and a simple version, to the same data, ranging from 0.0 to 1.0, with the cutoff point exceeding 0.9 (Hair, Black, Babin, & Anderson, 2009), the value found was CFI=0.939. Related to CFI, there is the Incremental Fit Index (IFI), comparing the adjustment to two models with the same data, only now with uncorrelated variables, and the cutoff point is also 0.9 (Byrne, 2013). The value found was IFI=0.940. Finally, the Parsimony Goodness-of-Fit Index (PGFI) is based on the adjustment of the GFI to the loss of degree of freedom while assessing the complexity of the model, being acceptable values above 0.50 (Aurelio, 2015). The value that we found was PGFI=0.696. The values found in the above indexes indicate the high quality of the adjustement of the data to this model, although the NFI of 0.873 is not consensual, since some authors consider values above 0.9 as ideal. Still, all other indexes indicate a good adjustment of the data and the model.

Tabela 1- Goodness-of-fit of Measurement Model

x^2=1389.166	p=0.000	df=777	x^2/dF=1.787	
RMSEA=0.055	NFI=0.873	IFI=0.940	CFI=0.939	GFI=0.809

5.4 Assessment of structural model.

5.4.1 5.4.1 Overall fit

The same procedures performed in the model of measurement were used to analyze the structural model to better understand the adjustment of data to constructs. Most of the values have reached the desired minimum, making the structural model showing a good adjustment just like the measurement model. The RMSEA found in the structural model was 0.056 and was below the expected 0.05~0.06. The χ^2/df (χ^2=1573, 052/df=871) resulted in 1.806, being

within the desired value (<2.0). The NFI found, as well as in the model of measurements, is above 0.8, presenting the value of 0.860, as well as the IFI (=0.932), the CFI (0.932), the PGFI (=0.699) and GFI (=0.767) above the 0.50 bordering. Therefore, a well-adjusted model is presented, within the expected standards.

Tabela 2- Goodness-of-fit of Structural Model

x^2=1573.052	p=0.000	df=871	x^2/dF=1.806	
RMSEA=0.056	NFI=0.860	IFI=0.932	CFI=0.932	GFI=0.767

5.5 Analysis of the Results

In the conceptual model, three main points were addressed: structural aspects, strategies and results. As for the structural aspects, the model included variables related with the management of the company were observed, namely the digital management capabilities, digital operational capabilities, and international vision. On the other hand, with the first set of structural aspects observed are related with several strategic variables, namely: early internationalization, the Internet as a Enabler of Internationalization, the Internet as a Relevant Factor in the Middle of the Crisis, the degree of digitalization and, finally, the only non-latent variable, the overall impact of COVID-19 on companies. To conclude, the results are measured by using the variables performance during the crisis and degree of Growth of the Internationalization of companies between 2019 and 2020.

Table 3 – Structural Model Results

STRUCTURAL MODEL RESULTS									
Path			Estimate	S.E.	t-value	P Label	R2	Hyp.	Result
International_Vision	→	Degree_Digitalization	0,169	0,058	2,941	0,003		H1a	sim**
International_Vision	→	Early_Internat	0,953	0,073	13,128	***		H1b	sim***
International_Vision	→	Internet_International_Enabler	0,466	0,068	6,816	***		H1c	sim***
International_Vision	→	Internet_Relevance_crisis	0,642	0,096	6,669	***		H1d	sim***
International_Vision	→	COVID_Imp_all	0,167	0,074	2,247	0,025	**0,74**	H1e	sim*
Digital_Management_Capabilities	→	Degree_Digitalization	0,245	0,112	2,189	0,029	**0,2**	H2	sim*
Digital_Operational_Capabilities	→	Degree_Digitalization	0,532	0,112	4,733	***	**0,47**	H3	sim***
Degree_Digitalization	→	Internet_International_Enabler	0,032	0,061	0,528	0,598		H4a	não
Degree_Digitalization	→	Internet_Relevance_crisis	0,224	0,09	2,473	0,013		H4b	sim*
Degree_Digitalization	→	Performance_w_Crisis	-0,048	0,079	-0,604	0,546	**0,05**	H4c	não
Early_Internat	→	Growth_DOI	0,484	0,192	2,522	0,012		H5a	sim*
Early_Internat	→	Performance_w_Crisis	0,141	0,071	2	0,045	**0,16**	H5b	sim*
Internet_International_Enabler	→	Growth_DOI	0,543	0,271	2,002	0,045		H6a	sim*
Internet_International_Enabler	→	Performance_w_Crisis	0,013	0,093	0,135	0,892	**0,12**	H6b	não
Internet_Relevance_crisis	→	Performance_w_Crisis	0,015	0,059	0,257	0,797	**0,02**	H7	não
COVID_Imp_all	→	Performance_w_Crisis	0,498	0,062	8,07	***	-	H8	sim***
Early_Internat	→	Growth_DOI	0,484	0,192	2,522	0,012	-	-	(n.s.)

Note: *** p<0,001; ** p<0,01: * p<0,05

The results show that all the hypotheses 1 were confirmed. Therefore, the international vision is positively related with the degree of internationalization (H1a: ß=0.95;p<0.001), with early internationalization (H1b: ß=0.47; p<0.001), with the use of internet as an international enabler (H1c: ß= 0.64;p<0.001), with the relevance of internet during the crisis (H1d: ß=0.17; p<0.05), and finally with the overall impact of Covid-19 crisis (H1e: ß=0.17; p<0.01). Considering the diverse relationships, the independent variables account for 60% of the variance of early internationalization, 28% of the variance of internet as international enabler and 30% of internet relevance during the crisis.

The hypotheses 2 (ß= 0.25; p<0.05) and 3 (ß=0.53 ;p<0.001) are also statistically significant. The comparison between the streght of both relationships highlights that the digital operational capabilities is more relevant to the degree of digitalization than the digital management

capabilities. Therefore, it seems that the first has a stronger impact on the level of digitalization of the firm.

Both hypotheses H4a (ß=0.32; n.s.) and H4c (ß=-0.48; n.s.) were non statistically significant, then, the degree of digitalization neither influence the Internet as a relevant factor of internationalization, nor influenced the performance in the COVID-19 crisis. On the other hand, the H4b hypothesis was significant (ß=0.013; $p<0.05$), showing a positive influence of the degree of digitalization in relation to the relevance of the Internet in times of crisis.

The hypotheses H5a (ß=0.48; $p<0.05$) and H5b (ß=0.14; $p<0.05$) were statistically significant. Hence, the early internationalization of companies influenced both the growth of the degree of internationalization between 2019 and 2020, as well as the performance during the crisis period. The precocity of internationalization opens space for business growth in a short-term period, along with digitalization, and translates into higher performances during the Covid-19 crisis period.

The hypotheses H6b (ß=0.13; n.s.) and H7 (ß=0.80; p>n.s.) were not significant, so the Internet as enabler of internationalization as well as the relevance of the Internet do not influence the performance within the crisis Today, having internet is not differential and the pandemic has demonstrated this, pointing out the limitations we have in relation to the subject, as well as the complexity of sectors and areas that have not been strongly affected by digitalization, such as telemedicine, for example. The hypotheses H6a (ß=0.54; $p<0.05$) and H8 (ß=0.50; $p<0.001$) were significant, reinforcing that the Internet as a enabler of internationalization positively implies the growth of the degree of internationalization, and the overall impact of COVID has a positive influence on the performance of companies in the crisis period. Considering the different variables that are related with the performance in Covid crisis, about 24% of its variance is explained.

6 DISCUSSION OF FINDINGS

The aim of this chapter is to discuss the findings of empirical research, highlithing the main contributions of the study to the field of internationalization and digitalization of companies. The main objective of this study was to better understand how aspects of internationalization and digitalization of companies interfere in the results obtained in the atypical period of the Covid-19 pandemic. For this, 10 variables collected from previously established studies were used to understand how internationalized Portuguese companies behaved in the analyzed

period. These variables were divided into 3 distinct groups: structural aspects, strategies and results. The majority of the hypotheses (75%), were statistically supported by the study.

Crespo, Simões, & Fontes (2020) also establish some connections between strategy and performance in international new ventures, demonstrating that it is necessary a range of activities that start from culture and a system of shared values. They also include resources and capabilities as factors that affect performance (Grant, 1991; Mahoney & Pandian, 1992), the latter being known in this work as structural aspects (International Vision, Digital Management Capabilities and Digital Operational Capabilities).

In this study we found that one structural aspect, the variable "International Vision", is very relevant for the degree of internationalization, early internationalization, the internet as an enabler, the internet relevance in crisis, and the overall Covid impact, corroborating the idea that resources, capacities and values positively impact on strategic aspects. The International Vision is influenced mainly by the personality of the founders, which impose an impressive pace in the company's processes that eventually lead to internationalization processes, independently of the time and the proportion of international sales on overall sales (Johnson, 2004).

Although it is known that strategy is an important factor for the performance of companies, the type of strategy to be used is not yet part of a consensus, being seen as dependent on the context. Ukko et al. (2019) affirm in their work that digitalization drives companies to seek new strategies and, therefore, end up forcing companies to digitalize themselves end to end, that is, from management to operation. This is how strategies and digital transformation have altered the business environment through processes, capabilities, operational routines and integration with the company's corporate strategy (Ukko, Nasiri, Saunila, & Rantala, 2019). According to Vadana (2019), competitive advantage is even more valued when they integrate the main parts of the value chain (creation, production, marketing, sale, delivery and support) to the digitalization process, and these companies are given the name "Born Digitals".

Thus, strategy is considered a complex factor, that varies from one company to another (Rialp, Rialp, & Knight, 2005). In this case, as the focus is internationalized companies, the international vision strongly influences the strategic factors considered (internet as a relevant factor during the crisis, internet as a enabler of internationalization, degree of digitalization, overall impact on the crisis and early internationalization).

On the other hand, we found that digital capacities, operational and managemental, both have a positive influence on the degree of digitalization, and the operational aspects are more

impactful than the managemet aspects. Thus, technologies within the management environment are seen, already incorporated into the routine in most companies. On the other hand, the digitalisation capacity of the operational part is considered a differential factor, especially when approached by small and medium-sized enterprises representing 99% of the respondents of this work and of the companies present in the European environment (European Parliament, 2021). Mane (2018) in his work discusses the ambiguity of digitalization, considering that MSMEs (micro small and medium-sized enterprises) are far from the conceptual ideal of digitalization, since the cost of absorbing technology is too high to keep up with large and technological companies, although sometimes it is already a differential factor within these.

As for the degree of digitalization, it was possible to validate the hypothesis that the Internet was a relevant factor in the midst of the crisis, that is, the higher the degree of scanning, the easier it was to use this technology as a strategy to get out of it. Ricarte (2020) identified a large growth of data traffic between the months of March and May 2020, the first three months of pandemic, in relation to the same months of the previous year, which shows an increase of 6.88% in Portugal (33rd country with the highest data traffic). In addition, not only companies with a higher degree of digitalisation used the internet to get out of the crisis, but SMEs made an even greater effort because they usually operate in sectors considered to be very offline, such as tourism that accounted for about 19.1% of Portuguese GDP(World Travel and Turism Council, 2019) In agreement with (Faraj, Renno, & Bhardwaj, 2021) the internet is the main gateway to digitalization, even if it is just the top of an iceberg, what can make difference for the SME..Guo et al. (2020) reinforces the need for digitalization of companies, especially in times of crisis, where there is the possibility of a faster reaction, especially when related to dynamic capacities, providing a rapid perception of adverse events, as well as faster decision-making to cope with crisis.

In this same topic, the degree of digitalization did not present statistical significance regarding the use of the Internet as a means of internationalization; and also the performance during the crisis, a factor that was expected to be positive. In a survey conducted by ManpowerGroup (2021) it was found that 30% of Portuguese companies accelerated the digitalization process in order to respond to the pandemic, while 16% chose to suspend digitalization projects. In the same survey, 90% of companies that have chosen to speed up processes are planning to maintain or increase the number of employees, while only 3% intend to reduce the number of employees.

Not only during the pandemic, but in previous years, ManpowerGroup (2021) identified a positive relationship between automation and job creation, contrary to the more pessimistic views related to the taking of spaces by technology. However, the discrepancy in the educational level of those seeking employment and the opportunities offered have increased significantly. Portugal, although it has committed itself to digitalization, is among the 10 countries that will automate less in this period (Manpower Group, 2021).

Large companies are the ones that want to digitalize and hire more, while the smaller ones also more affected by the pandemic, tend to suspend projects and have smaller hiring plans. Digitalization is a strong ally of internationalization, but it is not a decisive factor for the success of the operation, which demands a mixed set of characteristics and actions to achieve good results, as seen in the revisited Upspala Model, which demonstrates the need to understand several factors beyond the positioning of networks, and not simply their existence in the virtual world (Soares, 2013).

The early internationalization was positively related with both result variables, the growth of the degree of internationalization and performance during the crisis. The terms Born Global and Born Digital were revisited, used to represent the internationalization of smaller companies and early internationalization, usually of technological basis, but not restricted to these activities (Ribeiro, Jr., & Borini, 2012). These firms presented specific behaviors, for instance they usually show a flexibilitycharacteristic, which allows these companies to quickly adapt the needs and obstacles encountered (Villegas, Mercedes, & Hans-Dietrich, 2017). The authors also point out that flexibility allows the dynamics of the design of small and medium-sized enterprises that integrate more easily into value chains, leading them to achieve higher growth, also generated by the simplification of decision-making processes, proximity to operational and organizational levels, being considered a new ideal model. The connection between early internationalization and results is based on this flexibility and adaptation, together with the gain of experience, through trial-error perspective, that through their activity in international markets granted to the company tools to understand more quickly the moment of crisis and, consequently, adapt to it (Chang, Jaw, & Chiu, 2012).

On the other hand, the growth can also be understood by looking at the beginning of this internationalization, which usually occurs on a small scale, thus opening up opportunities for expansion, overcoming negative factors such as the inexperience and age of the company (Weerawardena, Mort, Salunke, Knight, & Liesch, 2015). Another factor that impacted the growth of the degree of internationalization was the use of the Internet as a enabler of

internationalization, which followed the same reasoning explained above, where the internet was a enabler, which together with other factors positively influenced the growth between 2019 and 2020.

The other latent variables considered as strategies (internet as enabler of internationalization, internet as a relevant factor in the midst of the crisis and degree of digitalization), did not present statistically significant results in relation to performance during the period, and can be attributed to several factors, such as the size of the respondent company together with the branch of activity in question, the cultural aspects of the country to be internationalized and the impact of the crisis on it, as well as public policies to reduce the negative impact.

7 CONCLUSION, IMPLICATIONS, LIMITATIONS AND FUTURE RESEARCH

7.1 Conclusion

The main objective of this work was to understand whether digitalization in international companies - considering structural aspects, strategies and results - positively influenced the performance during the Covid-19 crisis. The motivation for this research appears from the current perception that during this crisis period there was an even greater digitalization of business, namely by using the internet applications as an attempt to circumvent the negative impact caused on companies by the government initiatives to contain the spread of the virus, such as isolation and social distancing.

Much is said about the increase in the dynamics of internationalization processes, given the wide range made possible by the introduction of the internet and digital tools in business, functioning as a stimulus that creates opportunities, changes in new contexts and paths to new skills (Vadana, 2020). These artifacts allowed the emergence of new types of companies studied together under the perspective of internationalization, as in the case of Born Globals and Born Digitals. Digitalization, for example, offers the power to servitization, that is, to make the service more important than product (Fank, 2015), making it the best tool to keep business in times where the distance is mandatory.

Although digitalization is mostly studied as a favorable argument for business, in times of crisis, what tends to have an effect, may not solve problems, so the rule becomes an exception. At this point, it is necessary to stick to details, to identify problems quickly and creative solutions that are more appropriate to the context of crisis are put into practice.

First, the present work sought to understand how structural aspects are related to strategies, and to understand how the latter relates to results, namely performance during the crisis and the growth of internationalization in the period between 2019 and 2020. Thus, a direct relation of the International Vision (structural aspect) with all strategies (Internet Enabler Internationalization, Internet Relevance in Crisis, Degree of Digitalization, Early Internationalization and Covid Impact All) was observed. On the other hand, the digital management and operational capabiliities (also structural aspects) proved to be a set of factors with the same behavior in different degrees, where managerial digitalization no longer seems to be a differential factor, and the operational capabilities for digitalization is even more relevant to define the degree of digitalization, that is, to have a high degree of digitalization it is important that the entire value chain is digitalized and not only a part of it, in line with the arguments of Vadana (2020). In relation to the results, only one strategy had an impact on performance during the crisis, the Early Internationalization (strategy) of companies. The work was based on small and medium-sized enterprises (99% of respondents), which are recognized for using more digital business models that allow cheaper internationalization even if risky due to the size of companies. While through trial-and-error processes, they end up acquiring knowledge, an essential factor for Johanson & Valhne (2009) and, consequently, to survive and increase their internationalization. Thus, companies with International Vision and Early Internationalization end up performing better during the crisis, mainly by identifying problems and making decisions more quickly, given the flexibility and intrinsic adaptability of this type of company. On the other hand, it was expected that companies that presented a higher degree of digitalization performed better, following what happens in periods considered "normal". This result was not found, and it can be said that the crisis changed norms and standards (Guo et al., 2020), and the Portuguese context may require more than technology for a better performance in this crisis period.

This result was contrary to the one found in the work of Guo et al. (2020), who identified digitalization as an important tool for the management process during the Covid-19 period. A possible explanation may be related with the population age structure. Technology should be absorbed by consumers, but since Portuguese population is very aged, that can negatively interfere in the success of business digitalization. Moreover, usually when a moment of uncertainty and unpredictability begins, the first thing to do is to cut expenses, causing the planning to scan the business more deeply to be postponed, remaining with a slightly lower degree of digitalization, and influencing the sales of the most digitalized. Still, according to

Vuori et al. (2018), technology can positively or negatively impact on work performance, depending on the situation. Being aspects that lead to low workers' income factors such as information overload, always connected mode, time management challenges, procrastination, and technical problems. These aspects were strongly influenced during the crisis, where the obligation to stay away from everything and everyone, physically and psychologically affected all individuals on a global scale (WHO, 2020).

In relation to growth from 2019 to 2020, about 13% of the companies grew more than 10%, most of them in the following sectors: industrial, engineering and construction material (35.29%), clothing and footwear (23.53%), food and beverage (17.65%), computer and technology (8.82%), marketing, advertising and design (5.88%), followed by logistics (2.94%), pharmaceutical (2.94%) and culture and tourism (2.94%). Only 5.77% of the companies did not show growth and 73% showed a growth less than 1%. This factor was influenced by two strategies, early internationalization and the Internet as a Enabler of internationalization, that is, it was through the tools used for internationalization that the growth of companies was made possible, even in crisis.

In addition, although all economy has been affected by the crisis, the way it attacked each industry was different. Tourism, for example, was not able to maintain their activities, and cannot circumvent the existing limitations to mobility, while commerce, for instance, was able to continue operating. Therefore, it is necessary to make a search more focused on sectors, so that it is understood individually how it affects and how these obstacles were solved.

7.2 Implications

This research was carried out in the field of internationalization and digitalization of companies, using the theory of network-based internationalization: the revisited Uppsala Model, Born Global and Born Digital theories. The objective was to understand their behavior during the crisis, as well as contrast the results with the results found in previous research. Thus, the research sought to fill gaps in the respective fields of research, internationalization and digitalization, as well as the performance of companies according to the established structures and strategies used for each context in which they are located.

Studies related to the internationalization of companies seek, mainly, to understand the way the internationalization process occurs, including the question of time of internationalization, as well as the mode of entry. The performance issue is usually neglected, when addressed under the aspect of digital business model, even cited as a limiting factor by

Chi et al. (2011). Another gap found in the literature is related to the location of the researches, which ends up limiting the studies to a given region and culture.

The present study analyzes different possible paths implemented in times of crisis, showing to be contrary to previous studies such as Guo et al. (2020) that maintains the positive influence on the performance of companies driven by digital factors. It emphasizes the need to better understand each crisis and the reality of each location so that more specific strategies are designed for each sector and region. So, Vuori et al. (2018) brings in its work the idea that few rules are generally adapted, highlighting specific and particular points for the success of each company, moving away from the ideal of a unique "recipe".

Then observing the digitalization, we must understand that it is a continuous target, and what yesterday was the differential, today is just the basics. Having internet, being on social networks, having a website, is no longer enough to create differentiation or being a differentiated service. The way you connect with the customer and how to call it to your online environment is more critical. In fact, the Internet ends up enabling internationalization, as seen in this work, and the early internationalization allows growth through a more assertive construction in the following periods.

Thus, it is important to remember that digitalization is a necessary strategy, although in this work it was not a decisive factor for a good performance. However, to understand that one cannot stop after reaching the planned strategy, but rather continue seeking evolutions to always remain active in search of opportunities, visibility, and relationship, as well as the need to quickly understand the context in which one lives so that decision-making is fast and more assertive, allows firms to have greater adaptability and flexibility at any moment.

7.3 Limitation and Future Research

The main limitation found in this work was the inclusion of companies from different industries and not only from one. Given the moment of crisis, there was a need to obtain many responses, which could be held hostage of a small number of responses if only one industry was selected. Another point to consider is related with the different types of technology used in each sector. This research obtained a general view of the digital artifacts used is several industries, but if only companies of a sector or a small number of sectors was included in the sample, we would obtain more faithful conclusion to the reality of companies. Therefore, future research could differentiate different types of sectors, to adapt the digitalization artifacts to

those specific sectors. It could be also relevant to compare the results of this study with a similar study carried out after the end of Covid-19 pandemic crisis.

Portugal is a country that has different characteristics from other European countries, either because of its history or because of other factors such as political and economic. But is also a country that was still suffering the consequences from the global economic crisis of 2008, when it was hit by this new crisis. So, despite it is a propitious environment for studies that deepen the issues of crisis management and solutions, in order to bring better examples about attitudes, resilience and exit from difficult moments, the comparison with different countries is a natural extension of this research.

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9 APPENDIXES

9.1 Appendix 1: Descriptive Analysis of Measures

TABLE

Tabela 4- Descriptive Analysis of Measures

Descriptive Statistics of Measures					
Construct	Items	Mean	Standard Deviation	Skweness	Kurtosis
Age	-	43,39	10,355	0,338	-0,002
Number of Languages	-	1,83	0,995	0,582	1,248
Founder	-	0,54	0,499	-0,171	-1,986
Tenure	-	7,51	4,1517	0,311	-0,772
Foundation Year	-	2011,01	3,686	0,104	-1,021
Number of workers - preCOVID	-	29,07	72,956	10,181	125,611
Number of workers - postCOVID	-	28,61	77,309	11,142	146,23
Internationalization Year	-	2012,62	3,592	-0,05	-0,936
Offline	-	53,43	44,9168	-0,147	-1,832
Online	-	30,177	40,21013	0,862	-1,025
DIGITAL MANAGEMENT CAPABILITIES	MngCap_1	5,83	1,251	-1,207	1,542
	MngCap_2	5,96	1,157	-1,29	1,796
	MngCap_3	6,04	1,159	-1,517	2,559
DIGITAL OPERATIONAL CAPABILITIES	OpCap_1	5,71	1,276	-1,1	1,248
	OpCap_2	5,69	1,324	-1,032	0,747
	OpCap_3	5,67	1,356	-1,024	0,814
DEGREE OF DIGITALIZATION	GDD_1	5,65	1,334	-0,968	0,439
	GDD_2	5,41	1,573	-0,827	-0,203
	GDD_3	5,48	1,531	-1,015	0,465
	GDD_4	4,31	1,907	-0,204	-1,025
	GDD_5	4,52	1,813	-0,368	-0,874
INTERNET RELEVANCE FOR CRISIS	Internet_Rel_1	4,45	1,925	-0,418	-0,769
	Internet_Rel_2	4,67	1,861	-0,532	-0,578
	Internet_Rel_3	4,44	1,935	-0,342	-0,854
	Internet_Rel_4	4,32	1,906	-0,322	-0,847
INTERNET INTERNATIONALIZATION ENABLER	IIEnabler_1	6,03	1,287	-1,512	2,106
	IIEnabler_2	5,36	1,502	-0,662	-0,271
	IIEnabler_3	5,17	1,588	-0,672	-0,029
	IIEnabler_4	4,97	1,693	-0,532	-0,395
	IIEnabler_5	5,16	1,525	-0,696	0,098
	IIEnabler_6	5,48	1,388	-0,889	0,627

	IIEnabler_7	5,27	1,546	-0,799	0,216
EARLY INTERNATIONALIZATION	Early_Int_1	5,66	1,489	-1,328	1,654
	Early_Int_2	4,98	1,818	-0,785	-0,174
	Early_Int_3	4,5	1,832	-0,442	-0,575
	Early_Int_4	4,94	1,734	-0,71	-0,268
	Early_Int_5	4,74	1,766	-0,578	-0,444
	Early_Int_6	4,98	1,637	-0,768	0,085
	Early_Int_7	5	1,71	-0,662	-0,21
INTERNATIONAL VISION	Inter_Vision_1	5,31	1,48	-0,88	0,665
	Inter_Vision_2	5,28	1,5	-0,89	0,709
	Inter_Vision_3	5,29	1,422	-0,707	0,457
	Inter_Vision_4	5,56	1,439	-1,112	1,249
	Inter_Vision_5	5,58	1,424	-1,066	1,093
PERFORMANCE WITH CRISIS	Crisis_Imp_1	3,85	1,63	-0,079	-0,735
	Crisis_Imp_2	3,9	1,554	-0,087	-0,584
	Crisis_Imp_3	3,87	1,504	-0,023	-0,259
	Crisis_Imp_4	3,9	1,562	-0,028	-0,412
	Crisis_Imp_5	4	1,732	0,003	-0,85
	Crisis_Imp_6	3,95	1,475	-0,044	-0,141
	Crisis_Imp_7	3,96	1,443	-0,173	-0,24
	Crisis_Imp_8	3,95	1,542	-0,152	-0,226
GROWTH DEGREE OF INTERNATIONALIZATION	Growth_DOI	3,8620416	4,14529238	1,359	0,91
COVID IMPACT ALL	COVID_Imp_all	3,32	1,398	0,406	0,119

9.2 Appendix 2: Common-method Bias

TABLE – RESULTS OF HARMAN'S ONE FACTOR TEST

Tabela 5- Results of Harman´s One Factor Test

Factor	Eigenvalues	% of Variance	Cumulative %
1	12,487	12,487	28,380
2	5,447	5,447	40,761
3	4,190	4,190	50,284
4	3,072	3,072	57,265
5	1,872	1,872	61,519
6	1,260	1,260	64,383
7	1,172	1,172	67,047
8	0,820	0,820	68,910

9.3 Appendix 3: Convergent Validity

TABLE – ITEMS FACTOR LOADINGS

Tabela 6- Items Factor Loadings

ITEMS FACTOR LOADINGS			
Relatório	**Variável**	**T-VALUE**	**STANDARDIZED FACTOR LOADINGS**
Management Digital Capabilities	A gestão da empresa está familiarizada com as ferramentas digitais.	16,657	0,81
	A gestão da empresa tem uma clara visão sobre a utilização da digitalização no futuro.	20,586	0,922
	A gestão da empresa apoia a utilização da digitalização dentro da empresa.	-	0,879
Operational Digital Capabilities	A utilização da digitalização dos processos internos tornou-se numa parte importante do nosso negócio.	14,76	0,837
	A digitalização é uma parte natural do nosso negócio.	15,566	0,879
	A digitalização faz o nosso negócio crescer.	-	0,799
Degree of Digitalization	Utilizamos várias aplicações, ferramentas e equipamentos digitais.	12,891	0,89
	Utilizamos várias plataformas digitais que suportam produtos e serviços digitais.	12,889	0,918
	Utilizamos infraestruturas digitais, como ferramentas e sistemas tecnológicos.	12,968	0,924
	Utilizamos modelos de negócio completamente digitais.	17,542	0,677
	Utilizamos modelos de gestão completamente digitais.	-	0,679
Internet Relevance in Crisis	A internet melhorou a nossa capacidade de gerar encomendas de vendas no exterior durante a crise.	17,16	0,803
	A internet está a ajudar a nossa empresa a chegar a mais potenciais clientes estrangeiros durante este período de crise.	20,112	0,869
	As ferramentas da internet permitiram à nossa empresa receber consultas ou encomendas não solicitadas de clientes estrangeiros durante a crise.	22,444	0,916
	Usar as diversas ferramentas da internet para atingir mercados estrangeiros dá à nossa empresa uma vantagem competitiva sobre seus rivais durante este período de crise COVID-19.	-	0,897
Internet Internacional Enabler	A internet é uma forma barata de se comunicar com os clientes.	10,72	0,665
	Usar a internet para comercializar os nossos produtos e serviços em mercados internacionais reduz os custos gerais de marketing	11,195	0,691
	A internet ajuda-nos a ultrapassar os problemas associados à falta de tempo da gestão para se dedicar aos assuntos de exportação.	11,663	0,721
	A internet ajuda-nos a reduzir os custos financeiros associados à exportação	12,988	0,789
	No futuro vamos dedicar mais recursos ao nosso negócio online.	12,61	0,662
	A internet torna mais fácil ultrapassar os problemas associados à falta de conhecimento sobre os mercados internacionais.	-	0,794

	Graças à internet, as diferenças culturais entre nosso mercado e os mercados estrangeiros são menos relevantes.	12,432	0,758
Early Internationalization	Comercializou com sucesso produtos ou serviços em um ou mais mercados estrangeiros.	16,27	0,767
	Entrou com sucesso em vários mercados internacionais.	16,273	0,767
	Entrou em vários mercados internacionais num curto período de tempo.	14,537	0,72
	Aumentou as receitas da empresa em atividades internacionais.	21,217	0,873
	umentou a quota de mercado em mercados internacionai	21,246	0,873
	Aumentou da satisfação dos clientes em mercados no exterior.	-	0,914
	Estabeleceu um negócio viável devido às atividades no exterior.	20,65	0,861
International Vision	A cultura organizacional favorece a exploração ativa de novas oportunidades de negócios no exterior.	17,201	0,867
	A sua empresa relaciona o sucesso em mercados internacionais ao sucesso dos colaboradores.	14,536	0,813
	A empresa desenvolve os recursos humanos e outros recursos para atingir seus objetivos em mercados internacionais.	16,907	0,857
	Os gestores de topo estão dispostos a fazer grandes esforços para que nossos produtos ou serviços sejam bem-sucedidos em mercados estrangeiros.	-	0,845
	A visão e a motivação dos gestores de topo tem sido importante para as nossas decisões de entrar em mercados estrangeiros.	33,488	0,875
Performance with Crisis	Receitas das Vendas/Volume de negócios.	-	0,944
	Rendibilidade.	26,975	0,912
	Definição de preços.	13,628	0,748
	Valor médio das vendas.	25,989	0,902
	Nível de procura.	20,273	0,826
	Custos fixos da empresa.	14,457	0,696
	Custos variáveis da empresa.	12,266	0,628
	Entrada em novos mercados.	14,187	0,688
Growth Degree of Internationalization	Growth_DOI	-	-
COVID Impact All	COVID_Imp_all	-	-

9.4 Appendix 4: Discriminant Validity

Correlation Matrix and Discriminant Validity								
	1	2	3	4	5	6	7	8
DMC	**0,871555**							
DOC	0,771	**0,83897**						
DOD	0,633	0,685	**0,825587**					
IRC	0,21	0,295	0,352	**0,872301**				
IIE	0,3	0,236	0,247	0,518	**0,727551**			
EI	0,292	0,218	0,269	0,424	0,383	**0,82773**		
IV	0,404	0,366	0,428	0,502	0,513	0,771	**0,851676**	
PC	0,109	0,057	-0,011	0,107	0,112	0,208	0,177	**0,713165**
Note: The boldface scores on the diagonal are the square root of AVE								

9.5 Appendix 5 : Figures

Figure 2 - Age of the respondent

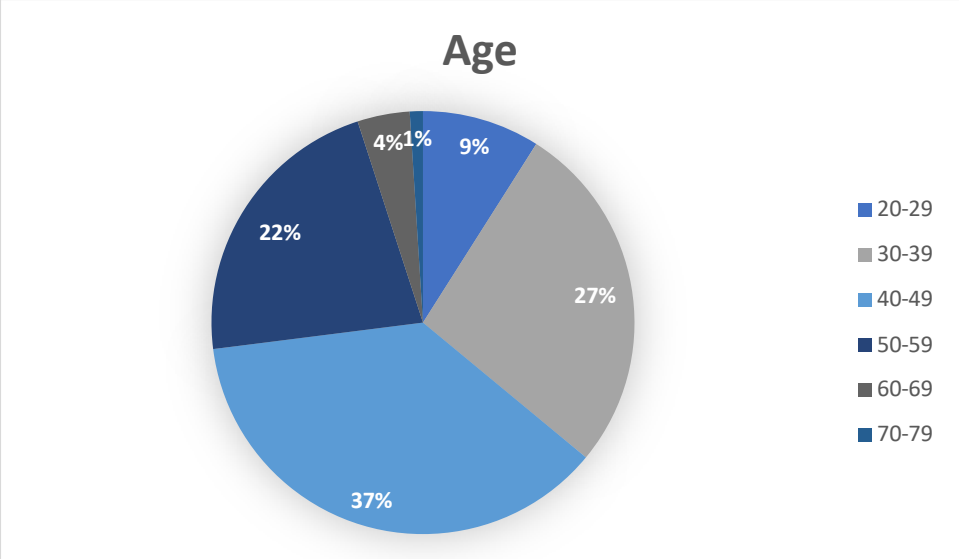

Figure 3 – Gender

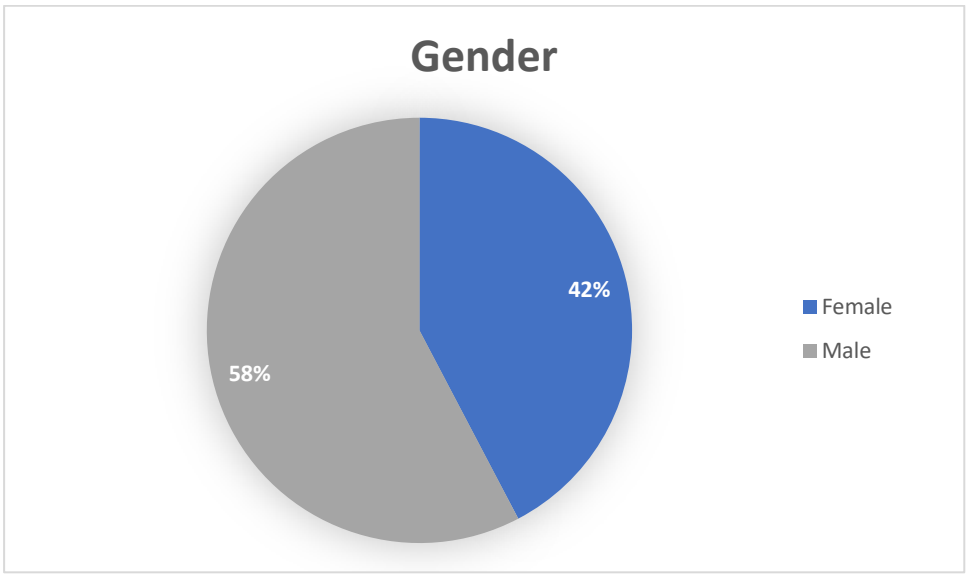

Figure 4- Number of Foreign Languages

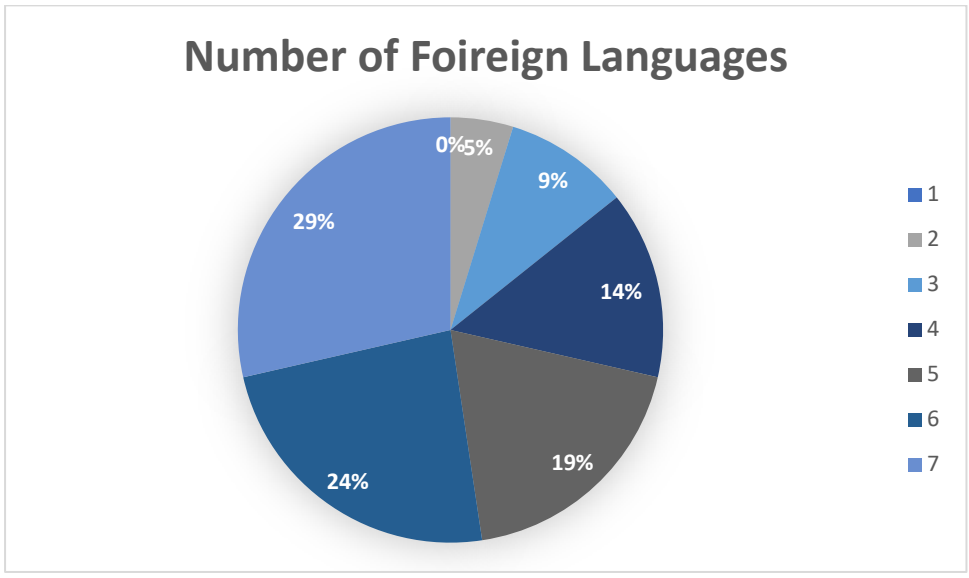

Figure 5- Educational Level

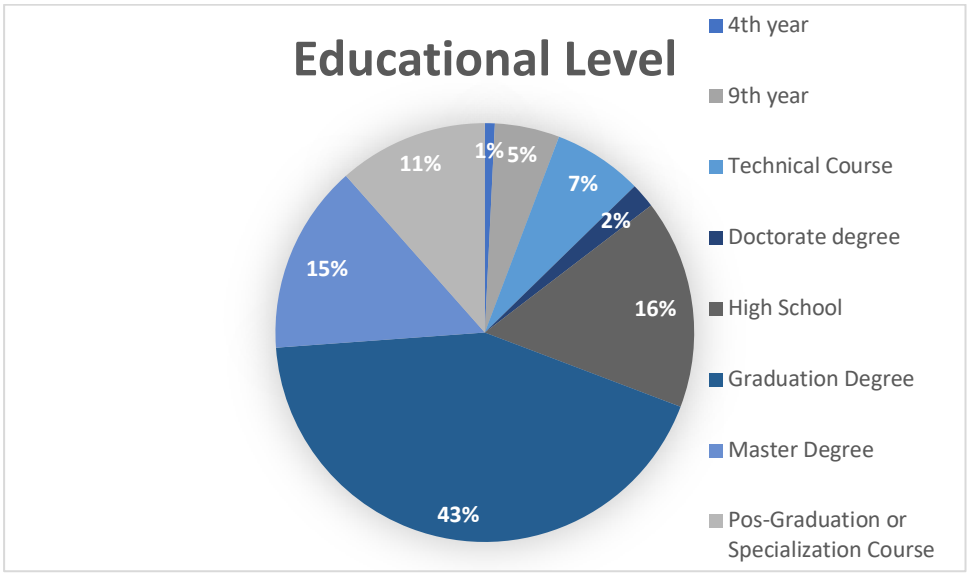

Figure 6- Number of Founders Respondents

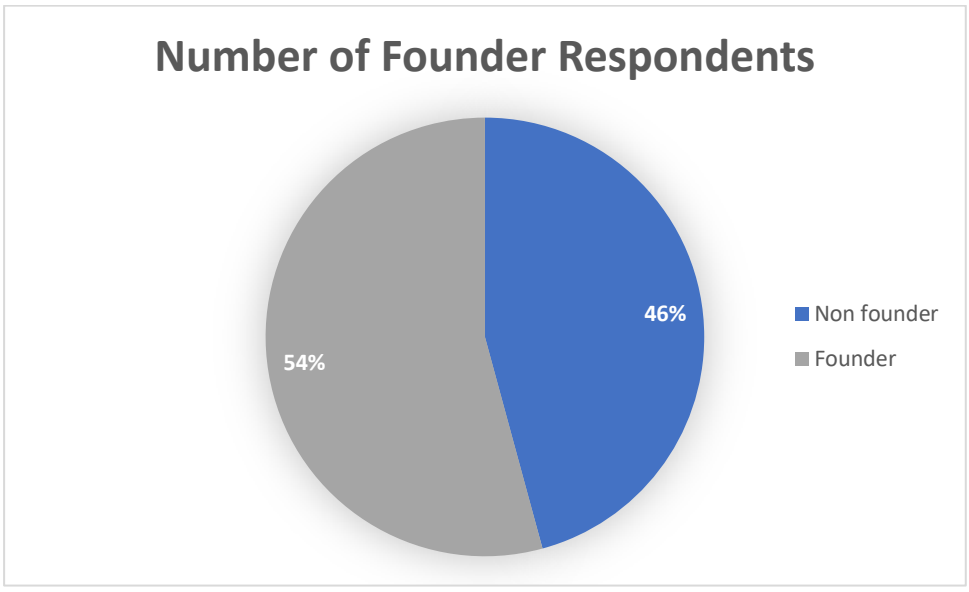

Figure 7- Time of Respondents in the Company

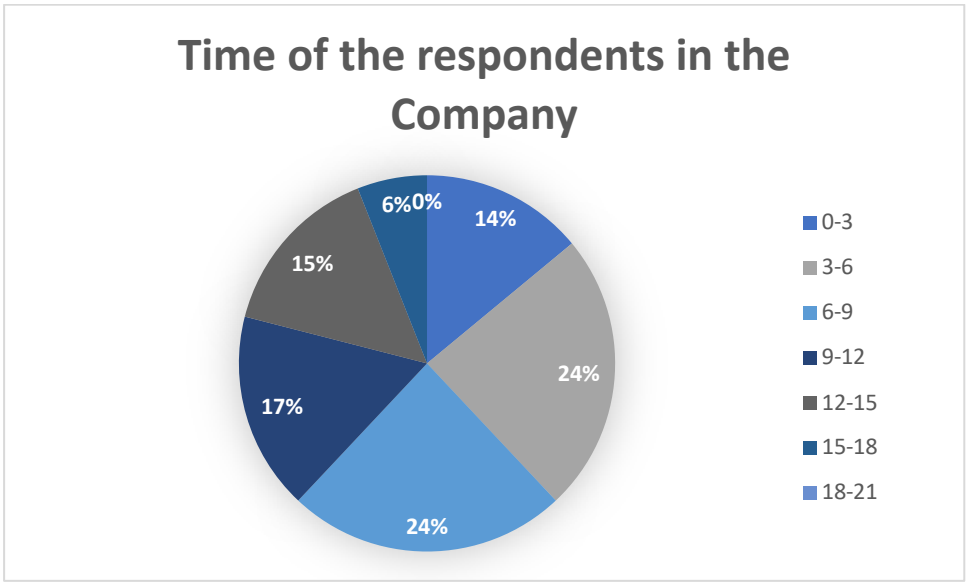

Figure 8 - Position of Respondents

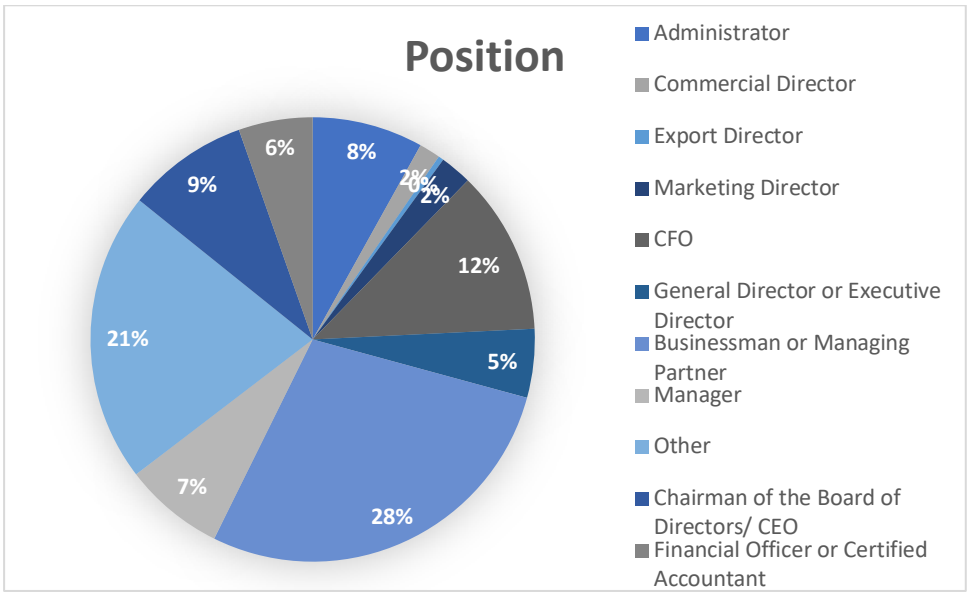

Figure 9- Degree of Internationalization

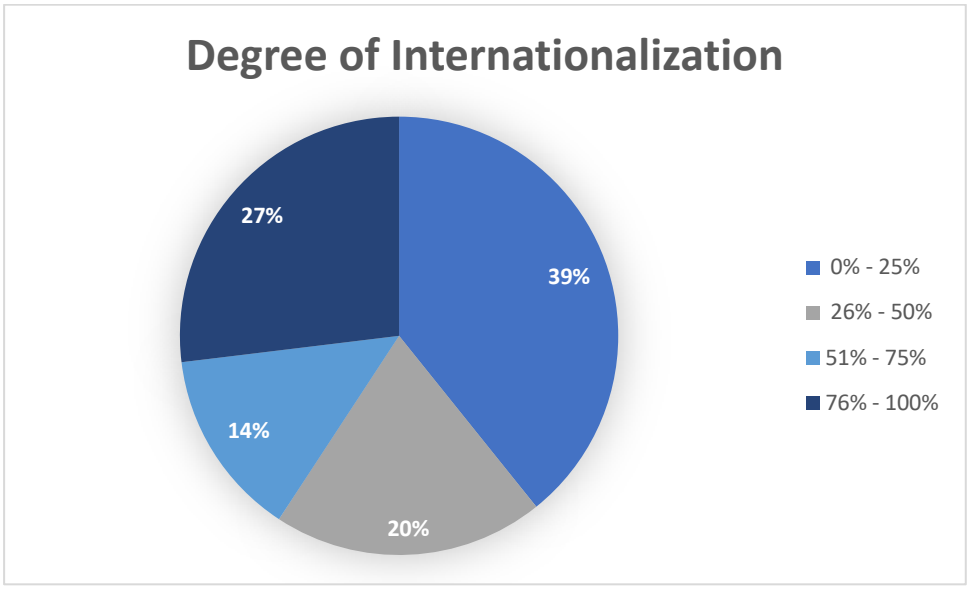

Figure 10 - Year of Internationalization

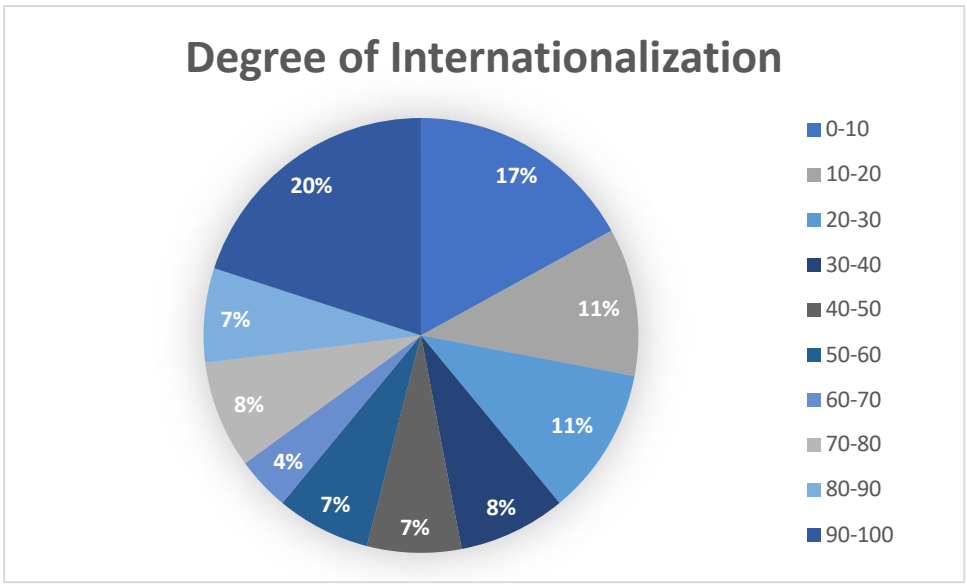

Figure 11- Entry Mode

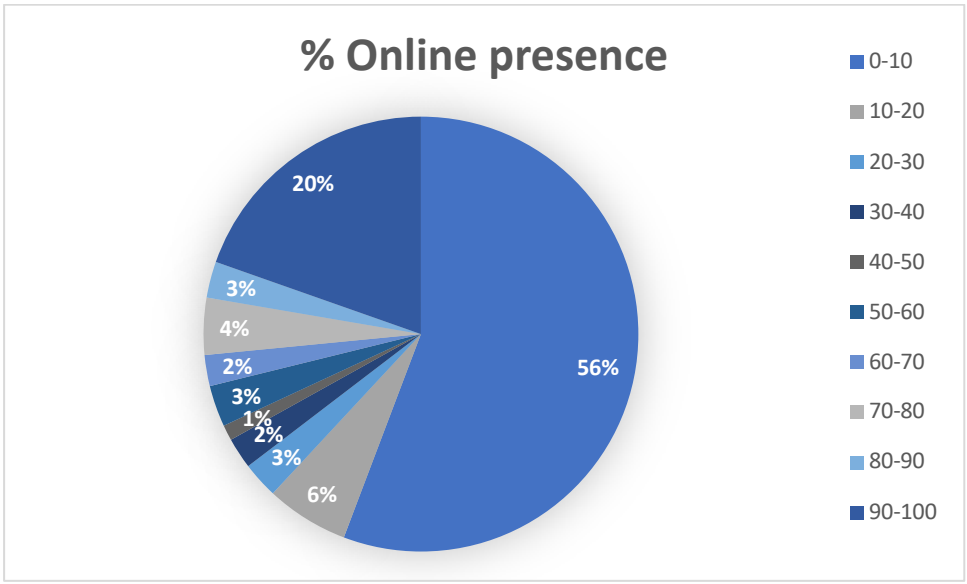

Figure 12- Online presence

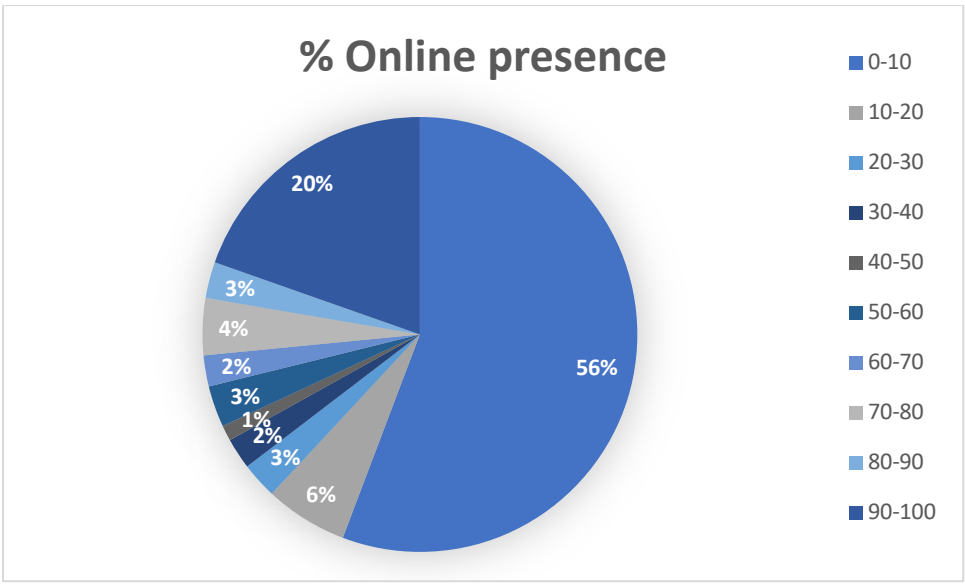

Figure 13- Sector of Company

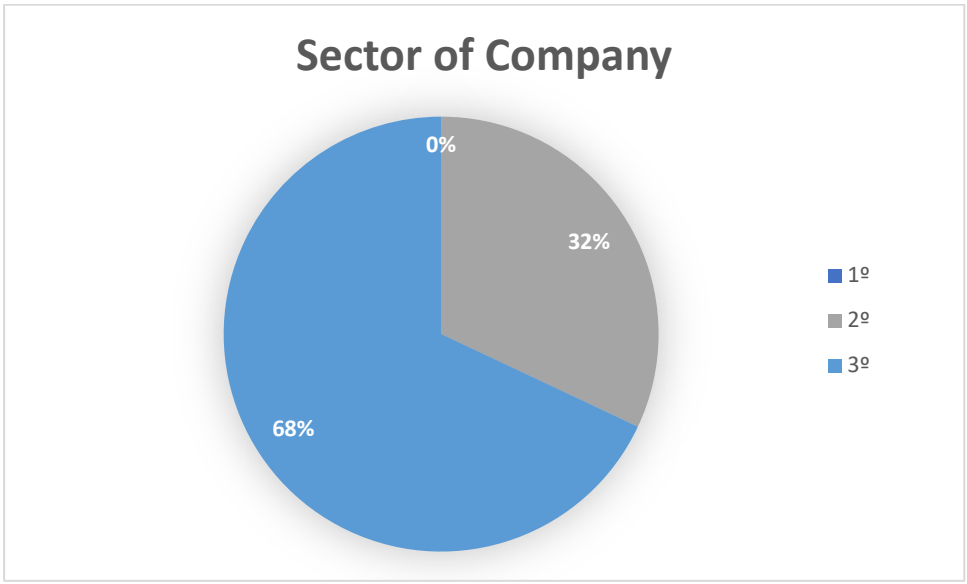

Figure 14- Companies During Pandemic