

UNIVERSITY OF ALGARVE
FACULTY OF ECONOMICS

**STARTUPS AND INTERNATIONALIZATION:
ORIENTATION, CHARACTERIZATION AND TEAM
PROFILE**

LUÍS MANUEL FARINHA DE MATOS MARTINS

Ph.D thesis in Economic and Management Sciences

Work carried out under the guidance of:

Professor Efigénio da Luz Rebelo – Full Professor of the Faculty of Economics of the
University of Algarve

Professor Carlos Farias Cândido – Assistant Professor of the Faculty of Economics of the
University of Algarve

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STARTUPS AND INTERNATIONALIZATION: ORIENTATION, CHARACTERIZATION AND TEAM PROFILE

Statement of Work Authorship

I declare to be the author of this work, which is unique and unprecedented. Authors and works consulted are properly cited in the text and are included in the listing of references included.

Luís Manuel Farinha de Matos Martins

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Dedication

À Natacha, ao meu pai, ao Luís Gabriel e à Camila

.....

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I am deeply grateful to all those who accompanied me on this path, especially my family and my friends, for the support and inspiration they gave me, but, above all, for the understanding of my absence.

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Resumo

O objetivo principal deste estudo é, por um lado, contribuir para a avaliação das tendências da literatura no que concerne aos fatores que influenciam o sucesso das startups nos mercados internacionais. Por outro lado, o estudo visa aprimorar o conhecimento e o estado da arte no que diz respeito às estratégias que podem ser executadas para permitir que as startups penetrem no mercado externo com sucesso e de forma consolidada.

Este trabalho foi estruturado com base em três tópicos de estudo distintos: orientação para o mercado externo das startups incubadas - preditores de internacionalização; fatores que influenciam o volume de negócios não doméstico de startups incubadas em Portugal; e os perfis das equipas que contribuem para o sucesso das startups portuguesas incubadas nos mercados internacionais.

Relativamente à orientação para o mercado externo, o inquérito elaborado para este estudo inspirou-se nos estudos de Engelman e Fracasso (2013) e foi respondido por empreendedores de startups instaladas em incubadoras em Portugal. O modelo de regressão logística indica que o género dos CEOs, o número de trabalhadores e o número de membros da equipa de nacionalidade estrangeira influenciam as probabilidades de entrada no mercado externo, sugerindo que CEOs homens, equipas maiores e equipas com mais membros estrangeiros têm maior propensão para a internacionalização.

Relativamente aos factores que influenciam o volume de negócios não doméstico das startups incubadas em Portugal, o modelo de regressão linear múltipla mostra que as incubadoras permitem avaliar os meios mais eficazes que os empreendedores podem adotar para ajudar a aumentar o volume de negócios das startups incubadas no mercado externo.

Quanto às equipas ideais que contribuem para o sucesso das startups incubadas portuguesas nos mercados internacionais, o método da Conjoint Analysis sugere o perfil ideal das equipas empreendedoras - e não apenas características isoladas - em processos de internacionalização.

Os resultados sugerem que o perfil de uma equipa pode ser dividido em três grupos distintos: Perfil Académico, Perfil Internacional e Perfil de Língua. Também verifica quais fatores influenciam a receita nos mercados comunitários e extracomunitários. Com a plataforma SABI selecionou-se informação sobre todas as startups nacionais incubadas nos últimos três anos e uma das principais conclusões é que os fatores que influenciam a receita no mercado comunitário são diferentes daqueles que influenciam a receita no mercado extracomunitário.

KEYWORDS: startups incubadas; internacionalização; incubadoras; mercados externos; volume negócios; perfis de equipa

Abstract

The main purpose of this study is to contribute to the assessment of the trends in literature regarding the factors that influence the success of the startups in international markets. Moreover, the study aims to improve the knowledge and the state of the art regarding strategies that can be carried out to allow startups to penetrate external markets, in a successful way.

This work was structured according to three different topics: external market orientation of incubated startups; factors that influence the nondomestic turnover in Portugal; and the profiles of the teams that contribute to the success of Portuguese incubated startups in international markets.

Regarding the external market orientation, the estimated logistic regression model indicates that the CEOs gender, the number of workers and of foreign team members influence the chances of entering the external market, suggesting that male CEOs, bigger teams, and teams with more foreign team members have greater willingness to internationalization.

Concerning the factors that influence the nondomestic turnover of startups incubated in Portugal, the estimated multiple linear regression model shows that incubators allow us to assess the most effective means entrepreneurs can adopt to help increase the business volume of incubated startups in the foreign market.

As for the ideal teams that contribute to the success of Portuguese incubated startups in international markets, the Conjoint Analysis method suggests the ideal profile of entrepreneurial teams – and not just isolated characteristics – in internationalisation processes.

Results suggest that a team profile can be divided into three distinct clusters: Academic Profile, International Profile and Language Profile. It also verifies which factors influence revenue in the community and extra-community markets. The SABI platform was used and one of the main conclusions is that the factors that influence revenue in the community market differ from those that influence revenue in the extra-community market.

KEY WORDS: incubated startups; internacionalization; incubators; external markets; business volume; team profiles

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Chapter 1 – Introduction

Chapter 1 – Introduction

1.1 Definition of the theme, its relevance and the methodologies applied

The theme of this Ph.D Thesis is “Startups and internationalization: orientation, characterization and team profile”.

When a startup is born, it is born into the world. And if it is born into the world, it is mandatory to have some notions of internationalization. Studies state that most startups are born to be global (G. A. Knight & Liesch, 2016) and they are addressed as born globals (Choquette, Rask, Sala, & Schröder, 2017; Johanson & Vahlne, 2009; G. A. Knight & Liesch, 2016). However, it is not referred how this transition happens, the financial and accounting conditions of companies in the internationalization stage and the predicting factors associated to revenue increase in the international market.

In this context, this theme is developed and structured around three main topics, starting by 1) discussing what makes startups penetrate in foreign markets, 2) what makes them have more sales in the community and extra-community markets, and finally, 3) what are the profiles of the ideal team in their internationalization process.

The relevance of the proposed theme is based, as will later be seen, on the scarcity of literature on this subject and on the need of tools and strategies so that entrepreneurs, managers, and business incubators’ technicians become more qualified and have a better performance on their daily practice to increase the growth of the startups’ action in the external markets in a consolidated and successful way.

Internationalization appears to be a trend in the business ecosystem in nowadays economy. Incubators seem to support the internationalization of the incubated startups in a sustained way. Regarding the external market orientation, the survey created for this study was inspired on studies of Engelman and Fracasso (2013) and was answered by entrepreneurs of incubated start-ups in Portugal. The estimated logistic regression to understand what makes startups being in the external market versus not being in the external market.

Although there are significant works that address the business volume of SMEs at an international level (Lu & Beamish, 2001; Battaglia and colleagues, 2018), no studies were found addressing the case of the startups or the influence that an incubation process may have on the increase in business volume at an international level. In this study, it was intended to

verify which factors influence the business volume of incubated startups, considering the reality in Portugal. A multiple regressive analysis was carried out to reach a model of variables that will be at the base of the success in the internationalization of startups incubated in Portugal. Data for the study were collected from the responses to a questionnaire, having been constructed based on the literature analysed.

Moreover, this study allows entrepreneurs to realize steps to follow in the internationalization process and how this entry into the foreign market can contribute the growth of their business. Incubators allow us to assess the most effective means they can adopt to help increase the business volume of incubated startups in the foreign market.

Finally, this study discusses the profile of the ideal team for the internationalisation process of startups. Using the Conjoint Analysis method, this work analysed the profile of entrepreneurial teams – and not just isolated characteristics – in internationalisation processes. This study is a significant practical contribute to the management world and paves the way to new research, namely sectoral analysis, by distinguishing team profiles based on activity area and target market, and comparative studies, which seek to learn why a certain team profile makes more sense in one place than other.

When an entrepreneur carries out a business, he makes it with passion. Therefore, it became worthwhile discussing this variable of the entrepreneurial process thereafter.

1.2 Entrepreneurship, a Passion and a Story

People (try) to force an interest on themselves.

You don't choose your passions; your passions choose you

Jeff Bezos

Whether Jeff Bezos is right or not about the dichotomy presented in the epigraph, it seems, however, to be evident that the passion for entrepreneurship has shaped the life of the author of this thesis like the lives of many other men and women and has been a trigger for the development process of humankind. Maybe for this reason, Smilor (1997:342) says that the passion is “perhaps the most observable phenomenon of the entrepreneurship process”.

There are many contributions of different authors that agree with this statement. Cardon (2009) highlights that Passion is deeply embedded in the folklore and practice of entrepreneurship. Dating back to Schumpeter's early writings (1951), researchers and practitioners alike have invoked passion to explain entrepreneurial behaviors that defy reason-based explanations, such as unconventional risk taking, uncommon intensity of focus, and unwavering belief in a dream. Many academics agree that entrepreneurial behavior can be "passionate, full of emotional energy, drive, and spirit (Bird 1989:7-8).

Cardon et al. (2005:23) suggest that entrepreneurship can be thought as a "tale of passion". Baron (2008), Sundararajan and Peters (2007) refer that passion is at the heart of entrepreneurship, because it can foster creativity and the recognition of new information patterns critical to the discovery and exploitation of promising opportunities.

Given the uncertain success of launching new products and services, and the challenges of developing new organizations with limited resources, passion can become a key driver of entrepreneurial action. More concretely, Brännback et al. (2006: 6) says that passion can "fuel motivation, enhance mental activity, and provide meaning to everyday work".

However, we lack systematic evidence about the critical role that passion may play in fostering entrepreneurs' increased efforts (Baum et al., 2001), dedication to relevant tasks (Bierly et al., 2000), persistence towards goals despite significant obstacles (Utsch and Rauch, 2000), or in improving new venture survival and performance.

From a theoretical standpoint, passion is more than the experience of strong emotions: it specifically concerns intense positive feelings for activities that are central and meaningful to an individual's self-identity (Cardon et al., 2009a; Farmer et al., 2011; Fauchart and Gruber, 2011; Murnieks and Mosakowski, 2007; Murnieks et al., 2012; Perttula, 2004).

Chen et al. (2009) define entrepreneurial passion as "an entrepreneur's intense affective state accompanied by cognitive and behavioral manifestations of high personal value" (pp. 199). Cardon (2012) defines EP as "consciously accessible intense positive feelings experienced by engagement in entrepreneurial activities associated with roles that are meaningful and salient to the self-identity of the entrepreneur". Therefore, the concept of passion must specifically integrate the two dimensions i) the positive feelings and ii) identity centrality.

We must show that the construction of entrepreneurial passion adds to our understanding of entrepreneurial dynamics (Cardon, 2012). In other words, we must demonstrate that the concept of entrepreneurial passion is distinct from other cognitive and affective variables that play a role in entrepreneurship.

Cardon (2012) operationalizes the concept with 3 dimensions and proposes a scale for measuring entrepreneurial passion based on these 3 dimensions:

- 1) Passion involves the experience of *intense positive feelings (IPF)*
- 2) These feelings are experienced for activities that are central to the self-identity of the individual, (*IC=identity centrality*)
- 3) The feelings and identity centrality are focused on three specific entrepreneurial domains, (*EP=entrepreneurial passion*)

1.3 A conceptual model of the experience of entrepreneurial passion

Cardon (2009) presents a model showed in Figure 1. The model allows us to understand the causal pathway of the three different profiles: inventor identity, founder identity and developer identity; and the correspondent entrepreneurial effectiveness: opportunity recognition, venture creation and venture growth.

Figure 1 depicts the proposed conceptual model. The modeled processes are triggered when entrepreneurial passion is activated (show in the leftmost circle), and they culminate in entrepreneurial outcomes (show in the rightmost box). Consistent with three identities proposed as meaningful for entrepreneurs, we include indicators of entrepreneurial outcomes that can be loosely categorized into those involving opportunity recognition (e.g., inventor identity), venture creation (e.g. founder identity), and venture growth (e.g., developer identity).

When a particular identity is activated (say, inventor), we expect that the experience of passion mobilizes an entrepreneur's self-regulation processes that are directed toward effectiveness in the pursuit, in turn, involves validating the focal identity by cognitive and behavioral engagement in activities in a manner that is characteristic of intense positive emotions. Consequently, the self-regulation processes linking entrepreneurial passion and outcomes are represented by linkages involving goal-related cognitions and entrepreneurial behaviors (the two middle boxes in Figure 1). We argue the entrepreneurs fired by passion evidence behavioral engagement in entrepreneurial activities that are characterized by (1) creative problem solving, defined as the production of novel and useful ideas or actions (Woodman, Sawyer & Griffin, 1993); (2) persistence, defined as the continuation of effortful action despite failures, impediments or threats, either real or imagined (Gimeno, Folta, Cooper & Woo 1997); and (3) absorption, defined as being fully concentrated and deeply engrossed in one's work (Schindehutte, Morris & Allen 2006).

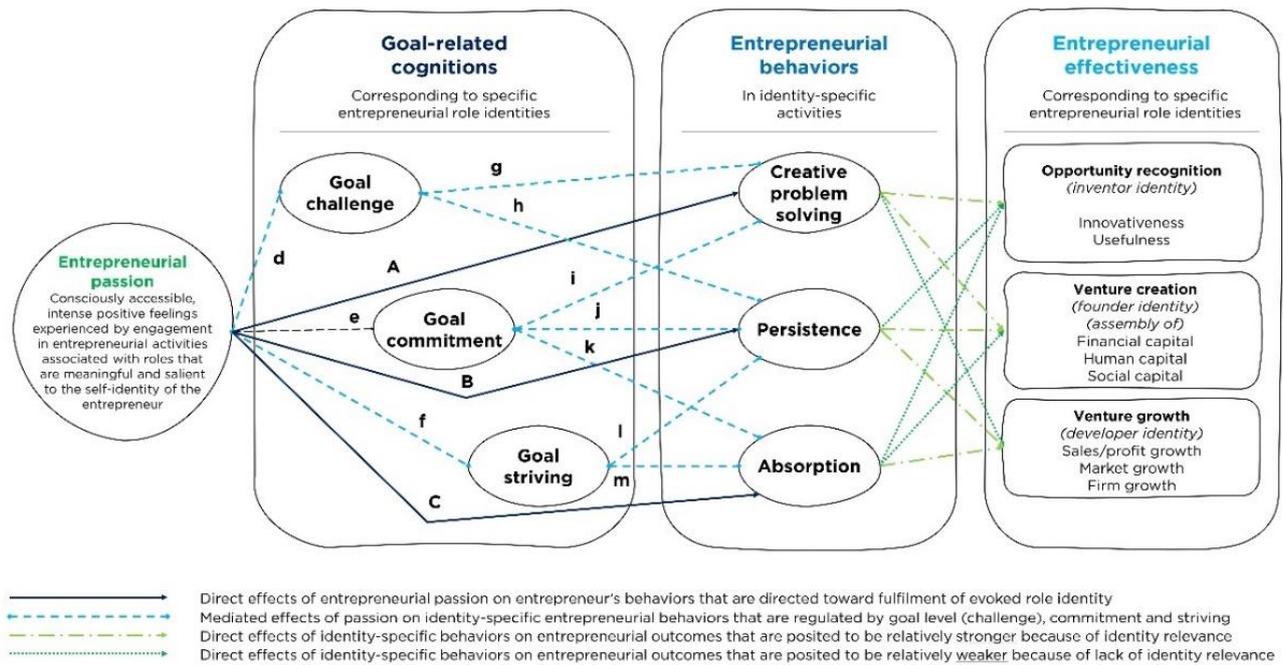


Figure 1 – A Conceptual Model of the Experience of Entrepreneurial Passion

Source: Adapted from Cardon (2009)

But the emotion is not only important in the launching of the startups but also for understanding the entrepreneurial behavior after failure. In a very interesting research (Williams, 2020) about the post-failure reentry trajectories, the author identifies the trajectories of past-failure reentry of the entrepreneurs.

The 3 trajectories identified - separation, reinforcement, and metamorphosis (see Figure 2) - are dependent of the emotions and the general attribution tendency over time in the short term (0-5 months) medium (6-17 months) and long term (18-27 months) after failure (see Figure 2).

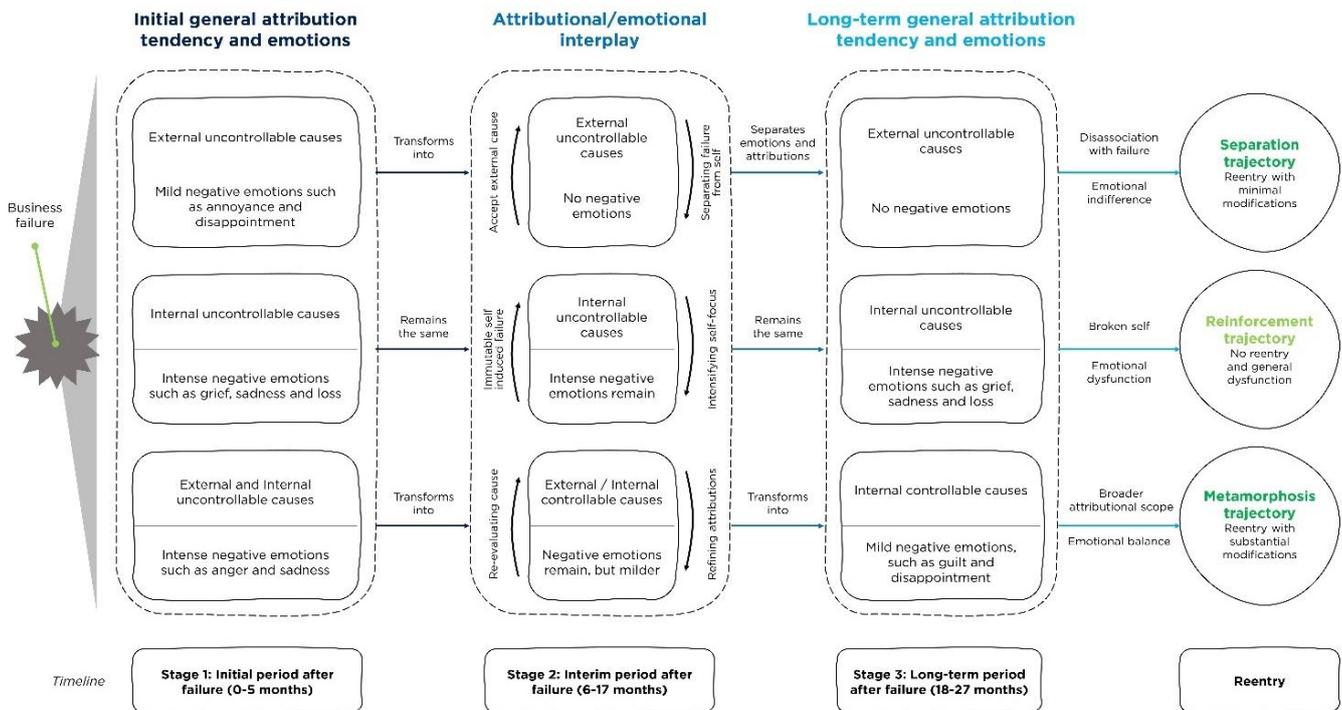


Figure 2 – Grounded Model of Post-Failure Reentry Trajectories

Source: Adapted from William (2020)

As the figure illustrates the way the entrepreneurs react to a business failure, through the way they attribute and evaluate the causes of failure and the emotions felt over time after the business failure, define the design of the reentry trajectory post-failure: separation, reinforcement, and metamorphosis trajectories (Figure 2).

The importance of this contribution (William 2020) became an excellent tool to help the entrepreneurs to understand the underlying mechanisms on how they design and choose the trajectories of their future story as entrepreneurs.

1.4 Entrepreneurship: To start again and again, everyday

The predecessors of international entrepreneurs - the network of entrepreneurial traders.

As Etemad (2018) reminds us, the documented historical roots of entrepreneurship go as far back as 130 BC paralleling the famed “Silk Road”, which started from the present-day Shanghai on the coast of East China Sea and passed through many cities of the ancient Chinese and Persian Empires. The roads further extended westward beyond the Persian Empire, passing

through Assyria and present-day Turkey to reach the heart of Europe for nearly 1600 years (from 130 BC to 1453 AC, when the Ottoman Empire closed the road).

The true history of trading roads and international traders, however, predates the Silk Road and Han Dynasty and goes far back to the network of “Royal Imperial Roads” in the ancient Persian Empire during the Achaemenid Empire (500-330 BCE). These “Persian Imperial Roads” extended from the north of Persia (present-day Iran) to the Persian Gulf in the south and from the foothills of Himalayan Mountains on the east to the Mediterranean Sea in Asia Minor (present Turkey) in the west (Etemad,2018).

During the “Silk Road Era” the international traders were, indeed, the historical predecessors of international entrepreneurs of the time that traveled across borders and cultures facing high levels of uncertainty, tolerating untold hardships, and yet acted proactively and resolutely in their trading functions while taking large risks.

In the absence of organized and reliable information and forecast of demands and supplies in different locations for different tradable goods, these trading entrepreneurs faced tremendous uncertainty and dealt with large complexities that required large adaptability, flexibilities, and other human proclivities. Yet, they took daring decisions and immeasurable risks proactively (Etemad, 2018).

The European counterparts of the ancient international entrepreneurs of the “Silk Road Era”, who characterized the term “entrepreneurs” later, were not very different. The records from the seventeenth and eighteenth centuries document valiant efforts of such traders. They also faced similar uncertainties, took large risks, experienced hardship in organizing support for their travel and yet functioned with a degree of commitment and intensity to succeed (Etemad, 2014, 2018).

After the passage of few centuries, however, the difficulties and complexities of the olden times are nowadays very similar although obviously in a different context, and the contemporary entrepreneurship is forced to re-visit and “to redesign the wheel” by debating concepts that were experienced before and have had older precedents, such as, adaptability, interrelations, opportunity, risks bearing and dealing with complexity.

Etemad (2004) characterizes international entrepreneurship as a set of interrelations and interaction constituting a dynamic, open, complex, and adaptive system - DOCAS (Etemad 2014, 2018).

This reasoning allows us to design the three topics of study that compose the present thesis:

- i) *Orientation for external Markets of incubated startups - Predictor factors of internationalization*

This first topic of study comes up because there are numerous contributions (Cantú 2015; Engelman 2015) highlighting the influence of the incubators towards the internationalization of incubated startups. Case studies in Brazil and Italy demonstrate that incubators positively impact the internationalization of incubated companies (Cantú 2015; Engelman 2015).

ii) *Factors that influence the startup business volume in the external Market*

iii) *The ideal team in the internationalization process of startups*

These three topics of study, although independent, they aim to provide an overall approach of the factors that: i) impact the orientation towards internationalization, ii) influence the business volume and iii) the team and competences that are more appropriate for the internationalization process.

1.5 Purpose of this Thesis

In a nutshell we can say that the purpose of this thesis is to be a humble contribution to “re-design the wheel” of international entrepreneurship to use the Etemad’s expression, but fundamentally to honor to all those who throughout the History have been driven by the passion of entrepreneurship.

1.6 General and specific objectives of each topic of study

This study aims to observe the trends in the literature on which factors influence the success of startups in the international market, considering the moment of entry into the foreign market and its growth in these markets. On the other hand, it intends to increase knowledge and the state of the art regarding the strategies that can be adopted by startups, incubators, venture capital companies, or other entities that are interested in the growth of the international economy, allowing startups to reach the external market, in a consolidated and successful manner.

1.7 Research keywords

Keywords: Incubated Startups; Incubators; internationalization

1.8 Study topics

1.8.1 Measures of Portuguese incubators, from the entrepreneur's perspective, and characteristics of incubated startups that are predictors of internationalization

In order to fill the gaps in the literature, presented throughout the analysis of the state of the art on the subject, this study seeks to assess which measures of Portuguese incubators and what the profile of the incubated startups' teams will be predictors of internationalization, from the entrepreneur's perspective. The construction of the questionnaire was based on the work developed by Engelman and Fracasso (2013), where the contributions of incubators to the internationalization of incubated companies were studied.

1.8.2 Factors that influence the turnover in the foreign market of startups incubated in Portugal

Internationalization in the business ecosystem appears to be a trend in the current growth of the economy. Incubators also seem to act to provide a more sustained internationalization of incubated startups. Although the literature that addresses the business volume of SMEs at an international level is significant, no studies were found that addressed the case of startups specifically, nor the influence that incubation may have on the increase in business volume at an international level.

In this study, it was intended to verify which factors influence the business volume of incubated startups, considering the reality in Portugal. A multiple regressive analysis was carried out to reach a model of variables that will be at the base of the success in the

internationalization of startups incubated in Portugal. Data for the study were collected from the responses to the questionnaire, having been constructed based on the literature analyzed.

This study allows entrepreneurs to understand the path to follow in the internationalization process and how this entry into the foreign market can be a success in the growth of their business. Incubators allow us to assess the most effective means they can adopt to help increase the business volume of incubated startups in the foreign market

1.8.3 The ideal team for the internationalisation process of startups

This study discusses the profile of the ideal team for the internationalisation process of startups. Using the Conjoint Analysis method, this work analysed the profile of entrepreneurial teams – and not just isolated characteristics – in internationalisation processes. This study is a significant practical contribute to the management world and paves the way to new research, namely sectoral analysis, by distinguishing team profiles based on activity area and target market, and comparative studies, which seek to learn why a certain team profile makes more sense in one place than other.

**Chapter 2 – External market guidelines for incubated companies:
internationalization predictors**

Chapter 2 – External market guidelines for incubated companies: internationalization predictors

Incubation affects company internationalization positively. This study aimed at analyzing the external market guidelines for companies installed in business incubators. Relevant recent literature on management research was reviewed for this study. To fill the gap found in literature, this study focused on assessing what measures taken by Portuguese incubators and what incubated companies' profiles would be internationalization predictors from the entrepreneur standpoint. The survey created for this study was inspired by the studies of Engelman and Fracasso (2013). Results suggest that specific external market entry predictors identified by entrepreneurs are company characteristics. This study shows that entrepreneurs believe the internal potential of each start-up is the reason behind this successful. These findings bring up a debate about how incubators can adapt their offer to match such predictors.

2.1 Introduction

Start-ups contribute significantly to employment creation (Fonseca et al. 2001) and development of innovative products and services (CE 2000). However, an OECD study (2002) showed that, on average, one third of new European companies did not survive their first year. In this sense, Aernoudt (2004) defended the need to implement a corporate development strategy that would allow to create a dynamic business environment that enabled company growth and innovation within competitive markets while concurrently stimulated corporate spirit and attitude towards risk by breaking down existing barriers. The incubation phenomenon has contributed effectively to the success of incubated companies, namely in their early stages (Ferguson and Olofsson 2004; Sherman, 1999).

Other entrepreneur characteristics were studied in order to assess their influence in start-up internationalization (Stucki 2016; Pergelova, Angulo-Ruiz, and Yordanova 2018; Shahriar 2018). They were: CEO gender and education, number of founders and number of employees.

In the view of analysed literature and considering the gaps above, this study intended to assess which measures by incubators had been boosting their start-ups and facilitating access to external markets. This research aimed at providing scientific information by exploring new research dimensions with regard to start-up incubation and internationalization. It also aimed at

providing reliable data to incubators and entrepreneurs about which factors enable start-ups the most in their internationalization process.

Considering reviewed literature, the authors thought it would be important to assess if CEO gender, number of founders and their education could be the grounds for internationalization of Portuguese companies. In addition, assessing how start-up teams could affect this process was also deemed important, namely by analysing the number of members, number of foreign members, number of languages spoken jointly by the team.

This study was based on the analysis of the results of a survey on “External market guidelines for incubated companies”.

This phenomenon and its contribution to the success of incubated companies are addressed below. Literature review explores start-ups internationalization and factors that may be behind entrepreneurs’ interest in internationalization. Other factors associated to internationalization, namely in relation to employee and CEO characteristics, and CEO perspectives about the role of incubators in their companies’ internationalization are also addressed.

2.2 Literature review

2.2.1 The incubation phenomenon

In this competitive, ever changing atmosphere, companies are forced to adapt permanently. This leads to a significant degree of uncertainty as to their operational levels.

In order to fight against start-up failure rates, the European Commission (2000) suggested the installation of start-ups in business incubators. Literature seems to confirm that incubated start-ups show higher survival rates (Ferguson and Olofsson 2004) and significant sales growths (Löfsten and Lindelöf 2002; Lofsten and Lindelof 2001) when compared to non-incubated start-ups. Incubators derive from this need and the need of stimulating cooperation between universities and society. This transfer of knowledge developed in the academic community to the production sector aims at creating new companies and enabling human resources, resulting in young companies being more competitive within their markets. The first incubator was created for the above purpose in 1937 in Standford University, USA (Wolffenbüttel 2001) after the economic crash of 1929.

According to Hackett and Dilts (2004) “a business incubator is a shared office space facility that seeks to provide strategic, value-adding intervention system of monitoring and business assistance with the objective of facilitating the successful new venturing development while simultaneously containing the cost of their potential failure.” Scaramuzzi (2002) came up with a different definition that related to resources and purposes. From the resource’s perspective, business incubators provide access to technological and management know-how and skills, financing, market and marketing services, innovation-prone atmosphere, management and partnership support services, and networking. Business incubators’ goals are economic development and job creation, national product export development, promotion of entrepreneurship and transition economies, creation of opportunities to immigrants, and retention of national citizens whose degrees were taken abroad.

This internal, protected atmosphere, where physical spaces, equipment, shared services, and company support services are offered by the business incubator, contrasts with the external, highly competitive business atmosphere. Actually, the role of incubators in the growth process of entrepreneurs evolved from being just a business centre with office facilities that would provide incubated start-ups with training, network access and consultancy in all specialization areas (Peters, Rice, and Sundararajan 2004). Incubators started to contribute positively to the growth of the Portuguese entrepreneurial ecosystem growth, and consequently to economy growth and diversification.

Previous studies revealed that entrepreneurs from incubated companies who considered incubator services useful were younger, had good education, professional experience and family experience (Albort-Morant and Oghazi 2016). Neck and colleagues (2004) believed that incubators could transform each region into entrepreneurship centres and were an incentive to corporate entrepreneurship. In addition, business incubators usually incubate companies of the same kind or complementary companies. Over time, they may become a significant business group in a certain activity sector given the synergies that are created (Chan and Lau 2005).

According to Aernoudt (2004) incubators were classified as mixed, economic development, technological, social and fundamental research. Grimaldi and Grandi (2005) classified business incubators as: Business Innovation Centres (BIC), university incubators, technological incubators, private business incubators and private independent incubators. Based on management and business model structure (Albort-Morant and Ribeiro-Soriano 2016), incubators can also be classified as: Non-profit focused on local economic development - e.g. incubators of small businesses; university-linked incubators; for-profit incubators - e.g. private organizations.

2.2.2 Internationalization success factors of incubated companies

Incubated companies' success derives from several factors such as incubators guaranteeing value-adding basic services, logistics, consultancy, and financing and access to networks (Mian 1997; Hackett and Dilts 2004; Bergek and Norrman 2008). Incubators can help boost businesses by means of three types of services: infrastructures, coaching and networking (Peters, Rice, and Sundararajan 2004). Infrastructures can be important, because they imply high economic investments by start-ups (Verma 2004), and may provide tangible resources that allow entrepreneurs to decrease costs (Bruneel et al. 2012). Examples are modern infrastructures that include research-dedicated areas, libraries, technical infrastructures, and software. Business support services, like coaching and specific training (Bergek and Norrman 2008) encompass several areas of expertise and help create business models and plans, financial strategies and own contact networks. This is one of the most important measures taken by incubators to boost the growth of incubated companies (Carayannis and von Zedtwitz 2005; Bergek and Norrman 2008; Dickel et al. 2009). Incubators can also offer internal and external networking moments, such as public institutions, business angels, other incubators, educational institutions, intellectual property experts, marketing experts and consultants (Hackett and Dilts 2004).

Incubation affects company internationalization positively and provides good success opportunities in external markets (Blackburne and Buckley 2019). Given Portuguese market dimension, most technology companies are born global or already thinking of internationalization (Carvalho and Galina 2015).

The Born Global concept was introduced by McKinsey and can be defined as a company that adopts globalization standards since its creation (Braunerhjelm and Halldin 2019). This concept appeared in the early 90's when there was a sudden growth of companies that were emerging directly into the international market and showing constant growth (Moen 2002). Born Globals tend to be created by entrepreneurs with technical skills and knowledge of international markets, operate in global market niches, are associated to innovative and differentiating products, and seek different types of knowledge in several locations.

Gabrielson et al. (2004) found that the entrepreneur profile influenced company internationalization decisions. They also stated that both the entrepreneur and their global vision were the key factors to the creation of Born Globals. However, the characteristics of those who are responsible for the startup may influence all this process. A recent study suggests that CEO behaviour differs according to gender (Pergelova, Angulo-Ruiz, and Yordanova 2018).

Analysed literature suggested that female CEOs tended to take less risks when it came to identifying international business opportunities. Shahriar (2018) also stated that gender might influence the predisposition to develop new businesses, due to its dependence on the entrepreneur's social setting.

In terms of gender, a recent study stated that not only entrepreneurs reacted differently when facing internationalization opportunities, but also that their external market entry strategies relied on different expectations, ways of thinking and behaviours (Pergelova, Angulo-Ruiz, and Yordanova 2018). Female CEOs tend to take less risks when it comes to the identification of international business opportunities. Men in patriarchal societies are more predisposed to invest in the creation of new projects and women in matrilineal societies invest more in the creation of new projects in this scope, leading to the conclusion that gender differences in entrepreneurship predisposition also result from socialization (Shahriar 2018).

Hypothesis 1 - CEO gender influences the probability of entering the external market.

Education also seems to be a positive factor in start-up internationalization (Stucki 2016). Founders with higher education are more successful in the internationalization of their companies.

Although the impact of the number of founders was analyzed by some studies, no significant data were found to consider this a decisive factor for company internationalization (Mann and Sanyal 2010). There are no studies that identify the number of employees and the number of founders as predictors for external market entry.

Literature suggests a higher internationalization potential for founders with higher education degrees (Stucki 2016), so this study intended to analyse this factor both in the national scope and with incubated start-ups.

Hypothesis 2 – Higher degrees of education of CEOs increase external market entry potential.

About 20 percent of young European companies are Born Globals according to the Eurofound (2012). However, public and political matters are discussing internationalization and

entrepreneurship as independent subjects. Despite their scarcity of resources, Born Globals also show a significant percentage of individuals engaged in research and development activities. The specialized, complex and intensive knowledge held by the human resources in this type of organizations shows the importance of tacit and technological knowledge to this entrepreneurial context. The relationships created during the internationalization processes are essential. There are companies being supported by one big client or research and development partner that become their mentors in the internationalization phase (Sharma et al. 2003; Coviello 2006).

No relevant literature was found that showed how the number of employees influenced external market entry potential. Considering that entrepreneur know-how and experience in international markets may contribute to a more effective entry in the market (Gabrielsson and Kirpalani 2004; Stucki 2016), the next hypothesis may reveal evidences that the development degree of a start-up in terms of the number of employees in association with it being an incubated start-up, may be an external market entry predictor.

Hypothesis 3 - A higher number of employees increases the probability of entering the external market.

Because cultural factors might also be associated with internationalization capacity, this study intended to analyse how gender differences, in Portugal, and cultural issues between different markets impacted on external market entry potential.

The latest report from the Global Entrepreneurship Monitor (GEM 2013) stated that the evolution of entrepreneurship in Portugal relied on the desires and ambitions of entrepreneurs in terms of introducing new products and new productive processes in the market, approaching external markets, developing an organization and financing their businesses' growth using foreign capital. Several authors stated that entrepreneurs who had already worked abroad had a wider knowledge of the global market. These authors highlighted that these international experiences contributed to the success of the internationalization of these entrepreneurs' own companies (Gabrielsson and Kirpalani 2004; Stucki 2016). On the other side, entrepreneurs with international experience benefit from prior knowledge and experiences that open new business possibilities (Madsen and Servais 1997).

This knowledge can be gained both by means of international experiences or immigration (Sui, Morgan, and Baum 2015). Some studies suggested that immigrants might have advanced language skills, a higher degree of cultural knowledge, trusted relationships in their countries of origin and knowledge of how to run a business in foreign markets (Inkson, and Thorn 2005; Cappelli 2008; Carr, Tarique and Schuler 2010). These studies pointed to the fact that foreign CEOs could be more oriented to global markets (Sui, Morgan, and Baum 2015) and that language skills were essential to the internationalization process.

Johanson e Vahlne (1977) created an internationalization model called the Upsalla Model. This model states that company internationalization focuses on gradual acquisition, integration and use of knowledge about external markets and operations, and on increasing international market commitment. This way, model authors believed internationalization could be explained by the company's "market commitment" with regard to external markets and "market knowledge" about foreign markets and operations. Other models appeared since then that stated that internationalization processes arose from the buyer's increasing globalization, which came to simplify product development and positioning in foreign markets therefore facilitating international business. Internationalization is also connected to advances in information and communication technologies, production methods, international transportation and logistics, that decreased transaction costs and facilitated international trade growth (Cavusgil and Knight 2015).

As immigrants are more skilled in terms of language and knowledge of international cultures (Carr, Inkson, and Thorn 2005; Cappelli 2008; Tarique and Schuler 2010) they may enable external market entry for start-ups where they work. This study aimed at assessing how this factor might be connected to the internationalization capacity of start-ups and in what way a higher number of foreign team members increased this potential.

Hypothesis 4 - A higher number of foreign team members increases the probability of entering the external market.

Hypothesis 5 - A higher number of foreign languages spoken by the team increases the probability of entering the external market.

Given this tendency to early internationalization, most technological incubators provide internationalization support (Blackburne and Buckley 2019). This support relies on providing specialized structures and expertise that allow put business ideas into practice. There are incubators stimulating and supporting incubated companies in their internationalization in Portugal. These incubators adopt strategies like being part of Business Innovation Centres (BIC), providing infrastructures and giving access to networks of partners that facilitate and increase networking (Carvalho and Galina 2015).

Only 4 studies were found that tried to explain the role of business incubators in start-up internationalization (Albort-Morant and Ribeiro-Soriano 2016; Baraldi and Havensvid 2016; Blackburne and Buckley 2019; Kuryan, Khan, and Gustafsson 2018). However, and according to recent studies, the main theories do not see business incubators as a way to enter the external market (Blackburne and Buckley 2019).

Blackburne and Buckley (2019) suggested an adaptation to the Root model, in 1998, that considered business incubators as a way of entering the external market that offered a higher degree of control in export and low development risk.

According to this study, the internationalization process implied an increasingly high risk. Business incubators are a method of entering the foreign market that can be seen as a way to control those risks (by limiting potential failures). This way, entrepreneurs feel more comfortable in taking risks and making decisions more rapidly. The very own incubation availability was seen by these authors as a decisive factor that contributed to the continuation of the internationalization process, therefore catalysing this otherwise expensive or risky process.

When start-ups become more experienced, they end up choosing operationalization strategies that are more controlled (and risky) in terms of product and/or service export. As this commitment to the internationalization process grows, entrepreneurs tend to take more risks and opt for Joint Ventures or International Production Units in the sites to where they want to export.

And because they are integrated in incubators in the international market, start-ups also benefit from a higher degree of security, as they can go back to low-risk distributors or even exit the international market (by turning to international exporters and distributors) without losing control of their businesses.

In this sense, the authors think that incubators that provide opportunities to entrepreneurs of incubated companies, such as participating in international fairs, events and missions will have a higher number of incubated start-ups in the external market.

Hypothesis 6 – Incubators that enable participation in international fairs, events and missions increase the probability of incubated companies entering the external market

This study also compiled several support measures implemented by incubators to boost incubated companies to offer their entrepreneurs a way of entering the external market.

2.3 Methodology

2.3.1 Sample

One-hundred and eleven entrepreneurs who have their businesses in Portuguese incubators answered this survey. Entrepreneurs are incubated in incubators that belong to the national network of incubators and accelerators, with Portuguese or foreign capital, or both.

From these companies, 76 had male CEOs and 35 had female CEOs. Nineteen of these companies were included in the primary sector, 31 in the secondary sector and 68 in the tertiary sector. No socio-demographic data were analysed from entrepreneurs who answered the survey. For sample heterogeneity, the authors made it so they did not receive more than one answer from the same company.

2.3.2 Studied Variables

Dependent Variable

a) **Company presence in external market** – assumed value 1 whenever incubated company was present in the external market and the value 0 otherwise.

Independent Variables

a) **Primary Sector** – qualitative binary variable, defined as dummy variable, that assumed the value 1 whenever the company operated in the primary sector and the value 0 otherwise.

b) **Secondary Sector** – qualitative binary variable, defined as dummy variable, that assumed the value 1 whenever the company operated in the secondary sector and the value 0 otherwise.

- c) **Tertiary Sector** – qualitative binary variable, defined as dummy variable, that assumed the value 1 whenever the company operated in the tertiary sector and the value 0 otherwise.
- d) **N Company Founders** – quantitative variable that expressed the number of founders of a given incubated company.
- e) **CEO Gender** – qualitative binary variable, defined as dummy variable, that assumed the value 1 whenever the CEO was female and 0 whenever the CEO was male
- f) **N Employees** – quantitative variable for the number of employees of a given incubated company.
- g) **N Foreign Team Members** – quantitative variable for the number of foreign team members of a given incubated company.
- h) **Foreign Languages Spoken** – quantitative variable for the number of foreign languages the team was qualified to speak.
- i) **Raising of funds** – qualitative binary variable, defined as dummy variable, that assumed the value 1 whenever the incubator enabled incubated companies to raise funds for export, foreign investment and venture capital and the value 0 otherwise.
- j) **Motivating Atmosphere** – qualitative binary variable, defined as dummy variable, that assumed the value 1 whenever the incubator provided a motivating atmosphere in the sense of export and internationalization and the value 0 otherwise.
- k) **Consultancy and Advisory** – qualitative binary variable, defined as dummy variable, that assumed the value 1 whenever the incubator offered consultancy, advisory and/or intellectual and industrial property services and the value 0 otherwise.
- l) **Participation in fairs** – qualitative binary variable, defined as dummy variable, that assumed the value 1 whenever the incubator allowed incubated companies to participate in in fairs, events and missions, and the value 0 otherwise.
- m) **Network extension** – qualitative binary variable, defined as dummy variable, that assumed the value 1 whenever the incubator allowed incubated companies to reinforce and extend their networks that included other companies, and the value 0 otherwise.
- n) **International network strengthening** – qualitative binary variable, defined as dummy variable, that assumed the value 1 whenever the incubator allowed incubated companies to strengthen and extend their international networks that included partners, associations and incubation networks, and the value 0 otherwise.
- o) **Educational institution network strengthening** – qualitative binary variable, defined as dummy variable, that assumed the value 1 whenever the incubator allowed incubated

companies to strengthen and extend their international networks that included international educational institutions and research centres, and the value 0 otherwise.

p) **Financial institution network extension** – qualitative binary variable, defined as dummy variable, that assumed the value 1 whenever the incubator bridged and provided support in the extension of networks that included financial and governmental institutions, and the value 0 otherwise.

q) **Involvement in international networking** – qualitative binary variable, defined as dummy variable, that assumed the value 1 whenever the incubator allowed incubated companies to engage in international networking with partners, associations, incubation networks and business networks, and the value 0 otherwise.

r) **International Partners and Consultants** – qualitative binary variable, defined as dummy variable, that assumed the value 1 whenever the incubator had international business partners and consultants and the value 0 otherwise.

2.3.3 Data analysis method

Data were analysed using the logistic regressions method. This method is especially appropriate for inferences and estimations, because it allows to model the occurrence of two possible variable outcomes (being in the external market vs. not being in the external market) in probability terms. For each variable in the model, it also allows to assess their explanatory power, significance level, positive or negative nature, impact on connecting logit, odds ratio and consequently in the probability of exporting (1) or not exporting (0), in terms of the dependent variable (Neck et al. 2004; Marôco 2014).

Given the nature of the dependent variable, the Maximum Verisimilitude method was adapted to allow the estimation of model parameters.

2.4 Results

Results were analysed via binary logistic regressions using the IBM SPSS Statistics 25 software. First analysis stage included individual logistic regressions for each independent variable. Results of such analysis are described below:

Independent Variables	B	Standard Error	Wald	df	Sig	EXP (B)
Activity Sector						
Primary	-,855	,561	2,320	1	,128	,425
Secondary	-,023	,429	,003	1	,957	,977
Tertiary	,506	,402	1,589	1	,208	1,659
N Company Founders	,256	,201	1,621	1	,203	1,292
CEO Gender	-1,492	,481	9,618	1	,002	,225
CEO Education	,139	,246	,320	1	,572	1,149
N Employees	,394	,118	11,039	1	,001	1,482
N Foreign Team Members	,980	,348	7,934	1	,005	2,664
Foreign Languages Spoken	,456	,207	4,854	1	,028	1,578

To which extent did the incubator contribute to boosting your business

Allows to raise funds for export, foreign investment and venture capital	-,217	,497	,191	1	,66 2	,805
Provides an atmosphere that drives export and internationalization culture	,725	,404	3.215	1	,07 3	2.064
Provides consultancy, assistance and/or intellectual and industrial property services	-,860	,394	4.763	1	,02 9	,423
Allows participation in fairs, events and international missions	,277	,415	,446	1	,50 4	1.319
Enables the reinforcement and broadening of networks that include other companies	-,488	,387	1.588	1	,20 8	,614
Allows the reinforcement and broadening of international networks that include partners, associations and incubation networks	-,370	,452	,670	1	,41 3	,691
Allows the reinforcement and broadening of networks that include educational institutions and international research centres	,264	,487	,294	1	,58 7	1.302
Bridges and supports the broadening of networks that include financial and governmental institutions	-,397	,438	,824	1	,36 4	,672

Participates in international networking with partners, associations, incubation and business networks	,181	,419	,186	1	,666	1.198
Has a team of partners and consultants with international business networks	,612	,431	2.009	1	,156	1.843

Table 1 – Binary logistic analysis of internationalization predictors for incubated companies
Source: Own elaboration, based on the IBM SPSS Statistics outputs.

The logistic regression Model to estimate derived from the results obtained from this raw analysis:

$$\ln\left(\frac{P_i}{1 - P_i}\right) = \beta_0 + \beta_1(CEOGender) + \beta_2(Nemployees) + \beta_3(Nforeigners) + \beta_4(Languages) + \beta_5(IntellecProp) + u_i$$

Estimation results are described below:

Independent Variables	B	Standard Error	Wald	df	Sig	EXP (B)
CEO Gender	-1.037	0.552	3.944	1	0.047	0.355
N Employees	0.220	0.131	2.801	1	0.094	1.246
N Foreign Team Members	0.799	0.358	4.998	1	0.025	2.224
Foreign Languages Spoken	0.296	0.230	1.655	1	0.198	1.345

To which extend did the incubator contribute to boosting your business

Provides consultancy, assistance and/or intellectual and industrial property services	-0.757	0.455	2.768	1	0.096	0.469
Constant	-1.093	0.717	2.326	1	0.127	0.335
- 2 ln L	121.384					

Table 2 – Binary logistic analysis for reduced model to estimate

Source: Own elaboration, based on the IBM SPSS Statistics outputs.

Estimated logistic regression model:

$$\ln\left(\frac{\widehat{P}_i}{1 - \widehat{P}_i}\right) = -1,093 - 1,037(CEO\text{Gender}) + 0,220(N\text{employees}) \\ + 0,799(N\text{foreigners}) + 0,296(\text{Foreign languages}) \\ - 0,717(\text{IntellecProp})$$

For $\alpha=0.05$, only 2 of 5 variables were statistically significant: CEO Gender ($p=0.047$) and the number of foreign team members ($p=0.025$). The other 3 variables were not statistically significant ($p\text{-values} > 0.05$). Meaning none of the parameters associated to these variables were significantly different from zero, when considered separately.

It was also important to test if the parameters associated to these variables could be jointly deemed equal to zero. I.e. if any of the other variables would become significant if any of the 5 variables were excluded. This way, non-significant variables were removed one by one, in descending order of p-value, until the remaining variables presented p-values lower than 0.05.

These results are described below:

Independent Variables	B	Standard Error	Wald	df	Sig	EXP (B)
CEO Gender	-1.109	0.510	4.729	1	0.030	0.330
N Employees	0.275	0.127	4.681	1	0.030	1.317

N Foreign Team Members	0.759	0.353	4.637	1	0.031	2.137
Constant	-0.972	0.434	5.023	1	0.025	0.378
- 2 ln L	126.155					

Table 3 – Binary logistic analysis results for estimated model

Source: Own elaboration, based on the IBM SPSS Statistics outputs.

The above table shows that the number of employees should be included in the reduced model in addition to the 2 variables that were initially deemed significant (CEO gender and number of foreign team members).

Estimated reduced model:

$$\ln\left(\frac{\widehat{P}_i}{1 - \widehat{P}_i}\right) = -0,972x_0 - 1,109(CEO\ Gender) + 0,275(Nemployees) + 0,759(Nforeigners)$$

The reduced model was tested against the original model for validation using the Likelihood Ratio test for both models. The conclusions were:

$$\chi^2(2) = 126,155 - 121,384 = 4,771$$

For $\chi^2 < 5.99146$ (the critical value for 2 degrees of freedom with $\alpha=0.05$), the reduced model version was not rejected.

Applied modelling showed that CEO gender, number of employees and number of foreign team members were statistically significant predictors for the presence of incubated companies in external markets.

On the contrary, the number of languages spoken by the team and consultancy, advisory and/or intellectual and industrial property services by incubators could not explain the presence of incubated companies in external markets.

The reduced model also showed that:

1. CEO Gender – there was a decrease of 1.109 in the LOGIT of an incubated company being present in the external market whenever company CEO is female, and therefore a decrease in the probability of this company being present in the external market.
2. N Employees – the addition of a new employee resulted in a 0.275 increase *ceteris paribus* in the LOGIT of an incubated company being present in the external market, and therefore in an increase in the probability of this company being present in the external market.
3. N Foreign Team Members – the addition of a new foreign employee resulted in a 0.759 increase *ceteris paribus* in the LOGIT of an incubated company being present in the external market, and therefore in an increase in the probability of this company being present in the external market.

Meaning that:

H₁ (CEO gender influences the probability of entering the external market) – should not be rejected;

H₂ (higher degrees of education of CEOs increase external market entry potential) – should be rejected, because it had no explanatory power;

H₃ (a higher number of employees increases the probability of entering the external market) – should not be rejected;

H₄ (a higher number of foreign employees increases the probability of entering the external market) – should not be rejected;

H₅ (a higher number of foreign languages spoken by the team increases the probability of entering the external market) – should be rejected, because it had no explanatory power;

H₆ (Incubators that enable participation in international fairs, events and missions increase the probability of incubator companies entering the external market) – should be rejected, because it had no explanatory power;

2.4.1 Probability Calculations for market entry by incubated companies

One of the main advantages of using the restricted logistic regression model was that it allowed better estimations of external market entry potential probabilities.

This way, and according to the estimated restricted logistic regression model, its expression can be rewritten by replacing parameters with their estimates:

$$\ln\left(\frac{\widehat{P}_i}{1 - \widehat{P}_i}\right) = -0,972 - 1,109(CEOGender) + 0,275(Nemployees) + 0,759(Nforeigners)$$

Ten combinations between significant variables of the reduced model were studied.

Reduced Model Variables	CEO Gender	N Employees	N Foreigners
Combination 1	0	2	0
Combination 2	1	2	0
Combination 3	0	4	0
Combination 4	1	4	0
Combination 5	0	2	2
Combination 6	1	2	2
Combination 7	0	4	2
Combination 8	1	4	2
Combination 9	0	6	4
Combination 10	1	6	4

Table 4 – Model combinations for external market presence probability calculation

Source: Own elaboration, based on the IBM SPSS Statistics outputs.

The model for the combination between company teams with 2 employees (none of them foreign) and male CEOs (CEOGender=0; NEmployees=2; NForeigners=0) as export predictors for an incubated company was calculated. This way:

$$\ln\left(\frac{\widehat{P}_i}{1 - \widehat{P}_i}\right) = -0,972 + (0,275 * 2) = -0,422$$

$$P_i = \frac{e^{y_i}}{1 + e^{y_i}} = \frac{e^{-0,422}}{1 + e^{-0,422}} = \frac{0,655734039}{1 + 0,655734039} = 0,396038267$$

It was estimated that 40% of incubated companies in the above conditions were present in the external market.

The model for the probability of a company being present in the external market when the CEO is female, and the team is formed by 2 Portuguese employees ($CEOgender=1$; $NEmployees=2$; $NForeigners=0$) was also calculated:

$$\ln\left(\frac{\widehat{P}_i}{1 - \widehat{P}_i}\right) = -0,972 - 1,109 + (0,275 * 2) = -1,531$$

$$P_i = \frac{e^{y_i}}{1 + e^{y_i}} = \frac{e^{-1,531}}{1 + e^{-1,531}} = \frac{0,21631924}{1 + 0,21631924} = 0,177847421$$

It was estimated that 18% of incubated companies in the above conditions were present in the external market.

The model for the combination between company teams with 4 employees (none of them foreign) and male CEOs ($CEOgender=0$; $NEmployees=4$; $NForeigners=0$) as export predictors for an incubated company was calculated. This way:

$$\ln\left(\frac{\widehat{P}_i}{1 - \widehat{P}_i}\right) = -0,972 + (0,275 * 4) = 0,128$$

$$P_i = \frac{e^{y_i}}{1 + e^{y_i}} = \frac{e^{0,128}}{1 + e^{0,128}} = \frac{1,136553003}{1 + 1,136553003} = 0,531956381$$

It was estimated that 53% of incubated companies in the above conditions were present in the external market.

The model for the probability of a company being present in the external market when the CEO is female, and the team is formed by 4 Portuguese employees ($CEOgender=1$; $NEmployees=4$; $NForeigners=0$) was also calculated:

$$\ln\left(\frac{\widehat{P}_i}{1 - \widehat{P}_i}\right) = -0,972 - 1,109 + (0,275 * 4) = -0,981$$

$$P_i = \frac{e^{y_i}}{1 + e^{y_i}} = \frac{e^{-0,981}}{1 + e^{-0,981}} = \frac{2,667122031}{1 + 2,667122031} = 0,727306593$$

It was estimated that 73% of incubated companies in the above conditions were present in the external market.

The model for the combination between company teams with 2 employees (both foreign) and male CEOs ($CEOgender=0$; $NEmployees=2$; $NForeigners=2$) as export predictors for an incubated company was calculated. This way:

$$\ln\left(\frac{\widehat{P_i}}{1 - \widehat{P_i}}\right) = -0,972 + (0,275 * 2) + (0,759 * 2) = 1,096$$

$$P_i = \frac{e^{y_i}}{1 + e^{y_i}} = \frac{e^{1,096}}{1 + e^{1,096}} = \frac{2,992173361}{1 + 2,992173361} = 0,749509876$$

It was estimated that 75% of incubated companies in the above conditions were present in the external market.

The model for the combination between company teams with 2 employees (both foreign) and female CEOs ($CEOgender=1$; $NEmployees=2$; $NForeigners=2$) as export predictors for an incubated company was calculated. This way:

$$\ln\left(\frac{\widehat{P_i}}{1 - \widehat{P_i}}\right) = -0,972 - 1,109 + (0,275 * 2) + (0,759 * 2) = -0,013$$

$$P_i = \frac{e^{y_i}}{1 + e^{y_i}} = \frac{e^{-0,013}}{1 + e^{-0,013}} = \frac{0,987084135}{1 + 0,987084135} = 0,496750046$$

It was estimated that 50% of incubated companies in the above conditions were present in the external market.

The model for the combination between company teams with 4 employees (two of them foreign) and male CEOs ($CEOgender=0$; $NEmployees=4$; $NForeigners=2$) as export predictors for an incubated company was calculated. This way:

$$\ln\left(\frac{P_i}{1 - P_i}\right) = -0,972 + (0,275 * 4) + (0,759 * 2) = 1,646$$

$$P_i = \frac{e^{y_i}}{1 + e^{y_i}} = \frac{e^{1,646}}{1 + e^{1,646}} = \frac{5,186193508}{1 + 5,186193508} = 0,838349706$$

It was estimated that 84% of incubated companies in the above conditions were present in the external market.

The model for the combination between company teams with 4 employees (two of them foreign) and female CEOs ($CEOgender=1$; $NEmployees=4$; $NForeigners=2$) as export predictors for an incubated company was calculated. This way:

$$\ln\left(\frac{\widehat{P}_i}{1 - \widehat{P}_i}\right) = -0,972 - 1,109 + (0,275 * 4) + (0,759 * 2) = 0,537$$

$$P_i = \frac{e^{yi}}{1 + e^{yi}} = \frac{e^{0,537}}{1 + e^{0,537}} = \frac{1,710866556}{1 + 1,710866556} = 0,631114266$$

It was estimated that 63% of incubated companies in the above conditions were present in the external market.

The model for the combination between company teams with more than 5 employees (more than three were foreign) and male CEOs ($CEOgender=0$; $NEmployees=4$; $NForeigners=2$) as export predictors for an incubated company was calculated. This way:

$$\ln\left(\frac{\widehat{P}_i}{1 - \widehat{P}_i}\right) = -0,972 + (0,275 * 6) + (0,759 * 4) = 3,714$$

$$P_i = \frac{e^{yi}}{1 + e^{yi}} = \frac{e^{3,714}}{1 + e^{3,714}} = \frac{41,01754902}{1 + 41,01754902} = 0,97620042$$

It was estimated that 98% of incubated companies in the above conditions were present in the external market.

Lastly, the model for the combination between company teams with more 5 employees (more than three were foreign) and female CEOs ($CEOgender=1$; $NEmployees=4$; $NForeigners=2$) as export predictors for an incubated company was calculated. This way:

$$\ln\left(\frac{\widehat{P}_i}{1 - \widehat{P}_i}\right) = -0,972 - 1,109 + (0,275 * 6) + (0,759 * 4) = 2,605$$

$$P_i = \frac{e^{yi}}{1 + e^{yi}} = \frac{e^{2,605}}{1 + e^{2,605}} = \frac{13,5312253}{1 + 13,5312253} = 0,931182679$$

It was estimated that 93% of incubated companies in the above conditions were present in the external market.

Combinations and respective results are described below:

CEO Gender	N Employees	N Foreign Team Members	External Market Presence Probability
Male	2	0	0.40
		2	0.75
	4	0	0.53
		2	0.84
	More than 5	More than 3	0.98
Female	2	0	0.18
		2	0.50
	4	0	0.72
		2	0.63
	More than 5	More than 3	0.93

Table 5 – Combination calculation results for probability of a given incubated company being present in the external market

Source: Own elaboration, based on the IBM SPSS Statistics outputs.

2.5 Discussion

This study aimed to assess which incubator measures would be internationalization predictors for incubated companies. Relevant individual characteristics that could as well influence external market entry were also associated.

Results showed that none of the measures considered in this study constituted an internationalization predictor for incubated companies. Although, firstly, the offer of consultancy, advisory and/or intellectual and industrial property services was statistically significant, this variable lost its statistical strength when compared to the other variables included in this study. These results could have been affected by some limitations. As stated in reviewed literature, when they integrate a business incubator, exporting startups have often

already decided to go global (Carvalho and Galina 2015), and use incubators as a mean to access contact networks, services and infrastructures that are essential to this internationalization goal. On the other side, as this prior intention was not analysed in this study, it seemed like entrepreneurs, in general, were not clearly aware of how the measures taken by incubators would impact on start-up internationalization, which seemed to result in all internationalization credits going to entrepreneurs motivation to enter the external market (Eggers et al. 2013). This way, it would be important to consider this predisposition to business internationalization of entrepreneurs and founders of start-ups that have gone global, as this would allow to assess in what way the role of incubators is perceived.

CEO gender was statistically significant. Results suggested that there was higher internationalization predisposition for incubated companies with male CEOs. This was partially in accordance with the aforementioned literature, because, as stated before, male CEOs tended to take more risks than female CEOs (Blackburne and Buckley 2019). This manifests actively in opportunity identification, which can explain the obtained results. In fact, when increasing the number of employees for start-ups included in this study, the above difference between male and female CEOs decreased, therefore suggesting an increased presence of start-ups with female CEOs in the external market. Number of team members and number of foreign team members also seemed to mitigate gender differences in terms of start-up internationalization. It is also important to highlight that gender differences are a social factor that differs according to each region, country and continent's culture. That is why it is important to understand how these results could have been affected by the sector or export site of incubated companies. Likewise, it is important to understand how companies managed by female CEOs are seen in different markets and assess the impact of CEO gender on different export markets.

According to this study, CEO education level did not seem to be an internationalization predictor. This may derive from the samples for each academic degree not being significant enough. This was an exploratory study, which caused this statistic predictor to lose strength and not be in accordance to reviewed literature (Albort-Morant and Oghazi 2016; Stucki 2016). In addition, the fact that start-ups in this study were incubated businesses might have decreased the impact of this characteristic on the internationalization process. Although some literature reinforces this entrepreneur skill in an incubation context (Albort-Morant and Oghazi 2016), the Portuguese reality may not be in accordance to these data. A more comprehensive data collection may change this result, because it will allow to access more information about the impact of CEO education in the internationalization process of their start-ups. Previous entrepreneurial experience in the internal and external market (Albort-Morant and Ribeiro-

Soriano 2016; Gabrielsson and Kirpalani 2004; Stucki 2016; Madsen and Servais 1997) and start-up activity may also be relevant. This new study hypothesis may significantly relate to company internationalization and allow researchers to learn the connection between these two characteristics.

Lastly, it is worth to discuss why this study showed that the number of languages spoken by a team was not an internationalization predictor for incubated companies. Despite the significant relation between foreign team members and company internationalization, these two factors were not associated to languages spoken. This issue might not be clear for entrepreneurs who participated in this study. In fact, no relevant literature was found that associated the number of languages spoken and internationalization capacity in start-ups. On the other side, according to literature, foreign members' know-how of Portuguese start-ups was a factor that contributed to internationalization (Gabrielsson and Kirpalani 2004; Stucki 2016), and knowledge of other languages might as well be associated to this possibility. However, this does not relate to incubated start-ups directly.

This way, according to this study, foreign team members may be an internationalization predictor, as this knowledge of other languages may be useful in contacts with the external market.

Future studies should cover the specific needs of entrepreneurs who want to enter the external market to contribute to research in this area and help incubators adapt their offer according to incubated companies' expectations.

In summary, this study contributes to research about the role of incubators in the internationalization of incubated companies. Knowledge of individual characteristics of entrepreneurs in incubated start-ups could be deepened as this will allow to explore in what ways incubators can use those characteristics to boost internationalization of incubated companies.

2.6 Main Study Limitations

This study had the following limitations:

A. Internationalization of incubated companies is a recent matter. This way, despite the empirical evidences arising from the experiences of players integrated in entrepreneurial and incubator management settings, related literature was scarce;

- B. No studies were found that showed that the number of CEOs was an internationalization predictor;
- C. The number of existing and tested surveys on this matter was small and existing surveys did not include some of the variables studied herein;

2.7 Practical company management implications

This study showed relevant results for:

- A. Incubators:
 - I. Can define and implement strategies that promote international contact networks, thereby facilitating access to international procurement networks, and support entrepreneurs in terms of hiring foreign employees;
 - II. Can analyse specific traits of incubated companies and develop new strategies from there that allow to boost their performance. Can consequently develop and implement new external market entry strategies, based on each start-up's internationalization capacity;
 - III. And can also take into account results regarding data that concerns CEO gender, and provide different support for female and male CEOs or enable CEOs to use alternative tools that allow them to enter the market effectively and in a consolidated way;
- B. Entrepreneurs:
 - IV. By using the variables analysed in this study, can implement in their strategies and operations some internal measures that lead to the internationalization of their start-ups, such as: focusing on international teams and experienced employees who know the external market, and introducing tools that allow to fill the social and cultural gaps of the countries to where they want to export;
 - V. Can also redefine employee and top management roles, in the sense of taking better advantage of the capacities and skills of all team elements, like the valorisation of potential foreign employees, that provides the entrepreneurial ecosystem with a diversity of knowledge and experiences, as well as the know-how from markets in which these employees have worked;
 - VI. And can focus on increasing their number of employees, namely foreign employees;
- C. Society:
 - VII. Results show that the number of employees in a start-up can be an internationalization predictor, which may contribute to the increase of employment, both nationwide (generating

more job opportunities) and worldwide (following internationalization and with the inclusion of immigrants in teams);

VIII. According to this study, integration of foreign employees in companies may also impact positively on social issues related to sustainability and equality of opportunities;

IX. The value added by foreign employees, as shown in this work, may also change the perception of the corporate sector concerning the integration of foreign members in their teams;

D. Economy:

X. Start-up incubation can lead to the development of internationalization capacity that in turn may end up contributing to economy development, by increasing the export of national products and services, and the revenue of those start-ups.

2.8 Conclusion

This study aimed to assess what factors could predict external market entry for incubated companies. Several measures implemented by incubators in start-up internationalization were analysed in this study, as well as export predictors concerning specific characteristics to each start-up and their teams.

Results suggest that the number of team members for incubated start-ups, including foreign members, and CEO gender are internationalization predictors for incubated companies. More clearly, this study suggests that the presence of incubated start-ups in external markets is higher for start-ups with male CEOs and greater number of national and foreign team members.

According to this study, CEO gender seems to be a characteristic that is associated to the external market. In fact, this study suggests a higher presence of incubated companies with male CEOs in the external market. This is not in accordance with the evolution of Portuguese society and makes us wonder about the views of other countries and continents about companies that are led by females and what stigmas can be associated to gender in terms of internationalization capacity. It is relevant to discuss how this could affect the corporate ecosystem in Portugal.

Chapter 3 - Factors that influence start-up revenue in the community and extra-community markets

Chapter 3 - Factors that influence start-up revenue in the community and extra-community markets

Expanding into the community and extra-community markets has become a frequent strategy used for start-up scalability. Therefore, this study aims to verify which factors influence revenue in the community and extra-community markets. The SABI platform was used to select information about all national start-ups incorporated in the last three years, between 2015 and 2017. Results suggest that the factors that influence revenue in the community market differ from those that influence revenue in the extra-community market. This study contributes to the innovation of the research about start-up performance in the community and extra-community markets and is a starting point for the study of new international growth strategies by entrepreneurs.

3.1 Introduction

In economics, business scalability is the “expansion of production capacity that causes total production costs to decrease when compared to the increase in product sales” (Bannock & Baxter, 2011). Expanding into community and extra-community markets has become a frequent strategy used for scalability, which led to the opening of foreign markets that were previously closed, therefore increasing the pace of economic globalization. Driven by technological advances in transportation and communications, small enterprises found in this scenario an easier opportunity to expand internationally (Oviatt & McDougall, 2005).

This internationalization trend of small and mid-size enterprises (SMEs) led to an increased interest in explaining which factors contribute to success in the community and extra-community markets (Lu & Beamish, 2001).

Some studies have analysed which factors influence the success of companies in the community and extra-community markets, but from different perspectives. For instance, Battaglia and colleagues (2018) suggest that, in general, the combination of large investments in Research & Development (R&D) and large export activities affect revenue growth negatively for SMEs.

In the present time, where most start-ups are born to be global (G. A. Knight & Liesch, 2016), there are also many studies addressing the born globals (Choquette, Rask, Sala, & Schröder, 2017; Johanson & Vahlne, 2009; G. A. Knight & Liesch, 2016). How this transition

happens, the financial and accounting conditions of companies in the internationalization stage and the predicting factors associated to revenue increase in the international market are, however, not referred.

Beugelsdijk and colleagues (2018) have analysed how cultural distance affects the main strategic decisions throughout the internationalization process. Gaffney, Karst and Clampit (2016) have analysed how cultural distance (at the market knowledge and economic level) affects company performance in the international market in the scope of its internationalization strategy. This study suggests that enterprise characteristics and respective strategy vary depending on the cultural distance between the country of origin and the export country. According to these authors, a higher number of shareholders affects the presence of businesses in the community and extra-community markets, leading to business expansion in terms of cultural distance.

However, there are no studies of this kind that can be applied to start-ups and their performance in the community and extra-community markets, which shows that there is a gap in literature. Also, no studies were found that analysed the community market against the extra-community market for a given country. There is no distinction between markets and no information about which factors relate directly to each market.

A thorough research in the Web of Science using the following keywords was made to analyse the state of the art available on these subjects: Start\$up, export*, billing, billing volume, income, performance, revenue, productivity, profit, sell, market, invest*, financ*, financial autonomy, export indicator, local trade, trade, national trade, business, internat*, external market; community market, extra community market. These words were combined in different ways, with about three to five words per combination.

Data analysed in this study was obtained from the SABI database, an online database that has comprehensive information about all companies in several countries worldwide. This database can be used for private searches about a given company, to search for companies with a specific profile or for scientific data analysis (Sabi | Spanish and Portuguese Company Data | Bureau van Dijk, n.d.).

The information selected for this study was the information about different factors that were studied before and could potentially predict a successful internationalization. New hypotheses originated from the reviewed literature were also explored in this study. Other variables that could be factors that influence revenue in community and extra-community markets were also considered. The authors did not find any relevant literature concerning this matter but decided to include those variables in order to investigate new lines of research.

In short, our research question was: which factors influence revenue in community and extra-community markets?

3.2 Literature Review

Company revenue in the community and extra-community market can be associated with multiple factors, as company characteristics (location, number of employees, and age of the start-up), the type of products and services offered and the knowledge and relationships that exist or are created with foreign stakeholders.

Moen, Heggeseth and Lome (2016) define companies with high international orientation as companies that actively seek international opportunities, see the world as their market, adapt their products to international operations, communicate their international ambitions throughout the organization and develop the resources required for international activities. The fact that start-ups play an essential role in the improvement of economic efficiencies and are a significant source of innovation is also referred (Gruber, MacMillan, & Thompson, 2008; Hunt, 2012).

In fact, previous studies mention the following factors as the driving forces to internationalization since the origin of start-ups: global niche strategies (Almor, 2000; Bonaccorsi, 1992), ability to raise capital externally (Bonaccorsi, 1992), entrepreneurial vision and capacity (G. Knight, 2000), and depending on international networks and strategic alliances as a substitute for company assets (Coviello & Munro, 1995).

Choosing the place for their commercial activity is one of the most important strategic decisions in the beginning of a new venture, playing a key role in the determination of company competitiveness (Dvouletý & Blažková, 2020).

Entrepreneurs must know how to combine the opportunities and challenges of a specific place with the resources and capacities of a young business (Pe'er & Keil, 2013; Rostek & Skala, 2017). In addition to facilitating the creation of employment relationships, economic growth, as a phase of the industrialization process, can also affect employee productivity positively (Pe'er & Keil, 2013).

Multiple studies have addressed how important it is for start-ups to be located in areas of great innovation in their countries of origin in order for them to grow in the scope of emerging markets (Etzkowitz, De Mello, & Almeida, 2005; Parthasarathy & Aoyama, 2006; Varma, Nayyar, & Bansal, 2016). However, these studies do not relate location with the

internationalization process, and the effect of location on revenue in the community and extra-community markets is not described either.

A high customer density in the same place offers multiple advantages. The higher the customer density, the more likely start-ups can attract their first customers, which are essential for business survival. Being located in a place with high consumer potential increases the opportunities to use social and professional bonds to increase start-up visibility and legitimacy and, therefore, reduce risks associated to their small size and to the notoriety factor (Audia, Freeman, & Reynolds, 2006; Dahl & Sorenson, 2009; Delmar & Shane, 2004; Vernon Henderson, 2003). This way, the first hypothesis of this study is understanding how start-up location influences its revenue in the community and extra-community market.

Hypothesis 1 – Location influences start-up revenue in the community and extra-community market

Several authors have observed that export growth impact on job creation is positive, suggesting that the higher the revenue in the community and extra-community market, the higher the number of employees of a given company (Liu, Park, & Whang, 2019). It is important to note that start-ups have driven job creation since 2010, especially when it comes to services and trade, but also accommodation and food (OECD, 2019).

According to Reis & Forte (2016), we cannot unequivocally claim that business dimension affects export intensity positively, because so far there is no unanimity in literature as to the relation between company size and export performance.

Studies suggest that smaller teams outsource and subcontract other services for export (Folta, Cooper, & Baik, 2006), providing start-ups with the means to get a more flexible production and wider variety of logistic improvements, such as productivity increase (Glaeser, Kerr, & Ponzetto, 2009), giving them the chance to expand their export territory.

However, a recent study highlights that the number of employees would affect startup revenue in the community and extra-community market positively (Castillo, Maffioli, Rojo, & Stucchi, 2014). It suggests that product and process innovation is positively linked to job creation, which subsequently increases the company's power in the market, including the community and extra-community markets.

Multiple authors have mentioned that, over time, knowledge and expertise of entrepreneurs in international markets could also contribute to a more effective entry into community and

extra-community markets (Gabrielsson & Kirpalani, 2004; Madsen & Servais, 1997; Stucki, 2016). This way, a higher number of employees gives the start-up different sources of knowledge and expertise areas, which can boost connections to international markets via former professional relationships of employees.

Considering this analysis and the literature mentioned above that concerns the risk associated with internationalization, the second hypothesis of this study is to verify how team size affects start-up revenue in the community and extra-community markets and whether such influence is positive.

Hypothesis 2 – A higher number of employees affects start-up revenue in the community market positively

According to existing literature, academic qualifications seem to be a positive factor in start-up internationalization (Stucki, 2016). Founders who have university education show higher success rates in business internationalization.

The specialized, complex and intensive knowledge required by the human resources of this type of organization reflects the importance of tacit and technological knowledge in this corporate context. Relationships created throughout the internationalization process of these companies are essential. There are companies supported by a large client or research & development partner, which became business mentors during company internationalization (Sharma e Blomstermo, 2003; Coviello, 2006). Others have a network of international contacts that facilitate the creation of new opportunities, internal cooperation agreement, international reputation, and learning space. A well-established network of international contacts allows Born Globals to be able to: identify community and extra-community market opportunities, advices and experiential learning of foreign markets, trustworthy references, and corporate solidarity (Zhou et al., 2007).

However, such expertise, which provides internationalization opportunities, comes with a price. In fact, there are case studies that show that companies struggle to find qualified people for their teams when remuneration is unfair or uncompetitive when compared to other market offers (Lacity, Khan, & Carmel, 2016). Specific investment in human resources and suppliers results in higher commitment to the organization's mission (Noack, Miller, & Guidice, 2018; Song, De Jong, Anthony Di Benedetto, & Lisa Zhao, 2019; Suseno & Pinnington, 2017).

Although this potential brought by employees drives entrepreneurs to choose large projects leading businesses to fail for lack of funds (Lin & Liu, 2011), some studies suggest that, strategically, entrepreneurs will only invest if they have enough internal resources and that the higher their cash flow, the higher their investments (Carpenter, Fazzari, & Petersen, 1994, 1998; Fazzari, Hubbard, Petersen, Blinder, & Poterba, 1988; Kashyap, Lamont, & Stein, 1994).

This way, the third hypothesis of this study is whether a higher investment in employees, namely associated to their remuneration, could boost a higher revenue in the community market at first.

Hypothesis 3 – The higher the average cost per employee, the higher the revenue in the community market

Business internationalization was the subject of many studies in the last decades. According to Lu and Beamish (2001), growth via international diversification is an important strategic option for small enterprises, because it expands the customer database and allows for the business to reach scale economies.

In general, studies that analyse multinational companies have focused on large corporations that are already consolidated (Oviatt & McDougall, 2005), where the internationalization phenomenon is a process through which companies expand their international presence gradually (Johanson & Vahlne, 1977).

Start-ups have shown a different internationalization pattern. For some of them, internationalization is part of their processes since their foundation (Oviatt & McDougall, 2005). For others, internationalization is something they seek soon after they begin their operation (Sapienza, Autio, George, & Zahra, 2006). According to Eurofound (2012), about 20 per cent of European start-ups are considered Born Globals.

In the first moments of an internationalization process, these companies are likely to have a negative financial performance, because they are facing the hardships and paying the costs of being global and not knowing the context of new markets (Contractor, Kundu, & Hsu, 2003).

Considering that the definitions of start-up always refer risk, it is necessary to observe the levels of mortality and survival of new businesses. A study made by the OECD (2019) claims that, on average, a third of the new European companies do not survive their first year.

Westhead, Wright and Ucbasaran (2001) discovered that the export propensity does not relate significantly to sales growth or even company survival, but to growth of external sales in

conjunction with total growth and company survival. They suggested a sustained, consolidated growth that simultaneously allows for the company to grow in its whole.

This way, the fourth hypothesis is whether start-ups that reach their second year of existence have a bigger presence in the community and extra-community markets and that start-up revenue tends to increase with this considerably large international presence.

Hypothesis 4 – Revenue in the extra-community market tends to increase in the second year of activity of a start-up

Exports contribute to ensure the growth and survival of a company and are particularly relevant when facing a stagnant internal market (Reis & Forte, 2016).

New exporters bear significant initial costs when (i) collecting information about international markets, (ii) developing marketing channels, (iii) adapting products and packages to international preferences, and (iv) learning to handle new bureaucratic procedures. In turn, these irrecoverable costs end up causing problems in export markets. Literature suggests that companies that are highly productive enter into the export market more easily, because their expected profits are high enough to cover the irrecoverable costs of such entry (Bernard & Jensen, 1999, 2004; Clerides, Lach, & Tybout, 1998; Greenaway & Richard, 2004; Roberts, Aw, & Chung, 2000).

Multiple authors suggest that the orientation of entrepreneurs to the community and extra-community markets can be influenced by several factors: economic (Child et al., 2017), cultural (Kreiser, Marino, Dickson, & Weaver, 2010; Mitchell et al., 2002; Tajeddini & Mueller, 2009), political (Muhammad, Ullah, & Warren, 2016), and social (Stephan & Uhlaner, 2010).

Covin and Miller (2014) further suggest that such orientation can also be influenced by the economic development at a national level. The authors classify entrepreneurs from emerging countries as proactive, but less willing to take risks, when compared with their peers from more developed markets, who show a higher tendency to develop innovative products and services and accept related risks.

Beugelsdijk and colleagues (2018) have studied the cultural distance and company internationalization. Their results suggest that companies are less likely to expand to distant places. According to this study, cultural distance has a strong negative effect on company performance in terms of revenue in the community and extra-community markets, but no effect on company performance as a whole. In addition, their results suggest that distance effects do

not change with time, but with cultural differences between the export country and the country of origin of the company, especially when one is a developed country and the other an emerging country.

In recent years, access to funding has been an additional challenge for companies that start their activity, such as start-ups, which leads to an increased use of bank loans (OECD, 2019). Lin and Liu (2011) developed several analytical models about entrepreneur behaviour in the international market. Their results suggest that entrepreneurs tend to decide for large projects, which causes companies to fail for lack of funds. On the other side, when it comes to small enterprises, investors are more interested in investing in small projects with lower risk.

A company with financial constraints, for which getting external loans is hard or very expensive, will only invest to the extent of its cash flow and if it has enough internal resources (Carpenter et al., 1994, 1998; Fazzari et al., 1988; Kashyap et al., 1994).

Another way to boost a company's financial sustainability is the effectiveness of its employees. Literature suggests that investing specifically in human resources and suppliers increases engagement and commitment to the organization's mission (Noack et al., 2018; Song et al., 2019; Suseno & Pinnington, 2017), while motivating them and improving their performance.

This way, the fifth hypothesis is that a high level of financial autonomy of a start-up precedes revenue increase in the community and extra-community market, specifically the latter, because the company can bear higher risks while seeking greater results. The sixth hypothesis is that the higher the profit per employee, the higher the revenue in the community and extra-community market, reflecting company capacity.

Hypothesis 5 – A high level of financial autonomy contributes to revenue increase in the extra-community market

Hypothesis 6 – A high average profit per employee contributes to revenue increase in the extra-community market

3.4 Methodology and Background

This study aimed to contribute to research through its differentiating methodology, which used tools and international data that offered concrete, real values about start-ups, thus,

excluding the risk of these values being under or overestimated, as would happen if they were collected from the entrepreneur standpoint.

3.4.1 Sample

This study was based in a quantitative analysis that used an international online database named SABI.

All companies in this database that were created between 2015 and 2017 were selected for this study. Collected data resulted from the assessment made by SABI on 31 December 2018. This way, the companies in our sample had between one, two and three years when data were collected, the age considered by this study as start-up age. A total of 3,599 start-ups were selected for this study. The large sample that was considered gives researchers a more realistic perspective of what really happens in the ecosystem and adds to the existing literature about this subject, which is currently scarce. All companies had their tax residence in Portugal. They were all operating and had export records. From the 3,599 start-ups included in this study, 2,060 had revenue only in the community market, 1,116 only in the extra-community market, and 423 in both markets.

3.4.2 Variables to Study

To see which factors influence revenue in the community and extra-community market, the data “Revenue in the Community Market”, in euros, and “Revenue in the Extra-community market”, in euros, were selected.

$$y_{MC} = \text{Revenue}_{\text{community}}$$

$$y_{MEC} = \text{Revenue}_{\text{extra-community}}$$

The dependent variables were analysed individually, and any connection between them was eliminated.

For hypothesis 1, about start-up location, the selected data reflected company location divided into regions. Dummies for each country region were created with this information:

“Região Norte”, “Região Centro”, “Região Lisboa e Vale do Tejo”, “Região Alentejo”, “Região Algarve” and “Região Açores”.

The Autonomous Region of Madeira was not considered because it is a tax-free zone. This stimulates the settlement of companies from all over the world but that does not mean that companies operate there. This feature could influence the results and that was not the goal of this study.

For hypothesis 2, about the number of employees of start-ups, the selected data corresponded to “Número de Funcionários” on 31 December 2018.

For hypothesis 3, about the average cost per employee, the selected data reflected the “Custo Médio por Empregado” in thousand euros.

Three dummies were created for hypothesis 4 using data about “Data de Constituição” of start-ups: Idade 3 (corresponding to the third year of activity of the start-up – all companies created between 1 January 2016 and 31 December 2016), Idade 2 (corresponding to the second year of activity of the start-up – all companies created between 1 January 2017 and 31 December 2017), and Idade 1 (corresponding to the first year of activity of the start-up – all companies created between 1 January 2018 and 31 December 2018). This way, start-ups with “idade 1” would be in their first year of activity, start-ups with “Idade 2” in their second year of activity, and start-ups with “idade 3” in their third year of activity.

For hypothesis 5, about the financial autonomy of start-ups, the selected data corresponded to “autonomia financeira”, in euros, so that we could understand how this variable could relate to revenue in the extra-community market.

Lastly, for hypothesis 6, about the profit per employee, the selected data reflected the “lucro por empregado” in thousand euros.

3.4.3 Result Analysis Method Adopted

The regression computations were performed by EViews 11.0 software. The study was focused on the development of a regression model using panel data, regressing either the “Revenue on the Community Market” or the “Revenue on the Extra Community Market” (both measured on thousand euros), as alternative dependent variables, each one of them on fifteen explanatory factors: Região Norte, Região Centro, Região Lisboa e Vale do Tejo, Região Alentejo, Região Algarve, Região Açores, , Idade 1, Idade 2, Idade 3, Capital Social (euro), N

Funcionários, Capitais Próprios (euro), Custo Médio por Empregado (thousand euros), Lucro Médio por Empregado (thousand euros) and Autonomia Financeira.

3.4.3.1 Results for the Community Market

The next table shows the simple regression estimation results of the dependent variable, the “Revenue on the Community Market”, on each eligible explanatory variable, including the estimate for the respective coefficient, its standard error, the t-test and the probability associated to it (the p-value). In the next table, one reports the significative variables only, according to those simple regression estimations.

Variable	Coefficient	Std. Error	T-Statistic	Prob.
Região Lisboa e Vale do Tejo	-19490,62	8685.289	-2.244096	0.0249
Idade 1	-40146,02	9087.108	-4.417909	0.0000
Idade 2	22523,76	8785.560	2.563725	0.0104
Share Capital	0,120808	0.025964	4.652945	0.0000
N Funcionários	11095,77	390.0786	28.44496	0.0000
N Subsidiárias	23016,58	11074.04	2.078427	0.0377
Capitais Próprios	0,016508	0.005799	2.846756	0.0044
EBITDA	185,6403	24.38533	7.612789	0.0000
Custo Médio Empregado	1645,042	172.3271	9.546043	0.0000
Lucro por Empregado	133,8024	59.16184	2.261633	0.0238

Table 6 – Revenue on the Community Market

Source: Own elaboration, based on the IBM SPSS Statistics outputs.

Let us now consider the Multiple Linear Regression Model, where the dependent variable is the ‘Revenue on the Community Market’ and the explanatory variables are all the explanatory variables whose estimates for the coefficients were statistically significant reported above. The next output presents the t-statistics and associated probability values for the comprehensive

regression model. Because there is a suspicion that heteroskedasticity may be present, White estimation has been considered to estimate the comprehensive model.

Dependent Variable: _8_VT_COMUNITARIO				
Method: Least Squares				
Date: 05/19/20 Time: 16:03				
Sample: 1 3599				
Included observations: 3599				
Huber-White-Hinkley (HC1) heteroskedasticity consistent standard errors and covariance				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
_1_LISBOAVT	-19998.51	7523.649	-2.658087	0.0079
_3_IDADE_1	1124.211	9478.876	0.118602	0.9056
_3_IDADE_2	10385.63	9163.561	1.133361	0.2571
_4_CAPITAL_SOCIAL_EURO	0.070015	0.021736	3.221163	0.0013
_5_N_FUNCIONARIOS	10553.98	2591.141	4.073102	0.0000
_6_N_SUBSIDIARIAS	8257.571	13654.09	0.604769	0.5454
_13_CAPITAL_PROPRIO_EURO	-0.041827	0.021930	-1.907273	0.0566
_14_EBITDA_EURO_MILHARES	205.9098	144.9672	1.420389	0.1556
_20_CUSTO_MEDIO_EMPREGADO_MIL	1453.742	264.7857	5.490260	0.0000
_21_LUCRO_EMPREGADO_MILHARES	-24.10444	162.4734	-0.148359	0.8821
C	9098.388	12203.90	0.745531	0.4560
R-squared	0.214161	Mean dependent var	71487.16	
Adjusted R-squared	0.211971	S.D. dependent var	252103.5	
S.E. of regression	223794.7	Akaike info criterion	27.47790	
Sum squared resid	1.80E+14	Schwarz criterion	27.49681	
Log likelihood	-49435.48	Hannan-Quinn criter.	27.48464	
F-statistic	97.78232	Durbin-Watson stat	1.907496	
Prob(F-statistic)	0.000000	Wald F-statistic	22.18444	
Prob(Wald F-statistic)	0.000000			

Figure 3 – Multiple Linear Regression Model with the dependent variable ‘Revenue on the Community Market’

Source: Output Eviews

As one may conclude, some variables have shown not to be significant in this comprehensive model.

So, after dropping some of those variables (the less significant), we obtain the following result:

Dependent Variable: _8_VT_COMUNITARIO				
Method: Least Squares				
Date: 05/19/20 Time: 16:23				
Sample: 1 3599				
Included observations: 3599				
Huber-White-Hinkley (HC1) heteroskedasticity consistent standard errors and covariance				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
_1_LISBOAVT	-19771.48	7439.922	-2.657485	0.0079
_4_CAPITAL_SOCIAL_EURO	0.070162	0.020214	3.470884	0.0005
_5_N_FUNCIONARIOS	10589.00	2544.926	4.160828	0.0000
_13_CAPITAL_PROPRIO_EURO	-0.040994	0.016370	-2.504209	0.0123
_14_EBITDA_EURO_MILHARES	200.7118	97.84483	2.051328	0.0403
_20_CUSTO_MEDIO_EMPREGADO_MIL	1460.844	266.1859	5.488060	0.0000
C	12968.12	9901.876	1.309663	0.1904
R-squared	0.213644	Mean dependent var	71487.16	
Adjusted R-squared	0.212330	S.D. dependent var	252103.5	
S.E. of regression	223743.8	Akaike info criterion	27.47633	
Sum squared resid	1.80E+14	Schwarz criterion	27.48837	
Log likelihood	-49436.66	Hannan-Quinn criter.	27.48062	
F-statistic	162.6506	Durbin-Watson stat	1.909153	
Prob(F-statistic)	0.000000	Wald F-statistic	32.63711	
Prob(Wald F-statistic)	0.000000			

Figure 4 – Multiple Linear Regression Model with the dependent variable ‘Revenue on the Community Market’, without less significant variables

Source: Output Eviews

This is the right time to test the imposed exclusion restrictions,

H0:

$$\beta_{idade 1} = 0$$

$$\beta_{idade 2} = 0$$

$$\beta_{N Subsidiárias} = 0$$

$$\beta_{Lucro por Emprego} = 0$$

using the following formula:

$$\hat{F} = \frac{\frac{SSR_r - SSR_u}{g}}{\frac{SSR_u}{(n - k)}} = \frac{(1,80 \times 10^{14}) - (1,80 \times 10^{14})}{4}}{\frac{1,80 \times 10^{14}}{(3599 - 11)}} = 0$$

Because the SSR of both models are considerably similar, the F value is not exactly 0, but it is very close to 0.

According to the result, one does not reject H0, because the value of the statistic is smaller than the critical value presented by the F-table with 4 and ∞ degrees of freedom. The critical value of F0 is 5,63 (according to $P(F>F0) = 0,05$).

Short Model:

$$\hat{y} = \hat{\beta}_o + \beta_{Região\ Lisboa\ VT} (Região\ Lisboa\ VT) + \hat{\beta}_{Capital\ Social} (Capital\ Social) \\ + \hat{\beta}_{N\ Funcionários} (N\ Funcionários) + \hat{\beta}_{Capitais\ Próprios} (Capitais\ Próprios) \\ + \hat{\beta}_{EBITDA} (EBITDA) + \hat{\beta}_{Custo\ Médio\ Empregado} (Custo\ Médio\ Empregado)$$

$$\hat{y} = 12968,12 - 19771,48(Lisboa\ VT) + 0,070162(Capital\ Social) \\ + 10589,00(N\ Funcionários) - 0,040994(Capitais\ Próprios) \\ + 200,7118(EBITDA) + 1460,844(Custo\ Médio\ Empregado)$$

“Região Lisboa e Vale do Tejo” ($p<0,05$), “capital social” ($p<0,05$), “Número Funcionários” ($p<0,05$), “Capitais Próprios” ($p<0,05$), “EBITDA” ($p<0,05$), and “Custo Médio por Empregado” ($p<0,05$) showed significant results for the dependent variable “Revenue in the Community Market”.

This way, results suggest that start-ups located in “Região Lisboa e Vale do Tejo” have a decrease of 19,771 euros in their revenue in the community market when compared with start-ups located in other regions. That is, being in Lisboa e Vale do Tejo seems to be detrimental to the revenue in the community market when compared to other regions.

On the other side, it was estimated that when “Capitais Próprios” increased by one euro, revenue in the community market increased 0.07 euros.

According to the results, each employee brings an increase of 10,589 euros, *ceteris paribus*. Each addition of one thousand euros to the “EBITDA” results in a 200 euro increase in revenue in the community market, *ceteris paribus*. Results also suggest that the addition of one thousand euros to “custo médio por empregado” brings a 1,460 euro increase in revenue in the community market, *ceteris paribus*.

3.4.3.2 Results for the Extra-community Market

The next table shows the simple regression estimation results of the dependent variable, the ‘‘Revenue on the Extra Community Market’’, on each eligible explanatory variable, including the estimate for the respective coefficient, its standard error, the t-test and the probability associated to it (the p-value). In the next table, one reports the significative variables only, according with the simple regression estimations.

Variable	Coefficient	Std. Error	T-Statistic	Prob.
Região Algarve	-27259,52	9942.037	-2.741845	0.0061
Região Norte	-28407,89	14365.68	-1.977483	0.0481
Idade 1	-37364,53	15464.14	-2.416205	0.0157
Idade 2	38681,34	14922.37	2.592171	0.0096
Capitais Próprios	0,043007	0.009835	4.373019	0.0000
EBITDA	679,6364	40.18469	16.91282	0.0000
Outros Capitais Próprios	45,23811	10.11701	4.471488	0.0000
Custo Médio Empregado	1102,782	295.8191	3.727892	0.0002
Lucro por Empregado	2237,720	93.38261	23.96292	0.0000

Table 7 – Revenue on the Extra Community Market

Source: Own elaboration, based on the IBM SPSS Statistics outputs.

Let us now consider the Multiple Linear Regression Model, where the dependent variable is the ‘‘Revenue on Extra Community Market’’ and the explanatory variables are all the explanatory variables whose estimates for the coefficients were statistically significant reported above. The next output presents the t-statistics and associated probability values for the comprehensive regression model. Because there is a suspicion that heteroskedasticity may be present, White estimation has been considered to estimate the comprehensive model.

Dependent Variable: _9_VT_MECOMUNITARIO				
Method: Least Squares				
Date: 05/19/20 Time: 16:46				
Sample: 1 3599				
Included observations: 3599				
Huber-White-Hinkley (HC1) heteroskedasticity consistent standard errors and covariance				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
_1_ALAGARVE	-27135.57	16243.93	-1.670506	0.0949
_1_NORTE	-3706.912	6323.405	-0.586221	0.5578
_3_IDADE_1	-6424.847	10894.94	-0.589709	0.5554
_3_IDADE_2	25523.05	17542.92	1.454892	0.1458
_13_CAPITAL_PROPRIO_EURO	-0.071560	0.054038	-1.324255	0.1855
_14_EBITDA_EURO_MILHARES	627.0086	479.8850	1.306581	0.1914
_17_OUTROS_CAPITAIS_PROPRIOS_E	-26.19942	34.05665	-0.769289	0.4418
_20_CUSTO_MEDIO_EMPREGADO_MIL	800.3608	621.2724	1.288261	0.1977
_21_LUCRO_EMPREGADO_MILHARES	1601.024	753.2700	2.125432	0.0336
C	-3258.290	25533.43	-0.127609	0.8985
R-squared	0.158987	Mean dependent var	48240.04	
Adjusted R-squared	0.156878	S.D. dependent var	428209.3	
S.E. of regression	393188.9	Akaike info criterion	28.60474	
Sum squared resid	5.55E+14	Schwarz criterion	28.62194	
Log likelihood	-51464.23	Hannan-Quinn criter.	28.61087	
F-statistic	75.38588	Durbin-Watson stat	2.116154	
Prob(F-statistic)	0.000000	Wald F-statistic	2.565159	
Prob(Wald F-statistic)	0.006118			

Figure 5 – Multiple Linear Regression Model with the dependent variable 'Revenue on Extra Community Market''

Source: Output Eviews

As one may conclude, some variables have shown not to be significant in this comprehensive model.

So, after dropping some of those variables (the less significant), we obtain the following result:

Dependent Variable: _9_VT_MECOMUNITARIO				
Method: Least Squares				
Date: 11/18/20 Time: 11:06				
Sample: 1 3599				
Included observations: 3599				
Huber-White-Hinkley (HC1) heteroskedasticity consistent standard errors and covariance				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
_1_ALAGARVE	-28289.17	15514.24	-1.823433	0.0683
_3_IDADE_2	30595.88	14363.87	2.130058	0.0332
_21_LUCRO_EMPREGADO_MILHARES	1605.824	758.7376	2.116442	0.0344
_13_CAPITAL_PROPRIO_EURO	-0.095726	0.076853	-1.245568	0.2130
_14_EBITDA_EURO_MILHARES	628.8015	475.5743	1.322194	0.1862
C	3285.612	14352.20	0.228927	0.8189
R-squared	0.156741	Mean dependent var	48240.04	
Adjusted R-squared	0.155568	S.D. dependent var	428209.3	
S.E. of regression	393494.3	Akaike info criterion	28.60519	
Sum squared resid	5.56E+14	Schwarz criterion	28.61550	
Log likelihood	-51469.03	Hannan-Quinn criter.	28.60886	
F-statistic	133.5703	Durbin-Watson stat	2.121690	
Prob(F-statistic)	0.000000	Wald F-statistic	1.584355	
Prob(Wald F-statistic)	0.160906			

Figure 6 – Multiple Linear Regression Model with the dependent variable 'Revenue on Extra Community Market', without less significant variables

Source: Output Eviews

This is the right time to test the imposed exclusion restrictions,

H0:

$$\beta_{Região\ Norte} = 0$$

$$\beta_{Idade\ 1} = 0$$

$$\beta_{Outros\ Capitais\ Próprios} = 0$$

$$\beta_{Custo\ Médio\ Empregado} = 0$$

using the following formula:

$$\hat{F} = \frac{\frac{SSR_r - SSR_u}{g}}{\frac{SSR_u}{(n - k)}} = \frac{5,56 \times 10^{14} - 5,55 \times 10^{14}}{4} \div \frac{5,55 \times 10^{14}}{(3599 - 10)} = 1,6167$$

According to the result, one does not reject H_0 , because the value of the statistic is smaller than the critical value presented by the F-table with 4 and ∞ degrees of freedom. The critical value of F_0 is 5,63 (according to $P(F > F_0) = 0,05$).

Short Model:

$$\hat{y} = \hat{\beta}_0 + \hat{\beta}_{Algarve}(Algarve) + \hat{\beta}_{Idade\ 2}(Idade\ 2) + \hat{\beta}_{Lucro\ Empregado}(Lucro\ Empregado) + \hat{\beta}_{Capital\ Próprio}(Capital\ Próprio) + \hat{\beta}_{EBITDA}(EBITDA)$$

$$\hat{y} = 3285,612 - 28289,17(Algarve) + 30595,88(Idade\ 2) + 1605,824(Lucro\ Empregado) - 0,095726(Capital\ Próprio) + 628,8015(EBITDA)$$

“Idade 2” ($p < 0,05$) e “Lucro Empregado” ($p < 0,05$) showed significant results for the dependent variable “Revenue in the Extra-Community Market”. This way, results suggest that start-ups in “Idade 2” see their revenue in the extra-community market increase by 30,595.88 euros.

Results also suggest that the addition of one thousand euros to “custo médio por empregado” brings a 1,605.824 euro increase in revenue in the community market, *ceteris paribus*.

On the other side, “Algarve”, “Capital Próprio”, and “EBITDA” are also part of the model reviewed but had no statistical power. Results suggest that start-ups located in “Algarve” see their revenue in the extra-community market decrease by 28,289.17 euros. Results also suggest that the addition of one euro to “capital próprio” brings a 0.095726 euro decrease in revenue in the extra-community market, *ceteris paribus*. Lastly, results further suggest that the addition of one thousand euros to “custo médio por empregado” brings a 628.80 euro increase in revenue in the extra-community market.

3.5 Discussion

This study aimed to verify which factors influenced revenue in community and extra-community markets. More specifically, this study tried to understand how those influencing factors vary with the community and extra-community markets. By using regression models,

two theoretical models were built for those factors, the combination of which offers start-ups the conditions that favour the internationalization process, divided into community market and extra-community market. This is an innovation when compared to prior research that focuses essentially on the individual influence of those factors.

According to the results, the factors that influence revenue in the community market differ from those that influence revenue in the extra-community market. The creation of empirical models that verify which factors influence revenue in each market segment brought other variables that should be considered.

Results suggest that start-up location influences revenue in the community and extra-community markets, which is in accordance with the existing literature (Dvouletý & Blažková, 2020; Etzkowitz et al., 2005; Parthasarathy & Aoyama, 2006; Pe'er & Keil, 2013; Rostek & Skala, 2017; Varma et al., 2016). However, the regions that impact revenue are different for the community market and the extra-community market.

In fact, revenue in the community market is affected negatively when start-ups are in Lisboa e Vale do Tejo. Despite being the capital city of the country of origin of the start-ups that were selected for this study and having the main airport of Portugal's continental territory, results show that start-ups set in the region of Lisbon will struggle more to increase their revenue in the community market. This may be related to the concentration of business opportunities in this region, which can lead entrepreneurs to spread and not feel that they need to expand internationally for their businesses to survive.

When it comes to the extra-community market, results suggest being in the Algarve region affects the increase of revenue in this market, despite its statistical power not being enough to support the total independence of this factor. Although the Algarve region is one of the main export points nationwide, start-ups set in this region will struggle to increase their revenue in the community market.

While this study aims to understand whether location would influence the revenue in the community and extra-community markets, results were not conclusive for regions that could affect revenue in these markets positively, contradicting the trends in the existing literature (Dvouletý & Blažková, 2020; Etzkowitz et al., 2005; Parthasarathy & Aoyama, 2006; Pe'er & Keil, 2013; Rostek & Skala, 2017; Varma et al., 2016).

Results suggest that the number of employees affects revenue in the community market positively. There is no consensus in literature about the impact of this factor, but the results of this study corroborate the most recent literature about this subject (Folta et al., 2006; Glaeser et al., 2009). If research points to the positive impact of teams in company performance over time,

these results may indicate that it would be worth considering investment in teams in order to increase revenue in the community market. Also associated with the community market, the average cost per employee seems to be a positive indicator of revenue increase in the community and extra-community markets. Considering the costs of hiring human resources, which include remuneration, taxes, training, health insurance, and other salary supplements, investing in this factor could affect revenue in the community market positively. In fact, employee motivation is mentioned in literature as one of the key elements for increasing performance (Castillo et al., 2014), which brings better results to the organization (Madsen & Servais, 1997). Hiring qualified human resources could also be good for an increased performance of start-ups, which is in accordance with the existing literature (Castillo et al., 2014; Gabrielsson & Manek Kirpalani, 2004; Glaeser et al., 2009; Madsen & Servais, 1997; Stucki, 2016).

Still regarding the factors that influence revenue in the community market, results show that share capital and EBITDA also affect revenue in this market. It seems that a lower share capital is a good predictor of revenue increase in the community market. Actually, literature already suggested that investors are more likely to support smaller projects with lesser risks (Contractor et al., 2003; OECD, 2019; Westhead et al., 2001) for them, although these could imply a large growth for start-ups in their leverage process. This way, by getting investor support, entrepreneurs do not have to take so many risks when exporting to the community market, having less to lose. The EBITDA has a positive impact on the increase in revenue in the community and extra-community markets, despite its statistical power being lower in the latter. According to this result, the higher the profit generated by the start-up, regardless of its taxes, interest, depreciations and amortizations, the higher the revenue in the community and extra-community markets. By increasing product price, start-ups could boost their sales (Bannock & Baxter, 2011).

This study also showed that revenue in the extra-community market tends to increase in the second year of activity of a start-up. Previous studies had already mentioned that start-ups tend to perish during their first year, which is many times caused by the high risk associated with activity start (OECD, 2019). This way, start-ups tend to intensify their internationalization, namely in terms of the extra-community market, when they reach a consolidation level that allows them to handle risk without compromising their performance in other markets.

Results for financial autonomy have no statistical power. Although literature refers that companies with financial constraints (as are start-ups when they start their activities) will only invest to the extent of their cash flows and if they have enough internal resources (Carpenter et

al., 1994, 1998; Fazzari et al., 1988; Kashyap et al., 1994), the results of this study suggest that start-ups keep focusing on export and getting positive results in these markets, even without financial autonomy. This way, results suggest that financial autonomy is not an indicator of a higher revenue in the extra-community market and that such performance could be associated with other factors. Future studies should analyse the extra-community market using other factors that were not considered in this study, namely foreign team members (Cappelli, 2008; Carr, Inkson, & Thorn, 2005; Sui, Morgan, & Baum, 2015; Tarique & Schuler, 2010; Zhou, 2007), access to external capital, or investments from risk societies.

This study also showed other factors that influence revenue in the extra-community market. According to the results, equity and profit per employee are also factors that influence revenue in the extra-community market positively. No literature was found that addressed these matters, especially when it comes to their relation to revenue in the community and extra-community markets.

3.6 Theoretical Implications of this Study

This study aimed to contribute to research by addressing the different aspects that relate to revenue in the community and extra-community markets, analysing how those factors relate and condition themselves and creating theoretical models that predict the group of factors that influence revenue in the internationalization process of start-ups. Based on our results, we are confident to offer some theoretical insights and recommendations for future research.

The academy can check for variations between countries that are influenced by cultural, economic, and political factors. Also, it will be possible to see whether the factors that influence revenue in the community and extra-community market vary between countries or continents by making a comparative analysis about which would be the best global strategy for start-ups.

This study is also a starting point for research about which start-up econometrics might influence revenue in the community and extra-community markets. This way, it is important that other researchers continue this line of study to understand how these characteristics vary between countries, cultures, and continents. By replicating this study, researchers worldwide will be able to make comparative analyses.

3.7 Practical Implications for Entrepreneurs and Business Managers

This study brings new solutions to managers and entrepreneurs who currently own or intend to own businesses in Portugal. With these results, start-ups can define more realistic strategies based on their experience and the international relationships they have established, analyse which investments make sense and enter the internationalization process according to what benefits them.

This study also adds to the knowledge of incubator managers because it gives them information about the strategies that have been used by start-ups in their internationalization processes. This way, incubator managers can rely on this study to identify new opportunities for the entrepreneurs in their incubators by developing incubation plans adapted to them and guiding them towards the business decisions that have the greater impact on the revenue in the community and extra-community markets, namely the number of employees and how to manage their finances throughout the international growth process.

These results can also have political relevance. The creation of new policies that encourage internationalization and exports can be useful for the economy and growth of start-ups, reducing the financial constraints faced by companies and increasing their investments and productivity indirectly (Majtánová, 2002). The latter can be particularly relevant for small and mid-size enterprises (SME) that often see their investments limited by the lack of funds (Greenaway, Guariglia, & Kneller, 2007), giving them increased financial autonomy to take risks in the international market. Relationships with institutions of other countries could be built in both community and extra-community markets.

3.8 Main Study Limitations

As all scientific research, this study has some limitations. One of the main limitations is that the analysis method cannot guarantee hypothesis causality. Furthermore, many institutions worldwide have been conducting research about start-ups, which has led to discrepant results in studies with similar goals. This fact could indicate the diversity of evidence about start-up management and development, because start-up growth is diversified and strongly influenced by the motivation of entrepreneurs and the respective teams (Almor, 2000; Bonaccorsi, 1992; Coviello & Munro, 1995; G. Knight, 2000; Lin & Liu, 2011).

As to the extra-community market, the pertinence of the restricted model depends on the non-significant variables that validate the model through the F test. In fact, these variables have a certain degree of influence (Região do Algarve, Capitais Próprios, and EBITDA), but their lack of statistical power in the theoretical model proposed by this study do not allow us to presume their influence on revenue in the community and extra-community markets.

Analysed data could be another limitation. Since we are using data from 2018, we are facing a time gap of two years when compared to the present reality of this study. This way, the results would have been better contextualized if compared with the reality of 2018, which, in terms of start-ups, could be completely outdated (Glaeser et al., 2009; Moen, 2002; Oviatt & McDougall, 2005; Sapienza et al., 2006). The solution could be to collect on-time data, which would allow researchers to work with recent data instead of using world databases. While useful and extremely important for market analysis, those databases might not be the best solution for research.

Considering the reductive nature of the analysis that only encompasses one year of information about start-ups, the academy could do a longitudinal analysis to understand how these factors, which affect revenue in the community and extra-community markets, vary according to market variations, and how those factors converge or diverge in each studied market.

3.9 Conclusion

This study aimed to analyse which factors influence revenue in the community and extra-community markets, namely the difference between those two markets. A thorough analysis of the start of the art available on this subject was made, mostly by using reference journals rated in the Journal Citation Reports 2019. How start-up location would influence revenue in the community and extra-community markets was one research hypothesis. This influence was also analysed individually for each market. The influence of the number of employees and average cost per employee was analysed for the community market, among other variables. As to the extra-community market, this study aimed to understand whether financial autonomy and profit per employee would influence start-up revenue in this market. Lastly, the influence of start-up age in revenue in the extra-community market and whether the second year would have the most impact on growth in this market were additional factors analysed in this study.

Results suggest that start-up location influences revenue for both markets. The region of Lisboa and Vale do Tejo influenced the entry into the community market negatively, and the region of Algarve influenced the entry into the extra-community market negatively. The share capital, EBITDA, number of employees, and average cost per employee influenced revenue in the community market positively. On the other side, equity influenced revenue increase in the community market negatively. Extra-community market results suggest that the second year of existence is when start-ups leverage their revenue in this market. In turn, equity and the average profit generated by each employee are a positive influence for revenue in the extra-community market. Equity and EBITDA may influence the extra-community market, despite not showing statistical relevance in this study.

In short, the entry into the community market is strongly influenced by the share capital, number of employees, high EBITDA, high cost per employee, but the start-up should not locate in the region of Lisboa and Vale do Tejo and should not use too much of its equity. The entry into the extra-community market is more favourable in the second year of the start-up and when there is a high average profit per employee. It is worth to mention that being in the Algarve may complicate this process and that not using too much of its equity and having a high EBITDA may contribute to successfully increasing revenue in the extra-community market.

This study contributes to the innovation of the research about start-up performance in community and extra-community markets and is a starting point for the study of new international growth strategies by entrepreneurs. It also questions the effectiveness of the methods generally used to manage start-ups, offering contemporary, cutting-edge solutions to the international growth of businesses.

Lastly, it is worth to highlight the innovation and pertinence of the subject of this study. These results are a relevant contribution in terms of business management, definition of effective strategies by managers and creation of policies that facilitate successful internationalizations.

Chapter 4 - The ideal team for the internationalisation process of startups

Chapter 4 - The ideal team for the internationalisation process of startups

The internationalisation process of startups and businesses is a complex process that requires a team with specific skills. This study discusses the profile of the ideal team for the internationalisation process of startups. Using the Conjoint Analysis method, this work analysed the profile of entrepreneurial teams – and not just isolated characteristics – in internationalisation processes. Results suggest that a team profile can be divided into three distinct clusters: Academic Profile, International Profile and Language Profile. This study is a significant practical contribute to the management world and paves the way to new research, namely sectoral analysis, by distinguishing team profiles based on activity area and target market, and comparative studies, which seek to learn why a certain team profile makes more sense in one place than other.

4.1 Introduction

Over the years, research has become aware of the impact of team profiles on the success of businesses and startups and has focused on which characteristics are more prone to entrepreneurship. These studies mostly analyse previous professional experiences, academic qualifications and/or the gender of entrepreneurs and businesses (Albort-Morant & Ribeiro-Soriano, 2016; Alvarez & Busenitz, 2001; Andersson, 2003; Bloodgood, Sapienza, & Almeida, 1996; Cooper, Gimeno-Gascón, & Woo, 1994; McDougall, Shane, & Oviatt, 1994; Rialp, Rialp, & Knight, 2005; Shahriar, 2018; Shane, 2000; Westhead, Wright, & Ucbasaran, 2001; Zou & Stan, 1998). As to gender, Shahriar (2018) goes against the simple idea that women are inherently less likely to become entrepreneurs and that men are born entrepreneurs, due to natural differences between both sexes, stating that “gender differences in entrepreneurial propensity are outcome of socialization” and that “men in patriarchal societies and women in matrilineal societies invest more in new venture creation.”

As to the internationalisation process of businesses and startups, other studies refer that behavioural and organisational factors act as predictors of an effective internationalisation strategy (de Correia, Lengler, & Mohsin, 2019; Dimitratos, Johnson, Plakoyiannaki, & Young, 2016; Ellis, 2011; Perks & Hughes, 2008; Schleppehorst, Koetter, Werner, Soost, & Moog, 2020; Skokic, Lynch, & Morrison, 2016; Zhang, Ma, Wang, Li, & Huo, 2016). Characteristics like the entrepreneurial attitude, international vision, international experience, or the

international network of contacts drive the search for opportunities in the foreign market. The results of the recent study made by de Correia, Lengler, & Mohsin (2019) “reveal that the internationalisation process of Portuguese hotel companies was triggered by managers’ entrepreneurial attitudes and international vision that in themselves embraced a combination of particular resources and competencies.” On the other hand, Schlepphorst, Koetter, Werner, Soost, & Moog (2020) combine international experience with entrepreneurial activity, identifying and presenting “a new group of potential entrepreneurs with international experience and networks.”

Literature also points to the lack of consistent research and unifying theories about business and startup internationalisation, both in terms of the different characteristics and their interdependence (creation of profiles by combining multiple entrepreneur attributes) (Jones et al., 2011; Shaw e Williams, 2004; Getz e Petersen, 2005). This way, it became essential to analyse in an integrated way how business or startup resources and capacities generate competitive advantage via their entrepreneurs and teams (Keupp & Gassmann, 2009) and how are these associated with the internationalisation process (Tan et al., 2007; Kubíčková et al., 2014; Senik et al, 2010), not focusing exclusively on the manager profile.

According to Keupp and Gassmann (2009), it would be useful to analyse in an integrated way how business or startup resources and capacities generate competitive advantage in an entrepreneurial process as the internationalisation process. So, it makes sense to ask the following research questions:

- Is there an ideal team for the internationalisation process of startups?
- If any, which is the ideal team for such internationalisation process?

The contribution and value of this study relied on the analysis of the profile of entrepreneurial teams – and not just isolated characteristics – in internationalisation processes. Using the Conjoint Analysis, it was possible to define three profiles, which correspond to three different clusters, therefore contributing to increase knowledge and research about team profiles required for internationalisation processes, according to the opinion of the interviewed experts.

This study gathered 19 experts – entrepreneurs involved in internationalisation processes of startups or consultants supporting such processes – to assess which are the ideal teams for startup internationalisation. Literature about team profiles is scarce, so this study analysed existing research about the four factors that were studied the most when it comes to team profiles for the internationalisation process: previous experiences, qualifications, spoken languages and behavioural characteristics. Multiple team profiles were created after analysing these attributes which can be considered the “ideal teams” for the internationalisation process.

This was made using the Conjoint Analysis, a differentiating method that is not used often in these research areas (Green e Rao 1971; Green, Krieger and Wind 2001; Hensher, Rose e Greene 2005; Raghavarao, Wiley e Chitturi 2010), which led to the creation of different combinations that conjugate the multiple attributes of each factor: **experience, qualifications, spoken languages and behavioural characteristics**. When compared to other analysis methods for team profiles – descriptive (Stoian, Dimitratos, & Plakoyiannaki, 2018) or factorial (Pepponi, Pisoni, & Onetti, 2014) –, this topic of study seeks to perceive the interconnection between the four most studied attributes in the literature. To this end, profiles were created that combined the different characteristics of each attribute and consider them when identifying the ideal team for the internationalisation process of startups.

4.2 Literature review

International entrepreneurship is the process by which people, by themselves or within organizations, seek market opportunities, considering available resources and the environmental factors that affect them. Oviatt and McDougall (1999), Zahra and George (2002) define international entrepreneurship as a combination of proactive and risk assumption behaviours to create value for a business.

To Reynolds (2004), when a startup decides to enter an internationalisation process, it is influenced by three groups of variables: those that concern individuals and their characteristics and personal background, their motivation and cognitive resources, and the context or environment where the process occurs.

This way, it is important to reflect about team profiles, considering four attributes: **experience, qualifications, spoken languages and behavioural characteristics**.

4.2.1 Previous experiences of entrepreneurs

Previous knowledge and experience of individuals can be seen as a result of professional experience (Cooper et al., 1994) and education (Gimeno et al., 1997). Multiple authors refer that entrepreneurs who had professional experiences abroad have more knowledge of the global market, highlighting international experiences of entrepreneurs as a factor of success in the

internationalisation of their startups and businesses (Gabrielsson & Manek Kirpalani, 2004; Stucki, 2016).

Knowledge of the internationalisation process is strictly connected to individuals and can be related to their experiences and motivations, which makes it subjective and hard to articulate and convey (Stoian, Dimitratos, & Plakoyiannaki, 2018; Nonaka & Peltokorpi, 2006; Nonaka, Toyama, & Konno, 2000; Polanyi, 1966). A recent study by Schleppehorst and colleagues (2020), based on human capital (HC) and social capital (SC), aimed to clarify the relationship between international assignments of employees and their entrepreneurial intentions. The authors verified that many skills associated with these experiences and the network of contacts that resulted thereof are related to their “International Attitude”. This empirical evidence even led authors to suggest that employers could retain these employees to facilitate the entrepreneurial process of internationalisation.

Other studies identified international and / or corporate knowledge as essential for the success of conducting export activities (Filatotchev et al., 2009; Haahti et al., 2005; Zhou, 2007). In fact, entrepreneurs’ knowledge and international market experience may contribute to a more effective entry in a foreign market (Gabrielsson & Manek Kirpalani, 2004; Madsen & Servais, 1997; Stucki, 2016). Entrepreneurs who have had international experiences benefit from previous knowledge and experience that open the way to new businesses (Madsen & Servais, 1997). This knowledge can be gained, not only by being involved in international experiences, but also via immigration (Sui, Morgan, & Baum, 2015a) or education abroad (Pepponi et al., 2014), and is more oriented to global markets (Sui, Morgan, & Baum, 2015b).

4.4.2 Qualifications of entrepreneurs

Over the years, multiple authors have mentioned that entrepreneurs’ academic qualifications are paramount for internationalisation success (Stucki, 2016), because the specialised, complex, and intensive knowledge to which human resources in these organisations are exposed show the importance of tacit knowledge and technological knowledge as the guides of the internationalisation process (Coviello, 2006; Sharma, Blomstermo, Sharma, & Blomstermo, 2003). This is why specifically investing in human resources brings a higher level of involvement in the organisation’s mission (Noack, Miller, & Guidice, 2018; Song, De Jong, Anthony Di Benedetto, & Lisa Zhao, 2019; Suseno & Pinnington, 2017).

Pepponi, Pisoni and Onetti (2014) defined three profile clusters of startups, which distinguish themselves by the characteristics of entrepreneurs, especially at the level of academic qualifications, previous experiences (personal, professional and international) and the capacity of attracting resources. This study led the authors to come up with a third cluster, which they called “Proven Entrepreneurs” or “Scalable Startups”. This defined the profile of entrepreneurs who attended high education (13% of entrepreneurs have a PhD, and almost one in ten have an MBA), had a solid management background, had previous work and entrepreneurial experiences and international experiences at the academic level (education abroad). In this cluster, almost all entrepreneurs have previously worked in the area of entrepreneurship. The authors of this study believe that the teams in these startups are driven and motivated by a precise, structured entrepreneurial vision and attitude, in addition to a broad international experience, both at the professional and academic level.

This potential brought by employees motivates entrepreneurs to opt for large-scale projects, such as the internationalisation process. Literature shows that entrepreneurs only invest in this type of experiences strategically and if they have enough internal resources (Carpenter, Fazzari, & Petersen, 1994, 1998; Fazzari, Hubbard, Petersen, Blinder, & Poterba, 1988; Kashyap, Lamont, & Stein, 1994).

It is also important to mention that the work of Federico and colleagues (2009), who studied the effect of human and relational capital in the early internationalisation process of businesses, in a study where they compared Latin America and Mediterranean Europe. Although the Portuguese population was not part of the study (Mediterranean Europe was represented by Italy and Spain), results showed that there was no significant effect of human and relational capital in the early internationalisation process in Latin America. This might be due to the fact that access to high education and/or previous professional experience was easier and more broadly distributed in developed countries (as in Mediterranean Europe) than in developing countries. The study above showed that academic qualifications may have a bigger impact on the internationalisation process of businesses in Mediterranean Europe, reinforcing the importance of taking such attribute into account for this study.

4.4.3 Languages spoke by entrepreneurs

As we have already seen before, the experiences of entrepreneurs are what give them certain skills that can contribute to the internationalisation process positively (Gabrielsson & Manek Kirpalani, 2004; Madsen & Servais, 1997; Stucki, 2016), namely those that occur in the international market. This knowledge can be gained not only through international experiences, but also through immigration (Sui et al., 2015). In fact, entrepreneurs with a history of international experiences (as immigration) show distinctive skills and resources for the entrepreneurial process of internationalisation (Cappelli, 2008; Carr, Inkson, & Thorn, 2005; Morgan, Sui, & Baum, 2018; Tarique & Schuler, 2010b), such as refined levels of international knowledge, language skills, and close relationships between countries, which allow them to expand easily into foreign markets.

If language knowledge is associated to the relationships and experiences of entrepreneurs in the international market, it is now important to learn objectively which are the key markets with which Portugal establishes commercial relationships via imports and exports. According to the latest Reported Figures of International Trade (INE, 2020), the main countries who import and export from and to Portugal are still Spain, France and Germany, with Spain being the main commercial partner in the European Union and the United States the main partner outside the European Union. On the other side, the main supplier of goods to Portugal outside the EU was still China. Literature does not show what are the most spoken mother tongues in Portugal, but by analysing this report it is easy to see that English (a language that is learned by 95% of children from the elementary school), Spanish, French and Mandarin are the most necessary languages for the expansion process of Portuguese businesses into the international market.

However, recent studies (Middermann & Rashid, 2019; Middermann, 2020) verified that the entrepreneurial process of internationalisation could not be explained only based on the skills and resources of team entrepreneurs. They showed that cognitive and behavioural characteristics were also related to the entrepreneurial attitude of internationalisation and that it was imperative to study those skills that were associated with other characteristics of individuals.

4.4.4 Behavioural characteristics of entrepreneurs

Innovation and internationalisation play a vital role in today's competitive business world, and they are both considered the key drivers of a company's performance. Many studies point to their mutual interdependence (Onetti et al., 2012; Cassiman & Golovko, 2011; Golovko & Valentini 2011; Monreal-Perez et al., 2012; Filipescu et al., 2013; Ganotakis & Love 2011). Literature suggests that different types of development and innovation in businesses require distinct characteristics from entrepreneurs and that is why the profile of entrepreneurs influences how a certain business grows or becomes international (Delmar et al, 2003; Denicolai, hagen & Pisoni, 2015). Cooper and Daily (1997) found that well-succeeded fast-growing businesses are usually formed by teams and not by a sole individual.

The decision of starting an internationalisation process is strongly influenced by the characteristics of individuals (Herrmann & Datta, 2005; Tihanyi et al., 2000; Bloodgood et al., 1996; Westhead et al., 2002; Reid, 1981). The Upper Echelon (UE) perspective (Hambrick e Mason, 1984) says that organisations are the reflex of their managers. Organizational performance and the choice of strategy therefore depend on the characteristics and profile of the entrepreneur. Literature that supports the UE points to the fact that people who make decisions are the key driving force for the start, development, support and success of the internationalisation and organisational innovation of SMEs, due to the responsibility and involvement in company decisions (Carpenter & Fredrickson, 2001; Hambrick et al., 1996; Bantel & Jackson, 1989; Wiersema & Bantel, 1992; Aaby & Slater, 1989; Madsen & Servais, 1997; Zucchella et al., 2007). Literature suggests that different types of development and innovation in businesses require distinct characteristics from entrepreneurs and that is why the profile of entrepreneurs influences how a certain business grows or becomes international (Delmar et al, 2003; Denicolai, hagen & Pisoni, 2015). However, the role of entrepreneurs and teams in making strategic decisions for startups is still little explored (Baron e Tang 2011; Hagen et al. 2012).

A motivational factor that is often cited by entrepreneurs in literature is innovation. Shane et al. (1991) reported that "to be innovative and at the forefront of technology" are a positive, significant motivation for a business. British entrepreneurs show the same pattern (Birley e Westhead 1994). In addition, Shane (1996) states that the rate of technological change and rate of entrepreneurship show a positive co-movement in the American economy. Sahut and Peris-Ortiz (2014) refer that innovation and entrepreneurship are strictly connected. As Shane (2012)

explains, innovation rewards entrepreneurship: “Entrepreneurship involves more than the Kirznerian process of discovering profit opportunities. It also involves the idea of a business about how to recombine resources to explore those opportunities, as well as the exploration process itself.”

Many authors differentiate entrepreneurs from other individuals by seeking particular cognitive traits, such as risk propensity, the need for professional self-realization, and self-confidence (Brockhaus, 1990), to detect the individual characteristics that make successful entrepreneurs stand out (Timmons e Spinelli, 1994). There are several studies that talk about the need for professional self-realization. Birley and Westhead (1994) conclude that the “Need for Personal Development” appears as one of the main reasons why British entrepreneurs start their businesses. Taormina and Lao (2007) worked with a sample of Chinese entrepreneurs and reported their focus on professional self-realization as one of their key entrepreneurial motivations.

There are two factors that are strongly connected to the capacity of identifying new business opportunities: entrepreneur alert, i.e., a unique attitude that allows to perceive environmental variations and recognise related opportunities (Kirzner, 1978) and knowledge and previous experiences (Shane, 2000). Entrepreneurs’ knowledge of the internationalisation process could have originated from their previous (international) experiences and skills (acquired behavioural characteristics), but it continues to be recombined and developed (Casillas et al., 2009; Jones & Casulli, 2014; Nonaka & Takeuchi, 1995; Tsoukas, 1996). The entrepreneurial attitude and international vision are two of the characteristics identified in literature that motivate business internationalisation the most, namely in Portugal (de Correia et al., 2019).

Shane and Khurana (2003) claim that differences in career experience lead to differences in business development, via the entrepreneurs themselves, and in the capacity of entrepreneurs to: (i) access resources that help entrepreneurs and organisations; (ii) adapt to the role of entrepreneur; (iii) continuously adapt the business model to market’s needs / changes. In fact, the whole international experience required a great adaptability from their teams, especially in cultures that are different from the origin country (Popescu, Sirbu, Suci, & Draghici, 2014).

It is the team’s adaptability that boosts their relationships in the foreign market (Labruffe, 2005) and therefore the internationalisation process. There are multiple studies about the impact of cultural distance on the internationalisation process of startups (Beugelsdijk, Kostova, Kunst, Spadafora, & van Essen, 2018; Gaffney, Karst, & Clampit, 2016). However, Reitter (1997) was the only one who identified a set of skills that made these processes effective. These were: adaptability (capacity to adapt to personal, professional and family plans, to the requirements

and challenges originated from the fact that they are living and working in a different culture) and personal and professional commitment (employees who are very dedicated, both personally and professionally, to the mission that is entrusted to them and who experience life in contact with the other culture).

The entrepreneur is the key to understanding the success of the internationalisation process. Entrepreneurs are characterised by their background, which includes their previous career and their identity, what they know and who they know (Sarasvathy, 2001). Studies about the role of entrepreneurs in internationalisation usually focus on their networks (Manolova et al., 2010; Nowiński e Rialp, 2015) and knowledge (Nordman e Melén, 2008; Schwens e Kabst, 2009). Muzychenko and Liesch (2015) suggest that recognising an international opportunity is intentional and not accidental, because it arises from actions that were strategically planned. These actions result from highly oriented teams, which was verified to be related to the capacity of teams to concentrate their efforts in achieving targets (Laguna et al., 2016), with the entrepreneur being more persistent and committed to the foreign market.

The table below shows a summary of behavioural characteristics mentioned in literature over the years. For research purposes, characteristics were grouped into 6 broad skills, because different descriptions of the same skill were found in distinct studies:

Skills	Alternative ways to refer to a skill
Orientation to the foreign market	Global/International Vision (Gabrielsson 2004; de Correia et al., 2019) Global market orientation (Sui et al., 2015)
Focus on Innovation	Attitude to perceive environmental variations and recognised related opportunities (Kirzner, 1978) Be innovative and in the forefront of new technology (Shane 1991)
Personal and Professional Commitment	Personal and professional commitment (Reitter, 1997)
Involvement in Decisions	People who make decisions / involvement in business decisions (Carpenter & Fredrickson, 2001; Hambrick et al., 1996; Bantel & Jackson, 1989; Wiersema & Bantel, 1992; Aaby & Slater, 1989; Madsen & Servais, 1997; Zucchella et al., 2007)
Professional Self-realization	Need for professional self-realization (Brockhaus, 1980; Birley & Westhead, 1994; Taormina & Lao, 2007)
Adaptability (Intercultural)	Continuously adapt to market's needs and changes (Brockhaus, 1980; Birley & Westhead, 1994; Taormina & Lao, 2007) Adaptability that boosts foreign market relationships (Labruffe, 2005)

Table 8 – Behavioural characteristics of entrepreneurs

Source: Own elaboration, based on literature review

The table below shows a summary of the factors that were mentioned the most in literature about the profile of teams:

<u>Attributes</u>	<u>Levels</u>	<u>Theoretical Basis</u>
Experiences	Professional Experience	(Alvarez & Busenitz, 2001; Andersson, 2003; Bloodgood et al., 1996; Cooper et al., 1994; McDougall et al., 1994; Pepponi et al., 2014; Rialp et al., 2005; Shane, 2000; Westhead et al., 2001; Zou & Stan, 1998)
	Academic Experience	(Pepponi, Pisoni e Onetti 2014; Casillas et al., 2009; Jones & Casulli, 2014; Nonaka & Takeuchi, 1995; Tsoukas, 1996)
	International Experience	(Gabrielsson & Manek Kirpalani, 2004; Madsen & Servais, 1997; Pepponi et al., 2014; Stucki, 2016; Sui et al., 2015a)
Academic Qualifications		(Alvarez & Busenitz, 2001; Andersson, 2003; Bloodgood et al., 1996; Cooper et al., 1994; McDougall et al., 1994; Pepponi et al., 2014; Rialp et al., 2005; Shane, 2000; Westhead et al., 2001; Zou & Stan, 1998)
Language Skills		(Cappelli, 2008; Carr et al., 2005; Tarique & Schuler, 2010a; Sui et al., 2015b)
Behavioural Characteristics	Orientation to the foreign market	(de Correia et al., 2019; Dimitratos et al., 2016; Ellis, 2011; Gabrielsson & Manek Kirpalani, 2004; Perks & Hughes, 2008; Schlepphorst et al., 2020; Skokic et al., 2016; Zhang et al., 2016) Global/International Vision (Gabrielsson 2004; de Correia et al., 2019) Global market orientation (Sui et al., 2015)
	Focus on Innovation	(Onetti et al., 2012; Cassiman & Golovko, 2011; Golovko & Valentini 2011; Monreal-Perez et al., 2012; Filipescu et al., 2013; Ganotakis & Love 2011; Shane et al., 1991; Birley e Westhead, 1994; Shane, 2012) Attitude to perceive environmental variations and recognised related opportunities (Kirzner, 1978) Be innovative and in the forefront of new technology (Shane 1991)

	Personal and professional commitment	Reitter (1997) Muzychenko e Liesch (2015) (Laguna et al., 2016) Personal and professional commitment (Reitter, 1997)
	Involvement in Decisions	People who make decisions / involvement in business decisions (Carpenter & Fredrickson, 2001; Hambrick et al., 1996; Bantel & Jackson, 1989; Wiersema & Bantel, 1992; Aaby & Slater, 1989; Madsen & Servais, 1997; Zucchella et al., 2007)
	Professional self-realization	(Timmons e Spinelli, 1994) Need for professional self-realization (Brockhaus, 1980; Birley & Westhead, 1994; Taormina & Lao, 2007)
	Adaptability (Intercultural)	Shane e Khurana (2003) (Popescu et al., 2014) (Labruffe, 2005) Reitter (1997) Continuously adapt to market's needs and changes (Brockhaus, 1980; Birley & Westhead, 1994; Taormina & Lao, 2007) Adaptability that boosts foreign market relationships (Labruffe, 2005)

Table 9 - Attributes of team profiles

Source: Own elaboration, based on literature review

This theoretical basis shows how these factors interconnect and helps us find a team profile that operates effectively in the internationalisation process of a startup:

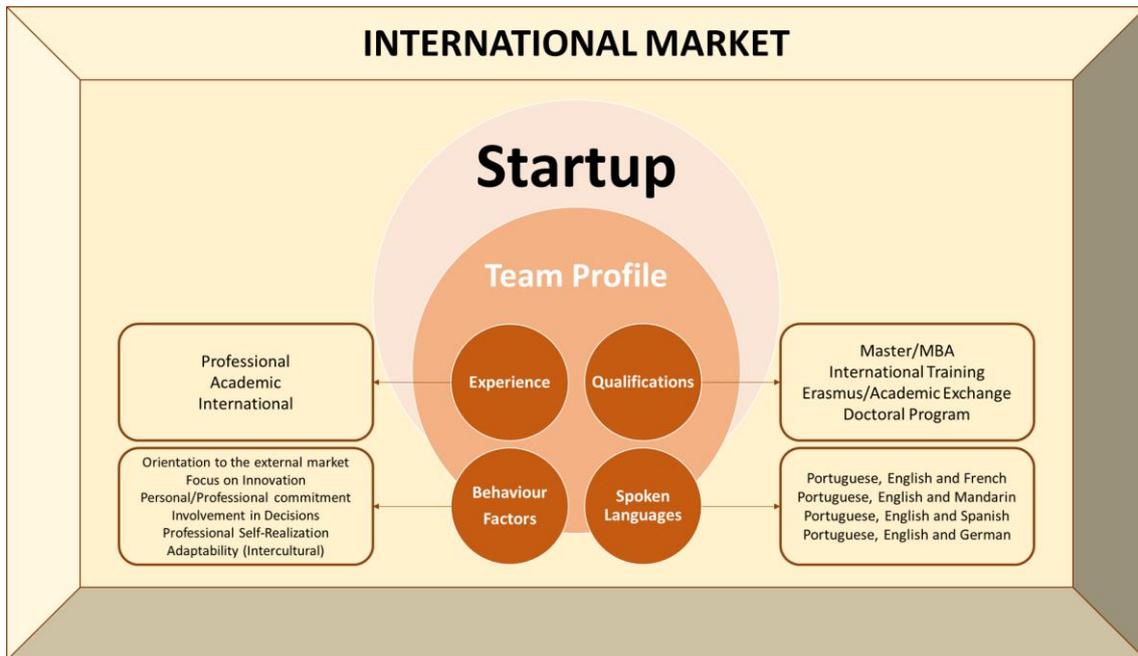


Figure 7 – Team Profiles

Source: Own elaboration

4.5 Methodology and background

4.5.1 Sample

Nineteen experts – who were involved in internationalisation processes of startups as entrepreneurs or assisted with internationalisation processes of startups as consultants – answered a questionnaire that aimed to ascertain what are the ideal teams for startup internationalisation.

Sociodemographic data of the entrepreneurs who answered the questionnaire were not analysed. However, we made sure that we did not receive more than one answer from the same company, therefore contributing to sample heterogeneity.

From the 19 experts, 73.7% are entrepreneurs or business owners, 10.5% are investors, and 15.8% are consultants or have other activity, and 63.2% are male and 36.8% are female.

As to their roles, 63.2% are administrators and 10.5% are directors. Others are coordinators, technicians, independents consultants or professors, with each of these roles representing 5.3% of the total interviewees.

26.3% are at their current jobs for less than six years, and only 10.5% for more than 16 years, while 63.3% are at their current job for 6 to 15 years.

As to academic qualifications, 47.4% of the interviewees hold a master's degree and 36.8% a bachelor's degree. Only 5.3% have a PhD and 10.5% finished the Year 12.

4.5.2 Collected Data

Please describe your professional profile

Entrepreneur/Business owner	73.7%
Investor	10.5%
Consultant or other	15.8%

Sex

Male	63.2%
Female	36.8%

What is your role in your organisation?

Administrator	63.2%
Coordinator	5.3%
Director	10.5%
Independent consultant	5.3%
Management Professor	5.3%
Technician	5.3%

For how long have you been in that job?

Ranges:	
0 to 5	26.3%
6 to 15	63.2%
>16	10.5%

What are your academic qualifications?

Year 12	10.5%
Bachelor's degree	36.8%
Master's degree	47.4%
PhD	5.3%

4.5.3 Questionnaire Used

Population: Nineteen experts – who were involved in internationalisation processes of startups as entrepreneurs, or assisted with internationalisation processes of startups as consultants – to ascertain what are the ideal teams for startup internationalisation.

Multiple combinations within each attribute were created for this questionnaire, considering four team attributes: experience, qualifications, spoken languages and behavioural characteristics. According to those four attributes, different categories (typology) were created for each attribute:

- Experience – formed by three categories (international, professional, and academic)
- Qualifications – formed by three categories (Master's degree/MBA, Education Abroad, Erasmus/Academic exchange)
- Languages spoken – formed by four categories (Spanish, French, German, and Mandarin). All levels included Portuguese and English.
- Behavioural characteristics – formed by four categories. These four categories resulted from the combination of the six categories that were mentioned the most in literature, with each level presenting three of the six characteristics. These characteristics were combined based on empirical experience, according to the highest incidence of these combinations in previous studies.

Category 1	<p>Orientation to the Foreign Market</p> <p>Focus on Innovation</p> <p>Involvement in Decisions</p>
Category 2	<p>Focus on Innovation</p> <p>Personal and Professional Commitment</p> <p>Professional Self-Realization</p>
Category 3	<p>Orientation to the Foreign Market</p> <p>Personal and Professional Commitment</p> <p>Adaptability (Intercultural)</p>
Category 4	<p>Involvement in Decisions</p> <p>Professional Self-Realization</p> <p>Adaptability (Intercultural)</p>

Table 10 - Combination of behavioural characteristics to study
Source: Own elaboration

The model presented in this study was reduced to 12 combinations via Conjoint Analysis, using the Software SPSS Statistics. Twelve “ideal team” profiles for the internationalisation process of startups were created.

<p>A Professional Experience Master/MBA English, French and Portuguese Orientation to the Foreign Market Focus on Innovation Involvement in Decisions</p>	<p>B International Experience Erasmus/ Academic Exchange English, French and Portuguese Orientation to the Foreign Market Personal and Professional Commitment Adaptability (Intercultural)</p>
<p>C Academic Experience Internacional Training English, French and Portuguese Focus on Innovation Personal and Professional Commitment Professional Self-Realization</p>	<p>D Professional Experience Erasmus/ Academic Exchange Mandarin, English and Portuguese Orientation to the Foreign Market Focus on Innovation Involvement in Decisions</p>
<p>E International Experience Internacional Training Portuguese, German and English Orientation to the Foreign Market Focus on Innovation Involvement in Decisions</p>	<p>F Professional Experience Master/MBA Portuguese, German and English Focus on Innovation Personal and Professional Commitment Professional Self-Realization</p>
<p>G Professional Experience Erasmus/ Academic Exchange Portuguese, English and Spanish Focus on Innovation Personal and Professional Commitment Professional Self-Realization</p>	<p>H Academic Experience Erasmus/ Academic Exchange Portuguese, German and English Involvement in Decisions Professional Self-Realization Adaptability (Intercultural)</p>
<p>I Academic Experience Master/MBA Mandarin, English and Portuguese Orientation to the Foreign Market Personal and Professional Commitment Adaptability (Intercultural)</p>	<p>J International Experience Master/MBA Portuguese, English and Spanish Involvement in Decisions Professional Self-Realization Adaptability (Intercultural)</p>
<p>K Professional Experience Internacional Training Portuguese, English and Spanish Orientation to the Foreign Market Personal and Professional Commitment Adaptability (Intercultural)</p>	<p>L Professional Experience Internacional Training Mandarin, English and Portuguese Involvement in Decisions Professional Self-Realization Adaptability (Intercultural)</p>

Table 11 - Combination of team profiles

Source: Own elaboration, based on Conjoint Analysis using the Software SPSS Statistics

After the creation of these 12 profiles, participants were asked to sort team profiles according to their individual preferences, considering their entrepreneurial experience, support to entrepreneurs and business owners, and investor knowledge.

4.5.4 Result Analysis Method Adopted

Data were analysed using the Conjoint Analysis, a method that allows to isolate aspects that influence the choice of a certain profile in a multidimensional space. This method originates from mathematical psychology (Luce e Tukey 1964) and has been widely used in marketing and economics research to measure consumer preferences, predict consumption behaviours, and develop new products (Green e Rao 1971; Green, Krieger and Wind 2001; Hensher, Rose e Greene 2005; Raghavarao, Wiley e Chitturi 2010).

4.6 Results

Three clusters were created based on the answers of the 19 experts, who were involved in internationalisation processes of startups as entrepreneurs or assisted with internationalisation processes of startups as consultants, and using the Conjoint Analysis, according to the estimated utility of the four attributes identified in the study.

The first cluster, the **Academic Profile**, is formed by seven individuals and values academic experience of team members, while professors or researchers. These individuals highlight the importance of certain behavioural characteristics, such as focus on innovation, personal and professional commitment, and professional self-realization. They also find Erasmus or academic exchange, as well as speaking Mandarin, English, and Portuguese, to be essential.

The second cluster, the **International Profile**, is formed by eight individuals and values international experience of team entrepreneurs. As the experts in the first cluster, these individuals value the focus on innovation, personal and professional commitment, and professional self-realization, stating that these are behavioural characteristics that are essential for an “ideal team” in an internationalisation process. They also value education abroad and the fact that team members speak Mandarin, English, and Portuguese.

Lastly, the third cluster, the **Language Profile**, is formed by four individuals who value the languages spoken by their team members, where Portuguese, English and Spanish stand out. As to behavioural characteristics, the experts in the Language Profile see things differently than the experts in the clusters above and value Orientation to the foreign market, focus on innovation, and involvement in decisions, as well as education and training abroad.

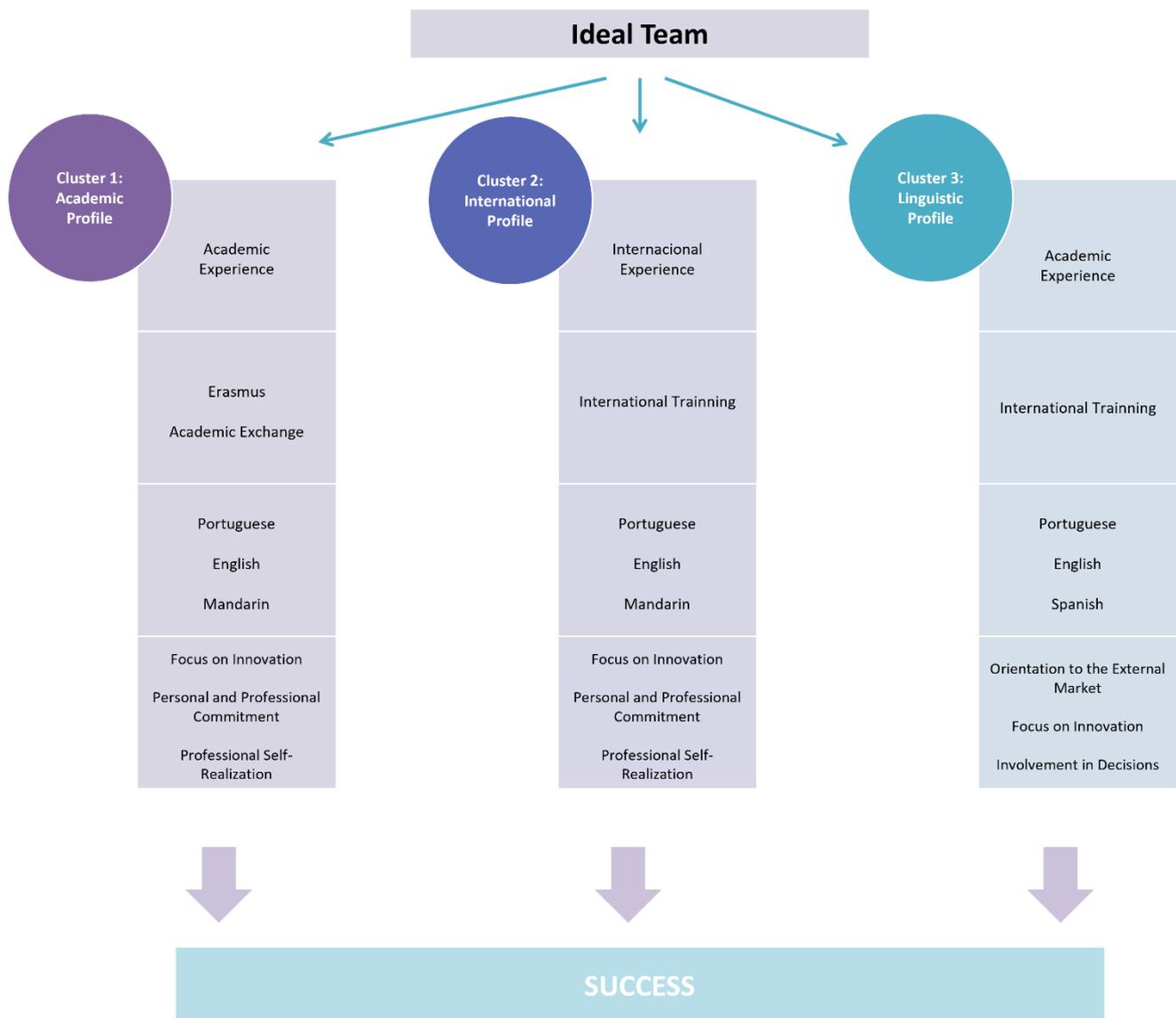


Figure 8 – Ideal Team

Source: Own elaboration, based on Conjoint Analysis using the Software SPSS Statistics

4.7 Discussion

4.7.1 Theoretical Implications of this Study

This study aims to contribute to research by using a differentiating method, the Conjoint Analysis, which is not often used in these study areas.

Research can have this study as the starting point for the analysis of teams in startups, both at the regional and national level in any other country, in order to perceive how the

internationalisation process could vary depending on the resources of each region or country and create new profiles specific to entrepreneurs in these places.

Research confirms the theoretical approaches mentioned in the literature review, indicating specific profiles for the reality under analysis.

4.7.2 Practical Implications for the Management area

This study has many implications for the management area.

It will allow a business owner or entrepreneur, who wants to launch their business in the future, to build one of these profiles in order to form an ideal team and be more successful. By corresponding to the profile of the “ideal team”, managers will be able to define more realistic strategies, based on their experience, international relationships they have already established and all resources and knowledge these teams have to offer in the organisational context.

In addition, it will allow entrepreneurs and business owners to form an ideal team, when structuring their internationalisation process, therefore tackling the trial-and-error process. Entrepreneurs can carefully select and recruit their employees to achieve final goal: internationalisation.

When analysing an investment project, investors can also make a more thorough analysis and see whether the team is the ideal team. The team variable is essential to Business Angels, venture capitals and even private investors when making an investment decision to support internationalisation.

Lastly, those who support entrepreneurs, incubators, business centres, consultants, who support business expansion to the foreign market, can have the process facilitated because they can access the definition of ideal team according to these experts.

4.7.3 Key Limitations

Sample dimension can be a limitation.

The fact that neither the activity sector (as a tourism startup is different from a technology or education business) nor the market to where the startup or business is expanding were not identified can also be two limiting aspects. For instance, the fact that

Mandarin is not very significant in this study could be associated with the fact that there were only few startups and businesses focusing on the Chinese market, which would make these skills less relevant.

4.7.4 Future Studies

This study can pave the way to new research, namely sectoral analysis, by distinguishing team profiles based on activity area, and comparative studies, which seek to learn why a certain team profile makes more sense in one place than other. By replicating this study, other academies all over the world will be able to make comparative analysis.

4.8 Conclusion

In this study, nineteen experts – who were involved in internationalisation processes of startups as entrepreneurs, or assisted with internationalisation processes of startups as consultants – were interviewed to ascertain what are the ideal teams for startup internationalisation.

Results show that the method used, the Conjoint Analysis, is useful to create profiles and clusters of ideal teams for internationalisation processes, although it is only rarely used in this study area. Providing experts with these profiles shows us their vision, which contributes to the management world in a practical and positive way.

Lastly, this could be the starting point for new research, namely those which include activity sectors and target markets of businesses and startups.

Chapter 5 - Conclusion

Chapter 5 – Conclusion

This study starts by analysing what makes the companies to be oriented to the external markets, namely the background of the team, the origin, the activities carried out by the business incubator they are settled in, etc. and by looking to the incubated startups to find out what makes them internationalize. Afterwards, we use SABI software to understand what makes them have higher or lower sales in external markets, specifically in the Community and outside the Community markets. Finally, we analyse what are the ideal teams to implement the internationalization process.

Throughout this study, we concluded that its results may impact in different fields, having various theoretical and practical implications, that will thereafter be summarized and discussed.

5.1 Main conclusions

It is important to remember that the main purpose of this study is to contribute to the assessment of the trends in literature regarding the factors that influence the success of the startups in international markets and to improve the knowledge and the state of the art regarding strategies that can be carried out and tools that can be used to allow startups to penetrate external markets in a successful and consolidated way.

Throughout this work three different topics were addressed: external market orientation of incubated startups; factors that influence the nondomestic turnover in Portugal; and the profiles of the teams that contribute to the success of Portuguese incubated startups in international markets. This study starts by analysing what makes the companies to be oriented to the external markets, namely the background of the team, the origin, the activities carried out by the business incubator they are settled in, etc. and by looking to the incubated startups to find out what makes them internationalize. Afterwards, we use SABI software to understand what makes them have higher or lower sales in external markets, specifically in the Community and outside the Community markets. Finally, we analyse what are the ideal teams to implement the internationalization process.

Firstly, regarding the factors that can predict external market entry for incubated companies, several measures implemented by incubators in startup internationalization

were studied, as well as export predictors concerning specific attributes of each startup and their teams.

Results lead to the conclusion that internationalization predictors for incubated companies are: the number of team members for incubated startups, including foreign members, and CEO gender. This research findings also allow us to conclude that the presence of incubated startups in external markets is higher for startups with male CEOs and greater number of national and foreign team members. The CEO's gender seems to be an attribute that is associated to the presence in the external market, since it could observe that there is the presence in the external market of incubated companies with male CEOs is higher.

Secondly, as for the factors that influence revenue in the community and extra-community markets, a thorough analysis of the start of the art available on this subject was carried out, mostly by using reference journals rated in the Journal Citation Reports 2019. To sum up, the entry into the community market is strongly influenced by the share capital, number of employees, high EBITDA, high cost per employee, but the startup should not be located in the region of Lisboa and Vale do Tejo and should not use too much of its equity. Startups are also more willing to enter the extra-community market in the second year of existence and when there is a high average profit per employee. It is worth to mentioning that startups located in the Algarve may have difficulties in this process and that not using too much of its equity and having a high EBITDA may contribute to successfully increasing revenue in the extra-community market.

This study contributes to the innovation of the research about startup performance in community and extra-community markets and is a starting point for future studies regarding new international growth strategies to be taken. It also questions the effectiveness of the methods generally used to manage start-ups, offering contemporary, cutting-edge solutions to the international growth of businesses. It is worth to highlight the innovation and relevance of the subject of this study. These results are a relevant contribution in terms of business management, definition of effective strategies by managers and creation of policies that facilitate successful internationalizations.

Lastly, nineteen experts – who were involved in internationalisation processes of startups as entrepreneurs or assisted with internationalisation processes of startups as consultants – were interviewed to ascertain what are the ideal teams for startup internationalisation.

Results show that the method used, the Conjoint Analysis, is useful to create profiles and clusters of ideal teams for internationalisation processes, although it is only rarely used in this study area. Providing experts with these profiles shows us their vision, which contributes to the management world in a practical and positive way. Consequently, this could be the starting point for new research, namely those which include activity sectors and target markets of businesses and startups.

Throughout this study, we concluded that its results may impact in different fields, having various theoretical and practical implications, that will thereafter be summarized and discussed.

5.2 Theoretical Implications

This study first aim was to assess which incubator measures would be internationalization predictors for incubated companies and which relevant individual characteristics could as well influence external market entry. This study contributes to research about the *role of incubators in the internationalization* of incubated companies. *Knowledge of individual characteristics of entrepreneurs* in incubated startups could be deepened as this will allow to explore in what ways incubators can use those characteristics to boost internationalization of incubated companies.

CEO gender is statistically significant. Results suggest that there is higher internationalization predisposition for incubated companies with male CEOs. However, it suggests that more employees in a startup means less difference between male and female CEOs, therefore suggesting that startups with female CEOs have higher presence in the external market. The number of team members and the number of foreign team members also seemed to mitigate gender differences in terms of startup internationalization. It is also important to highlight that gender differences are a social factor that differs according to each region, country, and continent's culture.

According to this study, CEO education level did not seem to be an internationalization predictor. This may derive from the samples for each academic degree not being significant enough. This was an exploratory study, which caused this statistic predictor to lose strength and not be in accordance to reviewed. In addition, the fact that startups in this study were incubated businesses might have decreased the impact of this characteristic on the internationalization process. Although some literature reinforces this

entrepreneur skill in an incubation context, the Portuguese reality may not be in accordance with these data. A more comprehensive data collection may change this result because it will allow to access more information about the impact of CEO education in the internationalization process of their startups. Previous entrepreneurial experience in the internal and external market and startup activity may also be relevant. This new study hypothesis may significantly relate to company internationalization and allow researchers to learn the connection between these two characteristics.

Lastly, it is worth to discuss why this study showed that the number of languages spoken by a team was not an internationalization predictor for incubated companies. Despite the significant relation between foreign team members and company internationalization, these two factors were not associated to languages spoken. This issue might not be clear for entrepreneurs who participated in this study. In fact, no relevant literature was found that associated the number of languages spoken and internationalization capacity in start-ups. On the other side, according to literature, foreign members' know-how of Portuguese startups was a factor that contributed to internationalization and knowledge of other languages might as well be associated to this possibility. However, this does not relate to incubated start-ups directly.

This way, according to this study, foreign team members may be an internationalization predictor, as this knowledge of other languages may be useful in contacts with the external market. Future studies should cover the specific needs of entrepreneurs who want to enter the external market to contribute to research in this area and help incubators adapt their offer according to incubated companies' expectations.

Other aim of this study is to contribute to research by addressing the different aspects that relate to revenue in the community and extra-community markets, analysing how those factors relate and condition themselves and creating theoretical models that predict the group of factors that influence revenue in the internationalization process of startups. Based on our results, we are confident to offer some theoretical insights and recommendations for future research. The academy can check for variations between countries that are influenced by cultural, economic, and political factors. Also, allows to see whether the factors that influence revenue in the community and extra-community market vary between countries or continents by making a comparative analysis about which would be the best global strategy for startups. This study is also a starting point for research about which startup econometrics might influence revenue in the community and extra-community markets. This way, it is important that other researchers continue this

line of study to understand how these characteristics vary between countries, cultures, and continents. By replicating this study, researchers worldwide will be able to make comparative analyses.

The final aim of this study was to contribute to research by using a differentiating method, the Conjoint Analysis, which is not often used in these study areas.

Research can have this study as the starting point for the analysis of teams in startups, both at the regional and national level in any other country, in order to perceive how the internationalisation process could vary depending on the resources of each region or country and create new profiles specific to entrepreneurs in these places.

Research confirms the theoretical approaches mentioned in the literature review, indicating specific profiles for the reality under analysis.

5.3 Practical Implications

Apart from the theoretical impact and form contributing for the progress in investigation, this study underlies practical implications, such as for company management and comes up with relevant results for both incubators, entrepreneurs, society, and economy.

In the case of the business incubators, they can benefit from this study since it is stated that their activities may have impact on the orientation of the startups to external markets. Therefore, they can define and implement strategies that promote international contact networks, thereby facilitating access to international procurement networks, and support entrepreneurs in terms of hiring foreign employees. This study also states that incubators can analyse specific traits of incubated startups and companies and develop new strategies from there that allow to boost their performance. They can consequently develop and implement new external market entry strategies, based on each startup's internationalization capacity. The business incubators can also consider the results regarding data related with CEO gender and provide different support for female and male CEOs or enable CEOs to use alternative tools that allow them to enter the market effectively and in a consolidated way.

As for Entrepreneurs, by using the variables analysed in this study, they can implement internal measures in their strategies and operations that lead to the internationalization of their start-ups, such as focusing on international teams and experienced employees, who

know the external market, and introducing tools that allow to fill the social and cultural gaps of the countries to where they want to export to. Entrepreneurs can also redefine employee and top management roles by taking better advantage of the capacities and skills of all team elements, like the enhancing of potential foreign employees, that provide the entrepreneurial ecosystem with a diversity of knowledge and experiences, as well as the know-how from markets in which these employees have worked. They can also focus on increasing their number of employees, namely foreign employees.

In addition, this study also impacts on society. The results show that the number of employees in a startup can be an internationalization predictor, which may contribute to the increase of employment, both nationwide (generating more job opportunities) and worldwide (following internationalization and with the inclusion of immigrants in teams). According to this study, integration of foreign employees in companies may also impact positively on social issues related to sustainability and equality of opportunities. The value added by foreign employees, as shown in this work, may also change the perception of the corporate sector concerning the integration of foreign members in their teams.

From a broader perspective, Economy can also be positively affected by this study, since a startup under an incubation process can lead to the development of internationalization capacity that in turn may end up contributing to economy development, by increasing the export of national products and services, and the revenue of those startups.

Regarding practical Implications for Entrepreneurs and Business Managers, this study also brings new solutions to managers and entrepreneurs who currently own or intend to own businesses in Portugal. With these results, startups can define more realistic strategies based on their experience and the international relationships they have established, analyse which investments make sense and enter the internationalization process according to what benefits them.

This study also adds to the knowledge of incubator managers because it gives them information about the strategies that have been used by startups in their internationalization processes. This way, incubator managers can rely on this study to identify new opportunities for the entrepreneurs in their incubators by developing incubation plans adapted to them and guiding them towards the business decisions that have the greater impact on the revenue in the community and extra-community markets, namely the number of employees and how to manage their finances throughout the international growth process.

These results can also have political relevance. The creation of new policies that encourage internationalization and exports can be useful for the economy and growth of startups, reducing the financial constraints faced by companies and increasing their investments and productivity indirectly. The latter can be particularly relevant for small and mid-size enterprises (SME) that often see their investments limited by the lack of funds, giving them increased financial autonomy to take risks in the international market. Relationships with institutions of other countries could be built in both community and extra-community markets.

Moreover, this study will allow a business owner or entrepreneur, who wants to launch their business in the future, to build one of these profiles in order to form an ideal team and be more successful. By corresponding to the profile of the “ideal team”, managers will be able to define more realistic strategies, based on their experience, international relationships they have already established and all resources and knowledge these teams have to offer in the organizational context.

In addition, it will allow entrepreneurs and business owners to form an ideal team, when structuring their internationalisation process, therefore tackling the trial-and-error process. Entrepreneurs can carefully select and recruit their employees to achieve final goal: internationalisation.

When analysing an investment project, investors can also make a more thorough analysis and see whether the team is the ideal team. The team variable is essential to Business Angels, venture capitals and even private investors when making an investment decision to support internationalisation.

Lastly, those who support entrepreneurs, incubators, business centres, consultants, who support business expansion to the foreign market, can have the process facilitated because they can access the definition of ideal team according to these experts.

This study can pave the way to new research, namely sectoral analysis, by distinguishing team profiles based on activity area, and comparative studies, which seek to learn why a certain team profile makes more sense in one place than other. By replicating this study, other academies all over the world will be able to make comparative analysis.

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