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Do Accelerated Ventures Learn what really matters?

An Exploratory Study of the Portuguese Ecosystem

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ABSTRACT

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Entrepreneurs are drivers for economic prosperity and innovation. They take risks that are normally avoided by established companies, pushing industry boundaries to the next level. Several incubation mechanisms emerged in order to support new ventures in coping with initial challenges. Accelerators were born in 2005 and completely revolutionized how business incubation is done. By offering knowledge intensive and specialized support, acceleration programs aim to speed up new ventures´ development in approximately three months. Scholars have studied this new incubation mechanism over the last years but still little is known about the impact that accelerators have on startups. In order to address this research gap, we interviewed ten accelerated startups to understand the entrepreneurs´ perspective about the program. Based on acknowledged research, we investigated the impact of accelerators on the drivers of startup success. Literature divides the drivers in four main categories – Team, Product, Marketing and Financials.

We found accelerators to be remarkable Team Builders for accelerated startups. Due to the cohort effect and the knowledge-sharing environment promoted by accelerators, ventures develop their Team Personality and Credibility throughout the program. Additionally, we found that accelerators are great Market Development Champions for high-tech startups. Our results suggest that the accelerators´ market-oriented mind-set positively impact all the drivers of startup success of the Marketing category.

Keywords: incubation models, accelerators, startups, entrepreneurship, drivers of startup success

SUMÁRIO

Os empreendedores são motores para o desenvolvimento económico e inovação. Eles correm riscos que são normalmente evitados pelas grandes empresas, desafiando os limites pré-estabelecidos pela indústria. Vários mecanismos de incubação surgiram para ajudar as novas empresas a enfrentar os seus primeiros desafios. Os aceleradores emergiram em 2005 e revolucionaram a forma como a incubação de novas empresas é feita. Através de um suporte especializado e baseado no conhecimento, os aceleradores têm como objetivo acelerar o desenvolvimento de novos negócios em aproximadamente três meses. Os académicos têm estudado este novo mecanismo de incubação durante os últimos anos, mas pouco se descobriu acerca do impacto que os aceleradores têm nas *startups*. De forma a preencher esta lacuna, foram entrevistadas dez *startups* previamente aceleradas para perceber a perspetiva dos empreendedores sobre o programa. Baseados em investigação reconhecida, indagamos o impacto dos aceleradores nos *drivers* de sucesso das *startups*. A literatura divide os drivers em quarto categorias principais – Equipa, Produto, Marketing e Financeiro.

Concluímos que os aceleradores são um fantástico suporte ao Desenvolvimento de Equipa das *startups* aceleradas. Devido ao efeito *cohort* e ao ambiente de partilha do conhecimento promovido pelo acelerador, as empresas desenvolvem a sua Personalidade e Credibilidade enquanto equipa. Adicionalmente, descobrimos que os aceleradores prestam um grande apoio no Desenvolvimento de Mercado para as *high-tech startups.* Os nossos resultados sugerem que o pensamento orientado para o mercado dos aceleradores é responsável por um impacto positivo em todos os *drivers* de sucesso das *startup,* relativamente à categoria Marketing.

Palavras-chave: modelos de incubação, aceleradores**,** *startups*, empreendedorismo, *drivers* de sucesso das *startups*

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CHAPTER 1: INTRODUCTION

1. Background and Problem Statement

Entrepreneurs are responsible for bringing disruption to established industries. They completely change the game as we used to play it, forcing incumbents to adapt to new realities. LinkedIn has completely reshaped the recruitment business, while Airbnb allows ordinary people to rent out their residences as tourist accommodation. Uber is a digital platform that connects passengers with drivers and is disrupting the taxi industry, forcing it to redesign this long-lasting business model (Siegele 2014).

Entrepreneurship is a crucial driver for economic prosperity and innovation. By literally betting on new products and technological innovations, entrepreneurs are willing to take risks that are usually avoided by established companies (Clarysse, Wright and VanHove 2015). Startups challenge the *status quo* and push the boundaries further, instigating competition and industry innovation (Audretsch and Keilbach 2008). Literature suggests that entrepreneurship has a remarkable impact on innovation and employment, which ultimately lead to the economic development of a certain region or population (Galindo and Méndez 2014). As reported by the Kauffman foundation, newly formed startups create on average three million new jobs annually in the United States. Nevertheless, the large majority of these new startups fail or remain stagnated after a short period of time (Morelix, Reedy and Russell 2016).

Extant research reveals that startups face key challenges when trying to cope with the "liability of newness". Limited financial resources are a main driver for startup failure and in many cases, newly created ventures have to delay their growth due to the lack of timely funds (Davila, Foster and Gupta 2003). Founding team inexperience and lack of knowledge on how to seize and follow business opportunities are also major challenges for young startups when trying to compete with other resourceful companies (Gruber, MacMillan and Thompson 2008; Ambos and Birkinshaw 2010). In order to support and guide entrepreneurs on their first steps, several institutions have emerged such as incubators, business angels, venture capital firms and accelerators. Of particular importance due to its novelty and already proved impact are the accelerators (Cohen 2013).

The first accelerator emerged in 2005 in the United States as a response to the stagnation of previous incubation models, which are mainly focused on providing office space and some general business support services (Bruneel, Ratinho, Clarysse and Groen 2012). The main goal for an accelerator is to accelerate a new venture development process. By focusing on intangible, knowledge intensive and specialized support services, the accelerator offers a program that provides education, mentoring and a network of important economic agents from the entrepreneurial and venture capital ecosystems (Cohen and Hochberg 2014). Miller and Bound (2011) enumerate five main features that differentiate the accelerator's incubation model from other approaches:

• An application process that is open to all, yet highly competitive.

• Provision of pre-seed investment, usually in exchange for equity.

• A focus on small teams not individual founders.

• Time-limited support comprising programmed events and intensive mentoring and networking.

• Cohorts or 'classes' of startups rather than individual companies."

Notwithstanding of its novelty and innovative approach, acceleration programs are steadily growing around the world. Seed-DB, a centralized databased on seed accelerators, reported more than 213 accelerators worldwide in 2013, and approximately 3 800 accelerated ventures (Pauwels, Clarysse, Wright and Van Hove 2016). Y Combinator, considered to lead acceleration programs, is responsible for two of the most high-growth tech companies from the last decade, Dropbox and Airbnb. Furthermore, in 2011, Yuri Milner and Ron Conway made an across-the-board investment of $150 000 in every single startup from the Y Combinator cohort in Mountain View (Miller and Bound 2011). These evidences highlight the growth and impact of accelerators on the entrepreneurial and investors ecosystems.

The raise of acceleration programs is strongly correlated with the drop on experimentation costs faced by tech start-ups (Pauwels *et al.* 2016). Comparing to the early 2000s, new era digital businesses face extremely lower hardware and software development costs. For instance, in 2011, hosting one gigabyte per month cost less than $0.16 under the Amazon Web Services. Eleven years earlier, hosting costs were

approximately $19 per gigabyte, meaning that storage capacity costs have dropped more than one hundred times in one decade (Miller and Bound 2011).

Inspite of its importance, literature on how accelerators shape the trajectories of new ventures is still scarce. In an important study, Smith and Hannigan (2015) compared the impact of receiving funds from a top angel investor relative to a top accelerator. The results indicate that going through a top acceleration program increases the speed of exit either by acquisition or quitting. Furthermore, accelerators also enhance the likelihood of follow-on financing, mainly in the period following "demo-day" (Smith and Hannigan 2015). Nevertheless, more research is need to fully understand the impact of accelerators on new venture development (Cohen and Hochberg 2014). The few available studies are largely descriptive in nature and fail in understanding what business dimensions are in fact accelerated and how does the acceleration process takes place (Cohen and Hochberg 2014; Miller and Bound 2011). Therefore, the purpose for this thesis is to understand how acceleration programs affect ventures development.

To assess the accelerators' impact, we will investigate whether ventures that participate in an accelerator program actually felt accelerated, and if so, how and why. More specifically, we will focus on finding evidence of the accelerators' impact on the key drivers of startup success. Previous studies have tried to identify which variables might be in the origin of a startup success (MacMillan *et al.* 1985; Song, Di Benedetto and Song 2010). Scholars identified a set of comparable indicators to predict startups performance and have considered four major categories – the startup's team, its product, the market they want to address and the financial projections (Song, Di Benedetto and Song 2010). Accelerators offer a wide range of mentoring and educational services, but little is known on how this activities contribute for ventures' development (Cohen and Hochberg 2014). Accelerated ventures' perspectives on the topic have been neglected in previous research, so this thesis will explore entrepreneurs' thoughts and feelings about the phenomenon.

2. Aims and Scope

This thesis will focus on how acceleration programs affect ventures' development and learning. The aim is to understand which key drivers of startup success, if any, are in

fact accelerated and developed during the process. By uncovering entrepreneurs' perspectives, we will investigate what is the contribution of accelerators on the ventures' early development.

RQ1: What do entrepreneurs expect from acceleration programs?

RQ2: Do ventures feel accelerated after the program?

RQ3: Do accelerators have any impact on the drivers of startup success? If so, which are the most impacted ones?

3. Research Methods

Having into account the lack of background theory on the topic, the present study will be based on a multiple case-study research method. Several authors consider case-studies to be the most expeditious method to set up an exploratory research (Eisenhardt 1989; Yin 2009). Furthermore, it allows to retain the meaningful characteristics of a real-life phenomenon, especially when the researcher has no control over the studied event (Yin 2009). Our multiple case-study method took the form of semi-structured interviews with ten graduated startups from the Building Global Innovators acceleration program. Based on an inductive method, we extracted extremely meaningful outcomes from the interviews and we present them in detail on the fourth chapter of the present dissertation.

4. Relevance

Our study will bring valuable information to the people, institutions and policy makers that might be interested in the entrepreneurship phenomenon.

First, we will help entrepreneurs to better understand how it is to be accelerated. Our research will be based on startups that come to leave their testimonies about the impact of being accelerated. Entrepreneurs can take valuable inputs in order to understand if accelerators offer the service they want and need.

Second, accelerators will be able to finally understand how their programs are affecting the ventures' development process. Literature have studied the acceleration

programs' structure and composition, but little is known about its impact (Cohen and Hochberg 2014). By addressing this gap, we will provide accelerators with valuable information that they can use to make adjustments to redefine the program's impact. Additionally, our work also gives important contributions to other incubation models. We will further prove if accelerator specific mechanisms in fact accelerate startups' development process and, if so, which specific dimensions are impacted the most. Other incubation models can possibly incorporate some of the accelerators' practices if they want to achieve similar results.

Third, Policy Makers can find results very insightful for the investment decision-making process. Literature suggest that regions with a high level of entrepreneurship capital are expected to reach higher levels of economic growth and lower levels of unemployment rate (Audretsch and Keilbach 2008). Through our research, Policy Makers will be better informed whether accelerators are a good investment option or not. We will provide results on the impact of accelerators on startups so that comparison between other methods of promoting entrepreneurial activity will be easier to do after this study.

5. Dissertation Outline

Our research is followed by a careful analysis of the literature review on accelerators, entrepreneurial learning and drivers for startup success. The third chapter presents the chosen research methodology to conduct our investigation. Additionally, a description of our sample is also included in this section. Results are presented and discussed in the fourth chapter. Finally, our dissertation's last chapter addresses our study's conclusions, limitations and recommendations for future research.

CHAPTER 2: LITERATURE REVIEW

1. Accelerators – a new incubation model

Several institutions and individuals are currently taking an active role on supporting entrepreneurial ideas all around the world. Of particular importance are incubators, angel investors and accelerators. This research will focus on the accelerators' impact and how it contributes to ventures' early success.

1.1. History Overview

The first accelerator, Y Combinator, was founded in 2005 in Cambridge, Massachusetts, by Paul Graham. The second (first competitor), Techstars, appeared in 2007, in Boulder Colorado, has now around 50 franchises worldwide. Many other accelerators followed, including Dreamit in Philadelphia, Seedcamp in London, and Launchbox Digital in Washington DC. Literature suggests that since 2005, over 6000 startups have participated in one of the existent 650 programs (United States) and collectively raised $13B in capital (Hallen, Bingham and Cohen 2016). Several participants have experimented enormous growth, as it is the case of AirBnB, Digital Ocean and Dropbox (Miller and Bound 2011). Accelerators firstly centred efforts on the information-technology industry due to its high-growth potential and minimum initial capital required to operate and develop. Nowadays, many accelerators have become more industry profiled. For instance, Fintech Innovation Lab focuses exclusively on the financial sector, while L'Accélérateur is more retail-oriented (Pauwels *et al.* 2016). Even though Accelerators often advertise themselves as institutions that steadily develop startups and businesses, there is surprisingly little research on their contribution and added-value. The available studies are descriptive in nature, lacking a consistent theoretical background to study the phenomenon (Cohen and Hochberg 2014; Miller and Bound 2011).

1.2. The program in detail

Accelerators help startups to build the initial product and to secure resources like seed capital, employees and working space. These features are common among other programs offered by incubators or angel investors. Additionally, accelerators offer a plethora of networking, educational seminars and mentorship programs (Cohen 2013).

Mentors might be successful entrepreneurs, angel investors, or even corporate executives.

“A fixed-term, cohort-based program, including mentorship and educational components, that culminates in a public pitch event or demo-day.” Susan G. Cohen

The limited duration is one of the key features that sets acceleration programs apart from other incubation models. It takes roughly three months for a project to be considered a failure or a success. Regardless of the outcome, the acceleration process goal is to allow startups to interact as fast as they can within their markets, with the ultimate challenge of learning and re-adapt ideas quickly. Even if the project fails, it is better to fail in three months than in three years because it allows entrepreneurs to re-allocate their own resources to other projects. Most of the programs end with a “demo day”, where ventures pitch to a large audience of qualified investors (Cohen 2013).

The first stage starts with a rigorous and carefully selection process. An open call is put in place for a period of time where any startup can apply online on a specific software platform. There are some programs, such as Startupbootcamp and Climate-KIC, which start scouting start-ups even before the application period (Pauwels *et al.* 2016). An investment opportunity is then offered to the selected venture. Literature suggests that 8 out of 13 accelerator programs offer a small amount of financing in return for equity, tipically ranging from $3.600 to $50.000, for 3–10% equity (Pauwels *et al.* 2016). During the program, the accelerator offers a curriculum program that covers a diversity of topics such as finance, marketing and general management. In addition, ventures can book weekly office hours which are intended to provide steadfast assistance in order to accelerate the business development. Nevertheless, existing body research suggests mentoring as the most revolutionary acceleration program’s feature (Cohen 2013). Mentoring aims to help ventures in defining their business models and to stimulate the procurement of possible partners, customers and investors. Literature advocates that even though variations exist in some acceleration programs, mentoring services are evident and take a major role across all the accelerators (Pauwels *et al.* 2016).

2. Entrepreneurial Learning

Every new venture faces unpredictable events. However, it is the entrepreneur's ability to overcome and learn from adversity that determines future success or failure (Minniti and Bygrave 2001; Deakins 1996). Accelerators are important because they aim to help ventures in the learning process, avoiding costly even fatal mistakes.

Academics have yet to agree to a single definition of Entrepreneurial learning (EL). Several authors focus on the realization of the opportunity and the capability to act and mobilize the required resources to materialize that vision (Rae 2005). Young and Sexton (2003), broadly define EL as the experiential and cognitive processes affected to acquire, retain and materialize the entrepreneurial knowledge. We want to focus our analyses on what entrepreneurs learn after envisioning an entrepreneurial opportunity. Hereafter, we will use Stevenson and Jarillo (1990, p. 23) definition of EL, as the learning that occurs during the entrepreneurial process, which can be seen as the process by which individuals or organizations pursue entrepreneurial opportunities by allocating new resources and knowledge. Entrepreneurial opportunities lacks a coherent and clear definition (Busenitz *et al*. 2003). Academia have recognized and vastly cited Eckhardt and Shane's (2003, p.336) definition of the concept, describing entrepreneurial opportunities as situations in which new processes, products or services are introduced or modified through the unfolding of new means, ends, or means-ends relationships. Stevenson and Jarillo (1990), suggest two different types of opportunities on a business and entrepreneurial level, opportunity exploration and opportunity exploitation. Opportunity exploration (also discovery, recognition, or development), concerns the search for information leading to the creation of new knowledge (Alvarez and Busenitz 2001), while opportunity exploitation entails a firm to commit previously owned resources and knowledge, in order to build efficient business systems to upscale current operations and production to obtain returns from the exploitation of the new product arising from the opportunity (Choi and Shepherd 2004).

2.1. Entrepreneurial Learning dimensions

Wang and Chugh (2014) have identified three different learning dimensions that can occur during the entrepreneurial process: i) individual and collective learning; ii) exploratory and exploitative learning; iii) intuitive and sense making learning.

2.1.1. Individual and Collective learning

Individual learning is described as the process in which individuals acquire data, information, skill or knowledge. Collective learning is a process of acquiring information and knowledge in group, and can be defined as a "social process of cumulative knowledge, based on a set of shared rules and procedures which allow individuals to coordinate their actions in search for problem solutions" (Capello 1999, p.354).

2.1.2. Exploratory and Exploitative Learning

The second dimension concerns exploratory and exploitative learning. Exploratory learning increases performance variance and is about questioning what it is currently done, while exploitative learning is about improving efficiency, mean performance and decreasing variance (McGrath 2001). March (1991, p.71) describes: exploration involves "search, variation, risk taking, experimentation, play, flexibility, [and] discovery". On the other hand, exploitation entails "refinement, choice, production, efficiency, selection, implementation, [and] execution."

2.1.3. Intuitive and Sense making learning

Finally, the third learning dimension is composed by sense making and intuitive learning. The first entails learning by knowing the reality while the second is abstract and more difficult to understand how it develops (Felder and Silverman 1988). Sense making learners are considered to use a more logical and practical approach to discover an opportunity, understanding and analysing the existent relationships of market conditions. Reversely, intuitive learners are more likely to create a new opportunity based on a high level of conceptual and abstract thinking, which is considered to be more difficult to be explained on a structured and logical format. Bingham and Davis (2012, p.613) describe intuitive learning as improvisational learning – "a real-time learning process in which firms learn to solve unexpected problems or capturing surprising opportunities in the moment".

2.2. How do acceleration programs stimulate entrepreneurial learning?

Learning is widely mentioned as a critical success factor during the entrepreneurial process (Minniti and Bygrave 2001; Deakins 1996). Entrepreneurs face a major challenge when trying to cope with initial stage distress, particularly when the

interpretation of the problem lacks relevant knowledge. Accelerators attempt to mitigate these risks by promoting an intensive indirect learning environment based on the knowledge and advices of others (Hallen *et al.* 2016). Indirect learning differs from direct learning as this last one requires learning from own experiences (Schwab 2007). Conversely, indirect learning concerns learning from others' experience (Ingram 2002).

Throughout acceleration programs, startup cohorts receive several formal and informal indirect learning classes. Formal indirect learning takes place through a set of functional seminars in topics such as marketing, finance, law and other technical matters like product development, web designing or programming. External or Alumni entrepreneurs are also invited as guest speakers, to discuss their own entrepreneurial journey – how they dealt with initial stage obstacles and dilemmas, or even how they are able to translate customer feedback into useful information within their businesses. Nevertheless, the most relevant tool used to provide an intensive indirect learning ecosystem to new ventures, is considered to be the fast paced and carefully planned mentorship program (Hallen *et al.* 2016).

New ventures discuss with their mentors topics regarding customer development, financial and operational structures and built a "go-to-market" strategy. Interactions with experienced mentors are aimed to fulfil perceived and unperceived business model gaps as fast as possible, with the minimum associated cost (Hallen *et al.* 2016). Seedcamp, a relevant European accelerator, claims that through its program, ventures are able to "tap into a global network of the right advisors and overcome the challenges you'll face in the fastest possible time" (Hallen *et al.* 2016). However, literature does not share a common view on the topic. The accelerators advisors' approach goes against to what several authors consider to be an extremely important learning engine, the trial-and-error experimentation (Gavetti and Rivkin 2007; Ries 2011).

New ventures face a challenge on which way to learn. On one hand, new ventures which seek to overcome obstacles and test assumptions through trial-and-error experiments, may acquire and retain knowledge in a much more effective way because learning process takes place through first-hand experiments (Gavetti and Rivkin 2007; Ries 2011). On the other, limited resources and the amount of time and capital required

to constantly try and redefine a business model, may lead a new venture to premature failure (Beckman and Haunschild 2002; Hallen *et al.* 2016).

3. Drivers for Startup success

Past research reveals that early stage success of a new venture has a positive correlation with its probability of future success. Song *et al*. (2010) study reveals that only 14.25% of ventures that failed in their first product, have experienced success afterwards. Given the lack of resources, startups suffer from "liabilities of newness" (Schoonhoven *et al.* 1990) and find themselves in a much more risky situation than established companies. Newly created ventures normally pursue an "all eggs in one basket" strategy, concentrating all their financial resources in one product, rather than splitting the investment between different products like experienced and resourceful companies do (Feeser and Willard 1990).

Considering the importance of startups early success for both entrepreneurial and investors' communities, scholars have investigated key drivers of startup success. Several authors have studied what might be in the origin for a startup to succeed or fail and four major drivers emerged from research – the startup team, marketing expertise, product characteristics and financial plans (Song *et al.* 2010). Bearing in mind the scarce literature on which criteria are actually helpful in distinguishing successful from unsuccessful new ventures, our study also add the investors' community perspective on the topic. MacMillan *et al.* (1985) studied the venture capitalists' investment criteria when analysing a new venture. The results presented six major groups composing the decision-making process: i) entrepreneur's personality; ii) entrepreneur's experience; iii) product characteristics; iv) market characteristics; v) financial projections; vi) venture team composition. Furthermore, Song *et al.* (2008) conducted a meta-analysis regarding the success factors in new ventures and grouped twenty-four metafactors into three categories – the entrepreneurial team, market opportunity (marketing and product) and resources (financial and technical expertise). Considering the congruence between previous research on the topic, we divided the drivers of a startup success into four major building blocks: i) team; ii) product; iii) marketing; iv) financials. We will now define and present each driver in detail.

3.1. Team

Given the low access to resources, the human capital is considered to be the unique key differentiator of early stage ventures (Colombo and Grilli 2010). Additionally, a Kauffman Foundation study (2007) reported team characteristics as the most relevant criterion for an investor to support a new venture. Previous research highlights the importance of the jockey (entrepreneur) over the horse (product), horse race (market) or even the odds (financials) to determine whether an investor is willing to place a bet or not (MacMillan *et al.* 1985). Initial business concept might change during the process but the human capital is the only resource that will stand until the end of the journey (Zhao *et al.* 2015).

Delmar and Shane (2006) have found previous startup experience to be a positive predictor of new venture performance. Experienced entrepreneurs have more tools and accumulated knowledge that can be applied to subsequent projects. Furthermore, Marion (2016) conducted a research on ten years of data from venture capital firm First Round, and found that founders' experience on a top tech company and education at a top school, leverage the probability of a startup to succeed. Soft-skills such as the ability to communicate or to be coachable, meaning the ability to understand and incorporate different perspectives, are also high-valuable indicators for startup's future success (MacMillan *et al.* 1985). For Song *et al.* (2010, 2011), a startup team equipped with strong management capabilities and technical expertise is much more qualified to cope with the "liabilities of newness".

Two Team sub-categories emerge from literature. The first is Team Credibility, which is related with the hard-skills of a venture and entails previous experience and educational background, industry knowledge, technical expertise and management skills. The second is Team Personality which concerns teamwork, communication, team coachability and passion (MacMillan *et al.* 1985; Delmar and Shane 2006; Song *et al.* 2010, 2011; Zhao *et al.* 2015).

3.2. Product

The importance of product characteristics is far from being disregarded by scholars. Several authors contrast the team-first perspective, suggesting that the horse (product) is the best predicator of an early venture success (Kaplan, Sensoy and Strömberg

2009). Product differentiation is considered to be a *sine qua non* for new ventures to achieve superior market and financial performance (Henard and Szymanski 2001). Cooper and Kleinschmidt (1994) highlight that differentiated products provide better chances for customer satisfaction and thus loyalty for repeating purchases. However, it is not enough to be different. MacMillan *et al.* (1985) mention proprietary protection as a key feature to prevent early attacks from competitors, being also one of the most valuable product characteristic for investors.

3.3. Marketing

Several marketing activities and market characteristics have been identified in the management literature as critical for new ventures early success (Song *et al.* 2010). These usually includes market research activities, sales force and marketing plan development (Calantone and Di Benedetto 1988; Zhao *et al.* 2015). Additionally, previous studies suggest that market attractiveness is positively correlated with startups' initial performance. An attractive market is considered to be a market that generates substantial profit and has a low competitive environment (MacMillan *et al.* 1985; Song *et al.* 2010). Similarly, private investors view market opportunity as a key criterion in the investment decision-making process. They make vague marketing plans one of the reasons to reject support to the startups. Of particular importance is to be sure and to prove that the created product or service meets the customer needs in a superior way (Calantone and Di Benedetto 1988). Concluding, researchers' community believe that market attractiveness, the marketing plan and the degree to which a product meets the customer needs, are three critical predictors of a new venture success (MacMillan *et al.* 1985; Feeney, Haines and Riding 1999).

3.4. Financials

The fourth cornerstone for a startup to achieve above-average performance is to have a carefully-developed financial plan. A thorough financial plan includes future profitability, liquidity and viability. Literature suggests that accuracy and realism are imperatives when designing a financial plan (Feeney *et al.* 1999; Maxwell *et al.* 2011). Firstly, it is critical for entrepreneurs to have a clear picture from the venture's financial position. Secondly, it shows professionalism and reliability to external agents that could be investors or possible partners (MacMillan *et al.* 1985; Zhao *et al.* 2015).

3.5. Analysed Drivers

During the interviews analyse, we try to identify which drivers for startup success, if any, were the most impacted by the acceleration program. The analysed criteria applied to this investigation, are based on research of Song *et al.* (2008, 2010, 2011), MacMillan *et al.* (1985) and Feeser and Willard (1990). Bearing in mind the congruence between existing body research, we divided the criteria into four categories that are presented in Table 1: i) Team; ii) Product; iii) Market; iv) Financials. According to the previous theory, the higher the impact on each specific dimension, the higher the probability of startup success.

Table 1 – Key Drivers of Startup Success

Category	Key Driver	Statement
Team Credibility	Educational Background	Team has a strong academic background
	Entrepreneurial Experience	Team has prior entrepreneurial experiences
	Industry Knowledge	The team knows how does the particular industry works
	Management	Team owns management skills
	Technical Expertise	Team has the hard skill needed to product development
Team Personality	Coachability	Easy to work with and able to understand different perspectives
	Communication	Team knows how to communicate
	Passion	Passion for the venture's project
	Teamwork	Works well together

Product	Differentiation	It is different from what is offered
	Protectability	Difficult to copy
	Readiness	The product is ready to be launched
Marketing	Customer Needs	The product meets customer needs
	Market Attractiveness	The targeted market has huge revenue potential, it is growing and has low competition
	Marketing Plan	The venture has a clear and carefully designed Marketing Plan
Financial	Liquidity	The project is expected to pay dividends quickly
	Profitability	Huge profit expectations
	Realism	The projections are built upon acceptable assumptions

CHAPTER 3: RESEARCH METHODOLOGY

1. Research Design

The purpose of the present dissertation is to understand if ventures feel accelerated after an acceleration process or not, and if so, which key drivers for startup success are the most impacted ones. For that, we will follow a multiple case-study research methodology based on interviews.

1.1. Multiple Case-Study

The present dissertation will follow a multiple case-study research design. Literature suggests case-study as the advisable research method for understanding a complex social phenomenon, allowing the investigator to retain the holistic and meaningful attributes of real-life events. Additionally, we followed the three basilar criterion for choosing the present methodology (Yin 2009). As the author suggests, case-study is the most suitable research approach when trying to answer to "how" and "why" questions. Additionally, this methodology prevails if the investigator has little or no control on the events and if the study is focused on a contemporary phenomenon within a real-life context (Yin 2009). Our investigation aims to study ventures' acceleration processes in which we do not have any control over and our analysis will be based on the interaction between the accelerator and entrepreneurs.

We opted for a multiple case-study strategy rather than a single one, because it provides a more reliable source of information and a stronger base for theory building (Yin 1994). Even though single case-studies can deeply analyse a complex real-life phenomenon (Siggelkow 2007), multiple case-studies create more robust propositions and validates the built theory through multiple empirical evidence (Eisenhardt and Graebner 2007). According to Eisenhardt and Graebner (2007), adding three case-studies to a single one offers four times the analytic power and robustness for the developed theory. On the present dissertation, ten case-studies will be presented and deeply analysed. As suggested by Yin (2009), we present now our sampling, data collection and data analysis.

2. Sampling

We investigated ten acceleration processes from one top Portuguese accelerator, Building Global Innovators (BGI). It is important to mention that for confidentially reasons, we codified every startup represented in our sample with a given letter (from A to J). Our sample is represented down below in Table 2.

Table 2 – Sample

Code	**Industry**	**Location**	**Edition**	**Age at entry time**	**Venture Stage**
A	Health	Portugal	5th	-	Prototype
B	Health	England	4th	2 years	Idea
C	Aeronautic	Portugal	6th	3 years	Prototype
D	Sea Transport	Portugal Netherlands	6th	1 year	Prototype
E	Internet of Things	USA Portugal Singapore	3th	3 months	Idea
F	Logistics	Portugal	6th	1 year	Prototype
G	Design Software	Portugal	6th	1,5 years	Revenue
H	Knowledge Management	London Portugal Hong-Kong	1st	-	Prototype
I	Online Community	Portugal	4th	2 years	Idea

J	Hardware and software	Portugal	2nd	-	Idea

2.1 Portuguese entrepreneurial ecosystem

The Portuguese entrepreneurial ecosystem has been rapidly evolving over the last decade. Both private and public sectors have adopted a proactive mind-set concerning the topic. The Portuguese Government developed important partnerships with international institutions such as the Massachusetts Institute of Technology (MIT), Harvard University, Carnegie Mellon University, just to name a few. Since 2006, approximately €300 million of public funds have been invested to support market-oriented research within academic institutions and to foster collaboration with top-notch international institutions (Carvalho 2015). According to the European Accelerator Report of 2015, Portuguese accelerators ranks third on the number of accelerated startups in 2015, with 156 ventures accelerated. Despite this remarkable achievement, data reveals that only €327 000 were invested on these accelerated ventures. This means that in terms of investment captured, the top four Portuguese accelerators (Beta-I, Fábrica de Startups, BGI and Startup Braga) rank sixteenth over twenty four listed countries (Brunet, Grof and Izquierdo 2015). Notwithstanding, the employed effort and investment from the Portuguese private and public sector is already bearing fruits. The world's biggest event in technology and entrepreneurship, Web Summit, landed in Portugal in 2016 and will stay for three years. Portuguese accelerators have highly contributed to the exponential development of the national entrepreneurial ecosystem. In the present dissertation, we will focus on the BGI acceleration program.

2.2 Building Global Innovators

Born in 2010, Building Global Innovators (BGI) is an accelerator based in Lisbon (Portugal) and in Cambridge (Massachusetts, USA). It is a transnational initiative to promote local entrepreneurship growth and aims to develop high-tech startups under five years old, helping them to scale rapidly. The accelerator connects new ventures with a global networking of relevant economic agents, always promoting a global-oriented mind-set. Of particular importance are the key strategic partnerships that BGI has been creating along the way. So far, top eight science and engineering universities

in Portugal compose the BGI's academic partnership portfolio. Additionally, the accelerator was able to build an extremely valuable relationship with Caixa Capital, a state owned venture capital firm from Caixa Geral de Depósitos, which allows BGI to provide financial support to four ventures annually, up to €1 million in total per edition (Carvalho 2015).

BGI have four main market vertical that represent the industries in which the accelerator is more focused on: (i) medical technologies & health IT, (ii) smart cities & industrial tech, (iii) enterprise IT & smart data and (iv) ocean economy (Carvalho 2015). To date, six complete edition were held by the accelerator and a seventh one is running at the moment. A BGI report (2017) suggests that from 2010 now, BGI received 918 program applications from 54 different countries, created more than 700 new jobs and accelerated 117 startups with a remarkable survival rate of 73%.

BGI's acceleration process starts in July, while the graduation takes place during the month of May or June of the following year. From sending the application to the graduation day, the whole cycle takes approximately one year. Startups undergo through three key phases: i) the selection phase, ii) the acceleration phase, and iii) the venture phase. The selection phase runs from March to May and BGI kicks-off with an international road show. During June, approximately fifty startups are invited for an interview and up to twenty-one are accepted into the acceleration phase. It is important to mention that unlike the majority of other accelerators, BGI does not provide startups any financial resources for traveling and accommodation. Even though no fee is charged for startups to participate in the program, selected teams receive no financial support for any expenditure they might have (Carvalho 2015). After the application process, selected ventures enter into the second phase of the program – the acceleration phase. Of particular importance are the three intensive training periods, the so called bootcamps, which are designed to improve entrepreneurs' skillset on a variety of topics such as company creation, how to communicate (e.g., pitching to a potential client or investors) or even learn how to cope with challenging decision-making processes. During the bootcamps, teams have the opportunity to network with highly experienced mentors. The goal is to develop the go-to-market strategy, which is designed to be simpler than a business plan, yet extremely focused on the critical steps needed to reach the market in the best and fastest possible manner. In between the bootcamps, teams are supposed to work along

with their mentor on weekly deliverables, in order to keep the speedy pace. During the acceleration phase, ventures have three opportunities to present their idea to an audience of entrepreneurs, industry experts, researchers and most importantly investors. Pitching events are also called demo days. The first two demo days are held in Lisbon, while the last one takes place in Cambridge MIT, with an internationally influent panel of entrepreneurs and investors assisting. Upon graduation (May or June), BGI selects the most talented and committed startups to participate on the third phase (ventures phase). During the ventures phase, ad-hoc support is offered to the eight to twelve best alumni teams. BGI offers a twelve month catalyst program and an up to five years coaching support until ventures succeed, exit or fail (BGI 2017). BGI's program is compiled in Figure 1.

I) Selection Phase						
15th March		**1st June**		**15th June**		
Call Opening		Call Deadline		Winners Announcement		
II) Acceleration Phase						
July	**July - November**	**November**		**February**	**Spring**	**May/June**
Bootcamp I	Weekly Mentoring meetings	Bootcamp II	1st Demo Day	2nd Demo Day	Bootcamp III (Boston)	Graduation
III) Venture Phase						
Following 12 months				**Up to 5 years**		
Catalyst Program				Ad Hoc Support		

Figure 1 – BGI Acceleration Program

3. Data collection

Yin (2009) suggests two possible approaches for collecting data when dealing with a case-study research design: direct observation and interviews of the people involved in the studied event. The present dissertation adopted a semi-structured interviews data collection method with ten accelerated teams from BGI's acceleration program. Considering the complexity of the phenomenon, interviews are a suitable technique as it allows the researcher to collect "relevant data", meaning reliable primary source of data (Yin 2011).

Interviews can take two principal formats, structured interviews or qualitative interviews. Literature suggests that structured interviews are usually very well scripted and the flow should be very strict, not allowing the interviewer to explore any out-of-script topic. On the other hand, when performing a qualitative interview, the interviewer should not have a questionnaire with a set of questions to be posed to the interviewee and it should follow a conversational mode rather than a question-answer format (Yin 2011). We opted to follow a semi-structured interview approach as it allows to directly address the relevant topics, but at the same time empower the interviewees to expand their own thoughts and feelings about other pertinent subjects. Bearing in mind the complexity of the event and the lack of common definitional background between the interviewer and interviewee, we follow the wisely recommendation from Rubin and Rubin (1995). The author recommends that the interviewer should be able to listening a lot during an interview, and listen is about "to hear the meaning of what is being said" (p. 7).

Nonetheless, interviews also present some limitations and are not a completely unbiased source of data. As Yin (2009) suggests, interviews can suffer from response bias or reflexivity, meaning the interviewee can misrepresent the reality by saying what he or she thinks the interviewer wants to hear. However, interviews are still considered to be one of the most expeditious research methods to conduct an exploratory study (Eisenhardt and Graebner 2007).

In order to expand our sample, five master students (including the author of this dissertation) collected ten different interviews from BGI's alumni accelerated startups. Interviews were conducted face-to-face, via Skype and phone calls. Details on interviews' format and participants are presented in Appendix A: Interviews Details. In addition, we corroborated the most relevant pieces of information through other web sources such as BGI's pitch tapes and reports, startups' websites and LinkedIn. The interview script was developed to be the same for every single interview and can be found in Appendix B: Interview Guide. It covers four main topics: i) organizational factors, ii) interaction between the startups and the accelerator iii) interaction between the cohort and how it impacts entrepreneurial learning, and iv) demographics about the startups and teams. Interviewed startups' demographics can be found in Appendix C: Ventures Demographics.

CHAPTER 4: RESULTS AND DISCUSSION

In the present chapter, we present findings from the interviews and discuss their implications. We present results according to our three different research questions that this dissertation aims to address. The first block regards entrepreneurs' expectations when applying for an acceleration process. Secondly, we present data that aims to understand if ventures feel accelerated after the program or not. Finally, the last dataset accesses the key drivers of startup success that have eventually been affected during the acceleration program.

1. What do entrepreneurs expect from acceleration programs?

Our first research question concerns the entrepreneurs' expectations when joining the program. Our purpose was to understand what ventures expect from this novel incubation model and to access if expectations were aligned with the program's structure. Results were very clear. Even though we found evidence that some ventures did not know what to expect from the acceleration program, most participants mentioned at least one of the following reasons: i) secure financial investment; ii) structure and develop their business idea. Ventures statements can be found in the Appendix D: Evidence on Expectations.

Acceleration programs are a relatively new incubation mechanism in Portugal. Our analysis indicates that few startups are still unfamiliar with the programs format, mentioning that they "did not have many expectations" because they "did not really know the program in detail" (D). When asked about expectations, startup H argued: "At the time I had none. Everything was new so there weren't many expectations."

Notwithstanding, most participants had expectations about the outcomes of the program. "Financial support" (B) was a number one expectancy from ventures. Participants highlighted they were in need "to attract an investor" (E) and that they were interested in the "monetary prize" (H) the accelerator offered. Even though it was not the only reason why ventures applied for the program, "the expected funds from accelerators are also interesting" (J).

A part from the financial compensation, participants were in the hope for accelerator's support to structure and develop their business ideas. Startup F commented: "We

wanted to structure our ideas, designing the budget, the business plan and also the marketing plan".

G: "(...) to get some help from others in structuring our business, in helping it to grow."

I: "The business model and the unique value proposition had lacks."

Even though participants had a lot of technical knowledge about their products, the large majority had no background in business. Results suggest that these technical entrepreneurs rely on the accelerator's business expertise in order to analyse and assess their ideas: "we knew that we would develop our business plan" (A). Startup J's founder and CEO stated he "needed to realize how much the idea that was being developed was technically, and financially valid."

Concluding, our investigation suggests that inspite of its novelty, the entrepreneurial community is very much aware of the acceleration programs phenomenon. Few participants reported some unfamiliarity with the program, while the vast majority stated financial investment and business plan development as the two main motivations for applying to an acceleration program.

2. Do ventures feel accelerated after the program?

The second research question concerns the entrepreneurs' perspective on the overall outcome of the acceleration program. We wanted to understand whether ventures actually felt they have learned and if the program met entrepreneurs' previous expectations. Our results reveal that half of the participants consider that the program accelerated the development of the idea. We present the support evidences on the Appendix E: Evidence on the acceleration process outcomes.

H: "If we hadn't participated, it would have taken more time to accomplish what we've accomplished so far... It accelerated the company."

J: "At an earlier stage, they have helped us to grow a lot (…)"

We were able to find evidence of the impact of the accelerators on the development process of the participant startups. Ventures make a strong point on the increment they have received from the accelerator and how it has contributed to the evolution of their

projects “in a so short period of time” (E). Startup D’s founder and CEO reported that without the accelerator’s support: “it would take much longer to reach the level where we are today (…)”.

Only two out of ten mentioned that the accelerator provided no relevant contribution to the development and progress of the venture. What is interesting though, is that the remaining participants did not give a concrete feedback on the topic meaning they might find it difficult to articulate the learning’s in such period of time.

Nevertheless, few participants felt almost no impact, mentioning that the program had a “marginal the impact on the growth” (C). Venture F expressed some disappointment on the program’s structure: “I think that developing the business idea was a problem, the BGI program wasn’t quite helpful in that area.”

3. Do accelerators have any impact on the drivers of startup success? If so, which are the most impacted ones?

Extant research have studied factors that might be in the origin of startups success and how such factors can be predictors of the venture’s future performance. Several authors grouped the predictor variables in four categories – team, product, marketing and financials (MacMillan *et al.* 1985; Song *et al.* 2008, 2010). We follow the same methodology and our results were very conclusive. Evidence on the impact of the accelerator is clear in two of the four categories – Team and Marketing. Collected data of the accelerators’ impact on key drivers of startup success is minutely presented in the Appendix F: Evidence of the impact on the drivers of startup success.

3.1. Team Credibility

Team credibility is considered to be a crucial characteristic for startups that are seeking external investment (Feeser and Willard 1990). An investor is more willing to invest in an entrepreneur with a successful track record, rather than “shooting in the dark” by investing in an inexperienced entrepreneur (MacMillan *et al*. 1985).

Our results indicate a positive impact of acceleration program mainly in two variables related to the credibility of the team – Industry Knowledge and Management.

Industry Knowledge

Accelerators promote an intensive indirect learning environment by connecting participants with experienced entrepreneurs and industry specialists. These people are invited to share their knowledge and experiences within the startup ecosystem and specific industries (Hallen *et al.* 2016). Our results suggest that participants attach great value to this knowledge-sharing experience.

A: "During the bootcamps, BGI invited a lot of people with experience in the industry, and they interacted with the startups. It ended up to add a lot value (…)."

D: "Mainly dealing with other startups operating in the same industry it's possible to learn from each other which becomes a valuable aspect for the development of the idea."

Forty percent of our sample stated they have absorbed industry knowledge with the advices of others. Some even considered it was key to "validate our product" (G), while others acknowledge the importance of this program feature by considering that is during the direct contact with "people connected to the industry that we are developing" (J).

Management

Our sample reflects an acceleration program that attracts early-stage startups from the high-tech industry. Considering entrepreneurs' high-level of technical expertise and low-level of business experience, most of the participants are considered to be technical entrepreneurs. Technical entrepreneurs have a profound scientific knowledge from their product, making it easy to develop a new feature or change any specific detail. Nonetheless, they do not have the necessary management skillset to analyse a given market potential, to conduct a financial analysis or even to marketing their product (Oakey 2003).

From data analysis, it is notable the entrepreneurs' evolution on management skills during the acceleration process.

F: "I have learnt to apply business knowledge. How to assess the market, to penetrate it, how to validate and set up a business model."

G: “It (the program) improved my management and perception skills when it comes to my team, my project, and my business and which direction to take.”

Accelerators provide a curriculum in business, covering topics such as finance, law and marketing. These functional seminars are intended to mitigate the management skills gap from technical entrepreneurs (Cohen 2013). Participants reported they had tremendous evolution regarding management literacy and that they developed a much more profound “business sense”. Results indicates learning in “how to conduct a market analysis” (H), how to “validate a business” (F) by checking the idea feasibility and business profitability or even “what not do in a business” (F).

3.2. Team Personality

MacMillan *et al*. (1985) considers Team Personality an extremely relevant characteristic for ventures to overcome early-stage challenges. A team must be able to work well together and to communicate in a clear, objective and empathic format. These are fundamental preconditions for ventures to attract customers, investors or even to form partnerships with external entities (MacMillan *et al.* 1985). Results from our research indicates impact from accelerators in three drivers from the Team Personality category – Teamwork, Coachability and Communication.

Coachability

During the acceleration program, startups within the same cohort are impelled to network with each other and are constantly exposed to the advices and inputs from external guests and mentors (Cohen and Hocheberg 2014). This creates a knowledge-sharing environment where participants are open to embody different perspectives and become more willing to exchange points-of-view.

H: “At the time there were five mentors divided by all the companies. That gave a different perspective to the company and we learned a lot.”

I: “(…) opinions from different backgrounds help you to shape your product.”

Results from our research indicate that accelerators prepare teams to be much more prompt to listen and incorporate different perspectives, which will result in more coachable teams. Startup J commented: “(…) we made the most progress during the

exchange of experiences with other entrepreneurs and with people connected to the business world."

Teamwork

Additionally, it is undeniable that the cohort effect has a remarkable impact on teams' development. Several participants mentioned that teams were very close to each other and constantly incorporating the others' best practices.

I: "(…) knowing how they (cohort) work together was interesting. It is good for team development."

E: "Having the possibility to see what others are doing and what their results are or understand why they changed course is an advantage."

Accelerators create a group feeling within the cohort and startups end up supporting each other, strengthening bonds and learning what it means to be a team. Startup G explained: "we share ideas and questions with other start-ups because we can always benefit from other companies' strongest skills". And even considering that ventures are fighting for resources, "teams ended up supporting each other" (A).

Communication

The majority of the acceleration programs end with a "demo day", where startups present their ideas to a large audience of potential investors (Cohen 2013). Our findings suggest that participants indeed develop their communication skills during the program, and become much more proficient when presenting their business to a possible investor or customer.

E: "The main benefit was guaranteed by the program approach that taught us how to make a pitch, which impacts an investor."

G: "We learned how to communicate, reach the client, how to reach the investor... that part was fundamental."

Participants outlined the effort taken by the accelerator and how they were "drilled" (G) during the bootcamps, in order to improve their pitches and communication skills. Startup H commented its first pitch was "really bad", but with the cohort and accelerator's help, "the last pitch was really good, so good that we ended up winning the prize."

Results were very conclusive and suggest that accelerators have a tremendous impact on ventures' Team Personality. More specifically, the cohort effect promotes teamwork within each team, while the knowledge-sharing environment created by the accelerators motivates teams to be more prompt to listen others advices and to become more coachable. Additionally, it is clear that teams end up improving their communication skills.

3.3. Marketing

Previous research indicates that startup performance is clearly dependent from the market in which it intends to operate and how attractive it might be. Furthermore, a venture that disregards knowing its customers and developing a clear plan to reach them, has a higher probability of failure in an early stage (Calantone and Di Benedetto 1988; Zhao *et al.* 2015). From our analysis, it is clear that accelerators have identified these preconditions and have created a top-notch support mechanism for marketing research and marketing plan development. The Marketing category is divided into three drivers of startup success and we found that were all accelerated by the program – Market Attractiveness, Customer Needs and Marketing Plan.

Market Attractiveness

A startup operating in an attractive market is much more prompt to achieve success (MacMillan *et al.* 1985; Song *et al.* 2008). Given the short time to market and the complexity of constantly re-building a product, accelerators induce a market-oriented mind-set to the participant ventures. Programs are designed to speed up market interactions in order to help new ventures to learn and adapt ideas as quickly as possible (Cohen and Hochberg 2014). Our analysis suggests that rather than changing the product to address a pre-defined market, accelerators firstly focus on finding an attractive market and then in making minor changes on the product if needed.

D: "With the accelerator we were directed to do a profound analysis of the marketplace in order to assess if it was the market and industry we wanted (...) We started by validating the market of high-performance sailing, cargo ships and wind blades which at the moment is the market that we are more focused on."

F: “I think that one of the most important things we learned (...) is the fact that, since our technology can be used in a wide scope of areas, we must focus only in one direction. We have to find one market, very narrow, focus and precise and we must know for sure that the direction is profitable.”

Ventures are impelled to develop a market-oriented attitude and to think internationally, always focusing first on the market they want to address. Participants have acknowledged the accelerator’s impact on finding an attractive market. Startup G’s founder highlighted the impact: “It (the program) made us understand that the project could be bigger, (…) and made us think global and that was super interesting”. “How to internationalize” or “how to think out-of-the-box” (H), are also regarded as paramount lessons-learned by the entrepreneurs. Some even describe this support as “one of the most important things we learned” (F) and that learning how to evaluate and access a market “were the benefits of the program” (H).

Customer Needs

Our research reveals that after finding an attractive market, accelerators promote startups’ interaction with potential customers in order to understand their needs and tailor their offer accordingly. Literature argues that in order to achieve success, a startup should understand the market and build a product that meets customer needs in a superior way (Calantone and Di Benedetto 1988; Henard and Szymanski 2001).

D: “(…) definitely the meetings with client we learned a lot because it was possible to hear their real problems in first hand”

I: “Market feedback was good as we were able to meet with charities and fund raisers in the US and they taught us how we could make our product work in the US.”

Given the short program’s duration, accelerators try to stimulate partners and customers procurement activities as soon as possible (Pauwels *et al.* 2016). Ventures are supposed to focus first in the market requirements and then in any technical modification in the product. It is clear from our research that one of the program’s major benefits is to offer to these technical entrepreneurs with the possibility to interact with markets and possible customers on a regular basis. The provided market feedback is fundamental for ventures to further develop its value proposition and to know where they should concentrate their efforts and investments. Entrepreneurs commented they

have developed a much more market oriented mind-set after the program: “It (the program) taught me to listen to clients more rather than trying to make a sale (…)” (G).

Marketing Plan

Literature have long emphasized the importance for new ventures to develop a minutely marketing plan in order to penetrate the market, attract customers and to pre-empt competitive forces from undesirable offensives (Song *et al.* 2010). Accelerators attempt to mitigate possible gaps by providing knowledgeable support on the market development process (Hallen *et al.* 2016). Findings from our research indicate that accelerators promote a plethora of market-oriented activities in order to speed-up ventures’ interactions with the market. These activities normally include client meetings, debates about market penetration strategies or even discussions with market specialists.

H: “In our year, we had an intensive week at MIT and it was truly an eye-opener for us and taught us how to address the market.”

D: “With the help of mentors, we also managed to define our go-to-market plan that is extremely useful to introduce the company to a potential customer or investor.”

Upon a pragmatic and objective picture of the business and the steps needed to address the market, accelerators have developed the so called “go-to-market plan” (Cohen 2013). It is not a business plan but rather a step-by-step plan to reach the market as fast as possible by spending as little as possible. It aims to answer questions such as “What are we going to do? How are we going to do it? What are the resources? And in what way?” (G). Even though sometimes ventures refer to it as “business plan”, it is not. This plan is “fully designed for entering the markets” (G) and considered to be “extremely useful to introduce the company to a potential customer” (D).

Bearing in mind the results, our investigation corroborates past literature and presents undoubtedly proves that accelerators are active supporters in the market research and development processes. We found that participants attach great value to this early network with customers and recognize the importance of developing a concrete and step-by-step plan to turn ideas into reality. Startup E recognized the impact, by

referring that: “Before the program, we had only one idea on paper and university investigation were done. Nothing else.”

4. Discussion

We interviewed a sample of ten accelerated startups and after a careful analysis of the transcript records, we found some interesting results.

Ventures’ Expectations

First, regarding the reasons to participate we concluded that the majority of the startups seek financial investment and business development support. Not surprisingly, ventures found very appealing the monetary prize and the possibility of receiving an up-front investment on the “Demo Day”. Besides the financial compensation, participants attach enormous expectations on the accelerator’s support to further develop their business ideas. The large majority of the startup teams are composed by technical entrepreneurs, with no background and experience in business. Bearing in mind that acceleration programs promise fast market interactions within a three months’ program (Cohen and Hochberg 2014), ventures expect an exceptional support from the accelerator’s network to develop the business side of their value propositions. However, evidence suggests that some entrepreneurs were still unfamiliar with the program when they got accepted. In these cases, no expectations are settled by participants. A possible explanation for this unawareness, may be the fact that accelerators are a relatively new incubation model in the Portuguese landscape.

Program’s Impact

Second, trying to understand whether the program was impactful, ventures opinions were less consensual. Although the majority of the participants felt accelerated during the program, others felt disappointed with the outcomes. We found intriguing that participants have opposite perspectives about the same acceleration program.

Where does the learning take place?

Third, we found strong evidence that accelerators are skilful Team Builders and Market Development Champions for high-tech startups. The program enabled ventures to develop key drivers of success in two main areas – Team and Marketing.

A lower impact on the Product and Financials' dimensions seems to emerge from our analysis. It is clear though, that some specifications of this new incubation model, have remarkable impact on ventures' early steps.

Team Builders

From our research, we found that acceleration programs have a very relevant impact on ventures' horse race (market). Surprisingly, our results suggest that accelerators are also responsible for remarkable changes on jockeys' (teams) behaviours and skills. First, the program improve Teams' Credibility, meaning that teams develop a more solid background on business and on the industry they operate in. Secondly and very interesting, we found a positive impact from the program on how teams work, listen to others and express themselves, on Team's Personality.

Team Personality: Coachability, Communication Skills and Teamwork

First, accelerators create a knowledge-sharing environment, stimulating teams to become more open-minded and coachable. Teams are constantly in-touch with a large network of mentors, experienced entrepreneurs and managers. They advise participants on major business decisions during the process (Hallen *et al.* 2016). This knowledge-sharing environment improve teams' ability to embody the advices of others causing teams to be more coachable after the program.

Second, interviews suggest that a strong effort is made by accelerators to improve Teams' communication and presentation skillset. Almost every startup reported progress in their ability to pitch and present to investors and customers. This was mainly achieve through the demanding bootcamps.

Third, we found the cohort effect to have a positive impact on ventures' Teamwork skills. The fact that startups participate within a cohort, creates a feeling of group belonging where teams end up learning and developing together. During the process, ventures tend to incorporate other teams' best practices, improving their own ability to work as a team.

Team Credibility: Industry Knowledge and Management Skills

Our investigation detected a positive impact from accelerators on Teams' Credibility. More specifically, we found that accelerators improve participants' Industry Knowledge and Management capabilities during the program.

Indirect learning has been referred as an important process towards learning and one of the key strategies adopted by accelerators to speed-up the ventures' learning process (Hallen *et al*. 2016). To this end, industry specialists are invited to further nurture the startups' development with knowledgeable advices. This knowledge is transferred to participants that get acquainted with their specific industry dynamics during the program, suggesting that entrepreneurs end up learning from their advisors' experiences.

In addition, entrepreneurs also reported strong development on Management skills and competences. Our analysis indicates that due to its format, acceleration programs prepare participants to take much more thoughtful managerial decisions after graduation takes place. Entrepreneurs reported feeling more proficient when analysing a market and more apt to understand the requirements to build a viable business model.

Market Development Champions

Lastly, our results show that accelerators are Market Development Champions for participant startups. More specifically, we found that accelerators offer valuable support in finding an Attractive Market, developing a Marketing Plan and tailoring ventures' value proposition to meet Customer Needs. However, we found intriguing that the direct impact of accelerators on ventures' Product is marginal. After a careful analysis of the conducted interviews and previous literature on the topic, we came up to some interesting conclusions.

Marketing: Market Attractiveness, Customer Needs and Marketing Plan

We found that rather than promoting dramatically changes on the product, accelerators are more likely to have an impactful role on startups' marketing development process. Time seems to emerge as a key explanation to this phenomenon. Scholars have long emphasized the positive relation between first product differentiation and startups' early success (Schoonhoven *et al*. 1990). However, it is argued that building product differentiation, entails more complexity on the development process, which ultimately

leads to a delay on the time needed to get a product ready to sell in the market (Zhao *et al.* 2015). From the selection to graduation phase, the acceleration process takes roughly three months. Reasonably, accelerators do not have the time and technical resources to support a complex product development process for every single startup. Instead, they design a program that fosters ventures' interaction with the market, impelling participants to learn and adapt ideas in a fast-paced manner (Cohen and Hochberg 2014).

Our research indicates that market development support is the first step for future product development (or pivot). After selecting an attractive market, accelerators introduce possible clients to startups. The obtained feedback, empower entrepreneurs to perform necessary adjustments on the product in order to meet customer requirements. At the same time, ventures receive monitoring while developing their "go-to-market plan". Supported by mentors and the accelerator's body, ventures develop a step-by-step plan to penetrate the market, reach customers and attract financial resources.

Concluding, we found accelerators to be outstanding Market Development Champions, causing a positive impact on the Market Attractiveness, Customer Needs and Marketing Plan drivers for startup success.

Financials

Even though some participants mentioned the impact of the accelerator on the development of the "business plan", almost no entrepreneur detailed developments on the financial plan. Bearing in mind that ventures have to present their projects at the end of the program, it is expected some support from accelerators on the financial projections of the business plan. Nevertheless, our results cannot sustain any substantial conclusion of a clear impact from the acceleration program on the Financials' dimension.

CHAPTER 5: CONCLUSIONS AND LIMITATIONS

1. Conclusions

Accelerators are here to stay. From more than one decade now, accelerators offer a new incubation mechanism for entrepreneurs to develop their ideas in a fast and effective way (Cohen 2013). Scholars have investigated how acceleration programs are built and how they differ from older incubation models (Pauwels *et al*. 2016). However, little research exists on the actual impact of accelerators in early-stage ventures. Bearing in mind the little academic contribution on this field, we decided to analyse what, if something, is in fact accelerated by the program and how does it impacts participants' learning. We conducted ten interviews with accelerated ventures in order to access the entrepreneurs' perspective on the subject and we discover that accelerators have an extremely relevant impact on ventures' early steps. More specifically, we found accelerators to be incredible Team Builders and Market Development Champions for participant startups.

1.1. Managerial Implications

First, we provide a framework of analysis that startups can use in order to access their ideas and likelihood of success. The presented key drivers for startup success (Team; Product; Marketing; Financials) are based on acknowledged research (MacMillan *et al.* 1985; Song *et al*. 2008) and can be applied for any startup in any industry. Furthermore, we prove that accelerators have major impact on the Team and Marketing development processes, suggesting that entrepreneurs should have a clear idea of their Product and should not expect for accelerators to make huge transformations on its performance. Accelerators are market enablers, not product developers. Interestingly, this dissertation also sheds light to the impact that accelerators have on startup Teams. Several authors have studied the importance of Teams on startups' future success (MacMillan *et al*. 1985; Colombo and Grilli 2010; Zhao *et al.* 2015), yet, little is known on how does the acceleration program affected Teams' learning and skills. The present dissertation highlight the enormous impact of the program on Management, Industry, Communication, Coachability and Communication Team skills.

Secondly, accelerators can retrieve some interesting data from our research. Concerning the selection phase, accelerators should look deeper into the startup profile in order to understand if there is a match between what the startup wants and needs, and compare it with what the accelerator has to offer. For instance, coachable teams are more likely to take advantage from accelerators' network of advisors, while startups without a concrete and developed product might not be able take the most benefit from the market development support. Additionally, our research also provide several insights for other incubation models that aim to adapt their strategies. We saw the cohort effect and the knowledge-sharing environment to have major impacts on teams. Business incubators and venture capitalists can incorporate some of these practices if they want to achieve similar results.

1.2. Theoretical Implications

Extant research focused on analysing the differences between accelerators and previous incubation models (Pauwels *et al.* 2016), however, theory lacks a common understanding on "how" and "why" accelerators impacts startups trajectories (Cohen and Hochberg 2014). Few investigators have studied the results of being accelerated (Smith and Hannigan 2015), but still little is known on the reasons that ultimately lead to those results. We have analysed what is the impact of accelerators on the key drivers for startup success and reached to some interesting conclusions. To begin with, our investigation corroborates previous research by proving that accelerators in fact offer a top-notch support on marketing research and development activities (Hallen *et al*. 2016). Interestingly, we also provide some insights on how accelerators are able to transform teams' characteristics. We found that due to its structure, accelerators end up changing teams' Personality and Credibility, meaning that accelerators can add life-long contributions for teams who participate in the program.

2. Limitations and Future Research

The present work also presents some limitations. First, we conducted a multiple case-study through interviews analysis, suggesting that interpretation can possibly have a word to say on our final results. Through this research method, both the interviewer and interviewee can manipulate data unintentionally, just because the interpretation of words is in most of the times complex and difficult to perform, in other words, word

meanings and interpretations are always affected by the people involved. Second, we focused our analysis on ten accelerated startups from only one Portuguese accelerator. Due to our limited time and resources, we were only able to collect ten observations, which is considered to be a relatively small sample. Moreover, our results did not control some important variables such as geography or startups' demographics, so generalization loses power. To overcome such limitations, future research should include a larger sample of startups accelerators, from different geographies, and should amplify the number of observations.

We found that not all the participants recognized added-value from the program. We propose future research to look deeper on the "why" of these contrasting opinions. Possible interpretations can rely on the accelerators' industry specialization strategy or on the entrepreneurs' commitment to the program. Literature suggests that several accelerators have become more industry specialized over time (Pauwels *et al*. 2016). Our research, indicates that participants perceive their business specifications as possible explanations for the program's marginal impact.

C: "My company is hardware based so the business is very different from software or the medical devices or these type of companies. The accelerator has a lot of different companies but normally they are only software."

F: "But, on the other hand, I also understand that there are so many different businesses and so many different areas, that it would be very difficult for them to have a mentor who knows exactly the area you want to pursue and help you in that same area."

Additionally, participants' engagement and openness to the program can possibly have a word to say on the perceived program's impact. We believe that future research would add insightful information to better grasp the reasons for these results.

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APPENDICES

Appendix A: Interviews Details

Code	Industry	Interviewee Role	Gender	Age	Education	Date	Duation	Type
A	Health	CEO	M	34	PhD Medicine	19th October	16 min	Phone Call
B	Health	CEO	M	39	Bachelor Economics and MBA in Entrep.	18th November	40 min	Face-to-face
C	Aeronautic	COO	M	42	University Degree	14th October	17 min	Phone Call
D	Sea Transport	CEO	M	39	IT and Management Bachelor	14th October	29 min	Face-to-face
E	Internet	CEO	F	52	PhD in Electrical Engineer and IT	5th November	28 min	Skype
F	Logistics	CEO	M	46	PhD in Electrical Engineering	19th October	25 min	Face-to-face
G	Design Software	CEO	M	48	Bachelor Degree	20th October	32 min	Face-to-face
H	Knowledge Management	CTO	M	36	Degree on Computer Science	24th October	17 min	Face-to-face
I	Online Community	CEO	M	28	Masters in Computer Science	18th November	46 min	Skype
J	Technology hardware and software	CEO	M	30	Bachelor in Informatic Enginnerirng	31rst October	17 min	Skype

Appendix B: Interview Guide

1. SECTION ONE - ORGANIZATIONAL FACTORS

a. Why did you join the accelerator?

b. What were the benefits/value you received?

c. How was the program different from your expectations?

d. Can you share with me the stages of the program?

e. When do you think your firm made the most progress? Why?

f. Can you recall any events or moments in which you have learnt something important in the program? Can you tell me more about it?

g. How significant was this event to the future development of your business?

h. How do you think the program's length affected what you got out of the program?

2. SECTION TWO - INTERACTION BETWEEN THE STARTUPS AND THE ACCELERATOR AND HOW IT SUPPORTS ENTREPRENEURIAL LEARNING

a. What was the relationship of your venture with the accelerator? What kind of support did you receive?

b. How did it help you grow? And in what sense?

c. Would you have grown in the same way without the accelerator? If so, why?

d. Was it different for other Startups or was it the same for the rest of the cohort? If so, why?

3. SECTION THREE - INTERACTION AT THE COHORT LEVEL

a. How did you interact with your cohort?

b. How useful it was to be part of a cohort within the program?

c. What did you learn from them? Do you think being part of a cohort affected your firm's development? How?

4. DEMOGRAPHICS

a. Education

b. Prior employment (industry)

c. Prior ventures

d. Location of Startup

e. Team Size

f. Number of co-founders

g. Co-founds background education

h. Startup age (at entry-time)

i. What stage was your product at the time you applied? (idea, prototype, Beta, live, revenue)

j. Number of people currently employed by the venture

Appendix C: Ventures Demographics

Code	Industry	Location	Edition	Startup Age at the Time	Startup Age now	Team Size at the time	Team Size now	Venture Stage	Co-founders Education	Prior Ventures
A	Health	Portugal	5th	Not born	18 months	3	10	Prototype	-	No
B	Health	England	4th	2 years	6 years	5	5	Idea	Degree on Metamaterial and Radiofrequency Communication; Satellite Communication; Metamaterial	No
C	Aeronautic	Portugal	6th	3 years	5 years	3	4	Prototype	University Degree	Yes
D	Sea Transport	Portugal Netherlands	6th	1 year	3 years	2	2	Prototype	Marketing Degree	No
E	Internet	USA Portugal Singapore	3th	3 months	4 years	4	48	Idea	PhD in Electrical Engineering	No
F	Logistics	Portugal	6th	1 year	2 years	2	2	Prototype	PhD in Electrical Engineering	Yes
G	Design Software	Portugal	6th	1,5 years	3 years	3	3	Revenue	Master in Environmental Engineering	No
H	Knowledge Management	London Portugal Hong-Kong	1st	Not born	7 years	3	42	Prototype	All of them (3) were from Computer Science and Researchers before the venture	Yes
I	Online Community	Portugal	4th	2 years	4 years	4	8	Idea	Degree on IT	Yes
J	Technology hardware and software	Portugal	2nd	Not born	5 years	4	15	Idea	-	No

Appendix D: Evidence on Expectations

Appendix D.1: Secure Financial Investment

Secure Financial Investment
B: "(Why BGI?) (…) the main reason was financial support"
C: "(...) we are targeting fundraising on international level."
E: "(Why BGI?) We needed to attract an investor."
H: "(…) BGI that had a monetary prize and an international couching. That's why we opted for BGI."
I: "(Why BGI?) (…) we were in need for funding and for networking with investors."
J: "The expected funds from accelerators are also interesting (…)."

Appendix D.2: Structure Ideas and Develop the Business Plan

Structure Ideas and Develop the Business Plan
A: "(…) we knew that we would develop our business plan"
C: "My expectations were based what I already knew about Ycombinator program and I was expecting something similar."
F: "(Why BGI?) We wanted to structure our ideas, designing the budget, the business plan and also the marketing plan"
G: "(Why BGI?) (...) to get some help from others in structuring our business, in helping it to grow."
I: "(Why BGI?). The business model and the unique value proposition had lacks."
J: "(Why BGI?) (…) needed to realize how much an idea/project that was being developed was technically, and financially valid."

Appendix D.3: Do not know

Do not know
D: “I didn’t have many expectations because we did not really know the program in detail.”
G: “We didn't even know what we could gain from this (…)”
H: “(Expectations?) At the time I had none. Everything was new so there weren't many expectations.”

Appendix E: Evidence on the acceleration process outcomes

Appendix E.1: Ventures feel Accelerated

Ventures feel Accelerated
A: “We were always learning with the other that made us jump some stages.”
D: “Also certainly it would take much longer to reach the level where we are today because it would be much more difficult to get valuable contacts or even enrich our value proposition without BGI’s support.”
E: “I will not say that there wasn’t the opportunity to get be at this point without the program but would not have been in a so short period of time.”
H: “If we hadn't participated, it would have taken more time to accomplish what we've accomplished so far... It accelerated the company.”
J: “At an earlier stage, they have helped us to grow a lot, and they still help us nowadays.”

Appendix E.2: Ventures do not feel Accelerated

Ventures do not feel accelerated
C: “It was marginal the impact on the growth. And sometimes it was even confusing and could be called “desacceleration”.”
F: “I think that developing the business idea was a problem, the BGI program wasn’t quite helpful in that area.”

Appendix F: Evidence of the impact on the drivers of startup success

Appendix F.1: Industry Knowledge

Industry Knowledge
A: “During the bootcamps, BGI invited a lot of people with experience in the industry, and they interacted with the startups. It ended up to add a lot value to our venture (…)”
D: “(About the program) Mainly dealing with other startups operating in the same industry it’s possible to learn from each other which becomes a valuable aspect for the development of the idea.”
G: “(About going to Boston and New York) This was an interesting experience to understand the American context and be able to validate our product. We spoke to many companies with similar products, spoke with many mentors who have gone through the whole cycle more than once.”
J: “(...) it is during direct contact with others Entrepreneurs, and people connected to the industry that we are developing.”

Appendix F.2: Management

Management
B: “I have learnt to apply business knowledge. How to assess the market, to penetrate it, how to validate and set up a business model. The co-founders gained a lot of business knowledge since they had no idea about it before.”
F: “To sum up, I learned “to what do not do in a business”, basically I learned how to validate properly a business. When I say to validate a business, I mean firstly to check if an idea is feasible, if there is a possibility to make any profit, to see how you will sell it and to whom.”
G: “(About the program) It improved my management and perception skills when it comes to my team, my project, and my business and which direction to take.”
H: "I learned how to communicate, how to conduct a market analysis and everything related with the internationalization process. Thinking that there aren't any barriers.”

Appendix F.3: Teamwork

Teamwork

A: “The environment created by the accelerator promoted the interaction between teams. Being somehow competitors, the teams ended up by supporting each other. (...) Sharing our experiences and when it's possible to help other teams with our experiences, we do it.”

E: “I think when you have no experience in a particular area namely in the business area, then all that you can learn by doing almost bench marketing with others is useful. Having the possibility to see what others are doing and what their results are or understand why they changed course is an advantage.”

G: “(Cohorts impact?) Up until now, we share ideas and questions with other start-ups because we can always benefit from other companies' strongest skills.”

I: “(…) knowing how they (cohort) work together was interesting. It is good for team development.”

Appendix F.4: Coachability

Coachability

A: “We were in touch with people that went through the same thing, and maybe they even participated in the BGI program, that came to leave their testimony and explain the difficulties they were a having in the process. We were always learning with the other that made us jump some stages. We were basically learning with others' mistakes.”

H: “At the time there were five mentors divided by all the companies. That gave a different perspective to the company and we learned a lot. That was one of the biggest benefits.”

I: “(…) opinions from different backgrounds help you to shape your product.”

J: “I think, we made the most progress during the exchange of experiences with other entrepreneurs and with people connected to the business world.”

Appendix F.5: Communication

Communication
C: “(The major progress?) It was on refining the pitch, the bootcamp was interesting for refining the pitch.”
E: “The main benefit was guaranteed by the program approach that taught us how to make a pitch, which impacts an investor.”
G: “(Benefits?) Impact in our organization, way of working and communicate, yes (…) how to communicate, reach the client, how to reach the investor... that part was fundamental.”
H: “My first pitch was really bad. After that, with the group's help, the teachers... everything... helped me improve. The last pitch was really good, so good that we ended up winning the prize.”
J: “We learnt how we should format our presentation (...) Therefore, it was essential not only to our own development, but also to understand how we can seek investment and how to attract investors.”

Appendix F.6: Market Attractiveness

Market Attractiveness
D: “With the accelerator we were directed to do a profound analysis of the marketplace in order to assess if it was the market and industry we wanted (...) We started by validating the market of high-performance sailing, cargo ships and wind blades which at the moment is the market that we are more focused on.”
F: “I think that one of the most important things we learned (...) is the fact that, since our technology can be used in a wide scope of areas, we must focus only in one direction. We have to find one market, very narrow, focus and precise and we must know for sure that the direction is profitable.”

G: “We developed a more global and international perspective for the project. It made us understand that the project could be bigger (…) It opened our horizons and made us think global and that was super interesting.”

H: “But truly the week in Boston gave us... How to open a company in the United States, how to internationalize, how to think out of the box. Those were the benefits of the program.”

Appendix F.7: Customer Needs

Customer Needs

D: “(…) definitely the meetings with client we learned a lot because it was possible to hear their real problems in first hand”

G: “It (the program) taught me to listen to clients more rather than trying to make a sale (…)”

I: “Market feedback was good as we were able to meet with charities and fund raisers in the US and they taught us how we could make our product work in the US.”

Appendix F.8: Marketing Plan

Marketing Plan

D: “With the help of mentors, we also managed to define our go-to-market plan that is extremely useful to introduce the company to a potential customer or investor”

E: “We had to elaborate the business plan and answer questions from mentors in order to ensure that it was well done. I think is the great benefit of this program is the mentoring received. Before the program, we had only one idea on paper and university investigation were done. Nothing else.”

F: “They (mentors) said that our technology can be used in these different areas, so we must clearly focus in one unique application (...) several people told us clearly: “You must focus in one direction which you find that is the best”. I think that it was a very important advisement.”

G: “We did a go-to-market plan. Something simpler than a business plan, but fully designed for entering the markets. What are going to do? How are we going to do it? What are the resources? And in what way?”

H: “In our year, we had an intensive week at MIT and it was truly an eye-opener for us and taught us how to address the market.”
