

A Work Project, presented as part of the requirements for the Award of a Master's degree in International Development and Public Policy from the Nova School of Business and Economics.

STARTUP PORTUGAL:

**FOSTERING START-UP SUCCESS IN PORTUGAL: EXPLORING
FOUNDERS, INVESTORS, AND BUSINESS PRACTICES – START-UP
FOUNDERS IN PORTUGAL: EXPLORING PREDICTIVE
CHARACTERISTICS FOR SUCCESS**

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Abstract

This Master's thesis explores the dynamics of the Portuguese start-up ecosystem, focusing on key elements that drive its growth and sustainability. Through in-depth research and analysis, we examine the role of founder, investors, and management practices in fostering innovation, entrepreneurship, and success. The study draws upon insights from industry experts, survey data from start-up founders, and an in-depth literature review. By shedding light on these factors, this thesis has the objective at providing valuable insights for policymakers, entrepreneurs, and stakeholders seeking to understand and enhance the Portuguese start-up ecosystem.

Keywords: Start-up; Management Practices; Investment; Founders; Success; Portugal.

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Glossary

EU: European Union

HQ: Headquarters

IDC: International Data Corporation

IPO: Initial Public Offering

LS: Lean Start-up

R&D: Research & Development

ROI: Return On Investment

SDG: Sustainable Development Goal

UN: United Nations

UK: United Kingdom

US: United States

VC: Venture Capital

I. Introduction

This research aims to explore the multifaceted aspects that influence start-up success while focusing on the Portuguese entrepreneurial environment. The project investigates the ecosystem's three internal pillars – founders, investors, and business practices. This research represents a collaborative partnership between Nova School of Business and Economics and Start-up Portugal. It serves as a Policy Analysis Project that has the objective to address, investigate and provide recommendations to questions posed by Start-up Portugal while contributing to the completion of our Master's degree.

Recognized as a Statute of Public Utility (Decreto-Lei n.º 33/2019 Artigo 2.º), Startup Portugal is a non-profit organization that promotes entrepreneurship in the country by working with private and public entities to attract investment, launch initiatives and ultimately foster the start-up ecosystem (Startup Portugal).

1. Definition of Start-up

The existing literature lacks a single and precise definition of start-up; however, it is possible to draw on it to identify the variables that are most often associated with the concept. Before the 2000s, researchers considered novelty the primary characterising factor for a start-up (Ehsan, 2021). For instance, Keeble (1976) denotes "the creation of an entirely new enterprise which did not formerly exist as an organisation". Similarly, according to Gudgin (1978), a start-up is defined as one "which began production for the first time". Contemporary literature identifies another critical element: innovation (Ehsan, 2021). Innovation involves developing and launching new products (Kuczmarski, 2003). Generally, the extent to which a company pursues innovation is represented by its investments in Research & Development (R&D)

(Krejčí, Strielkowski, & Čabelková, 2015). Innovation is necessary to meet the dynamic needs of consumers in the current market (Ehsan, 2021), and studies show that it plays a vital role in growth: both R&D investments and new product development have a significant impact on competitiveness and performances, such as larger profit margins, high revenue streams, or elevated stock prices (Kuczmariski, 2003; Skawinska & Zalewski, 2020).

Definitions are crucial from an academic point of view, but also in establishing criteria for government programs. Portuguese politics has certainly been receptive to the needs of this segment of the economy and the need to regulate it, with instruments such as Law 21/2023 of May 25th, (the “*Startup Law*”), which defines what a start-up, scaleup and business angel are. A start-up is specifically categorized as an entity that meets any of the following conditions: (i) it exhibits the potential for innovation and is characterized by inventive business models, products, or services; (ii) it has effectively completed at least one round of venture capital funding through a legally authorized entity; (iii) it has received investment from Banco Português de Fomento, S. A., or its affiliated entities, including subsidiary companies or equity instruments (Assembleia da República, 2023).

2. Problem Statement

Start-ups directly support economic growth and development by creating new job opportunities, contributing to regional immigration, and enhancing regional productivity levels (Thurik & Wennekers, 1999; Van Stel, Carree, & Thurik, 2005; Fritsch & Mueller, 2004). Furthermore, the emergence of new businesses stimulates existing companies to operate with greater efficiency, leading to an increase in competition and innovation within the market (Fritsch & Mueller, 2004).

The Portuguese start-up ecosystem is thriving with 150+ registered incubators in the country (Startup Portugal), experiencing continuous growth although with a slight setback in 2021 (Startup Portugal & IDC, 2022). Portugal can capitalize on numerous strengths when it comes to human capital available, such as the availability of a highly skilled technical workforce¹ and a high English fluency in the country², however, to secure its position at the European, and perhaps global, stage, exploiting these factors might be insufficient. The prosperity of a start-up does not solely depend on its founder's characteristics and qualifications as the outcome of other variants, such as investment, business practices and external factors is key to the success of the start-up (Lussier, 1995).

Consequently, we aim to analyse the various factors influencing start-up success, particularly in Portugal, with a primary focus on addressing the following three questions that represent the theme of each individual chapter: Who are the current founders of start-ups? Who are the present investors in the ecosystem? What management practices are currently being used by Portuguese start-ups?

3. Research Objectives

The following study aims to provide a detailed overview of the internal characteristics that have an impact on start-ups and their ecosystem in Portugal. Therefore, we study the current composition of start-up founders in Portugal, and the predominant characteristics among them.

¹ Portugal has 14 universities ranked amongst the best of the world (Times Higher Education World University Rankings, 2023)

² Portugal ranked 9th out of 111 countries in the English Proficiency Index elaborated by Education First (EF) in 2022

In addition, we will illustrate the most prevalent forms of investment in Portuguese start-ups and founder's perceptions on access to capital. Lastly, as a key link between these factors, what common management practices are in place to maximize the use of the available resources.

This project aims to contribute to the already existing literature by providing an in-depth academic study of the Portuguese start-up ecosystem as of 2023, integrating the most recent reports elaborated in 2022 on the same topics (IDC & Startup Portugal, 2022) with updated information and data.

This study aims to explore the diversity of founders in the Portuguese start-up ecosystem and assess if their backgrounds predict business success. We focus on five variables from Lussier's Success vs. Failure Prediction Model that emphasize the founders' characteristics and additionally, examine the relevance of founders' educational backgrounds in relation to ROI as a measure of success.

Moreover, the report will focus on the role of Venture Capital in promoting innovation as previously observed by Joglekar in the US context (2012) and Barbosa et al. (2013) in 17 European countries. Specifically the analysis will investigate the role of publicly funded Venture Capital (VC) in helping to overcome the information asymmetry problem that affects private investment (Conti, Thursby, & Rothaermel, 2013) (Klabunde, 2015). The report seeks to integrate gaps in academic analysis relating to the Portuguese ecosystem, as previous studies concerning this context have mostly covered the returns to investment of different type of VCs (Köppl-Turyna, Köppl, & Christopoulos, 2022) (Ligthart, 2000) and the role of such institutions in overcoming the debt crisis (Cabral-Cardoso, Céu Cortez, & Lopes, 2016). Lastly, the dynamics underlying investment and the role of Startup Portugal in improving access to funding opportunities will be evaluated through an opinion survey directed at start-up founders,

a novelty since VC studies in Portugal have mainly exploited qualitative interviews which collected managers' funds opinions (Cabral-Cardoso, Céu Cortez, & Lopes, 2016).

Finally, the study seeks to identify connections between managerial practices in Portuguese start-ups and their company performance without establishing causal links. Drawing from existing literature and prior research, it utilizes data collected through a survey to examine the extent to which Portuguese start-ups embrace Lean-related practices, i.e. a specific set of techniques that will be discussed in detail in Chapter VII. Ultimately, the study aims to offer insights to Startup Portugal to improve operational practices in the Portuguese start-up ecosystem.

4. Background

In today's economy, start-ups are facing an exceptional and demanding situation due to various factors including COVID-19, surging inflation, and elevated energy costs linked with the conflict in Ukraine (Dreier, et al., 2022). To tackle these challenges, according to Deloitte surveys conducted in October 2022 and May 2023, companies' leaders expressed the importance of allocating efficiently scarce resources, both financial and human, by prioritizing Return On Investment (ROI), efficient cost reduction, workforce realignment, and utilization of automation technologies (Jarvis, 2023). Is the Portuguese start-up ecosystem able to withstand such challenges? Over the past decade, Portugal's start-up environment has experienced remarkable growth due to dedicated government policies, namely the Tech Visa³

³ "Tech Visa" is a certification program addressed to technological and innovative companies aiming at granting visas or resident permits to highly qualified third country nationals, interested in working in such companies (Tech Visa).

and Startup Visa⁴. This progress has been accompanied by the emergence of seven Unicorns within a span of only seven years (IDC & Startup Portugal, 2022), garnering significant attention and recognition. However, it is worth mentioning that out of seven unicorns, only one of them, Feedzai, has kept its headquarters in Portugal (Startup Portugal & IDC, 2022). The start-up environment, given its vibrancy and dynamicity, encourages and is subject to changes: it is common for a start-up to be established in Portugal and then move to more fiscally attractive countries, as exemplified by Farfetch- one of the seven unicorns- which moved its HQ to London (Bearne, 2016).

Portugal benefits from favourable conditions such as the availability of skilled engineering expertise and widespread English fluency, making it an attractive destination for digital nomads and investors alike. Investors view Portugal as an excellent base to capitalize on opportunities within the European Single Market, as well as a launching point for accessing the vast Brazilian market, which shares the same language and has strong international ties. As a result of these factors, Lisbon's start-up ecosystem has reached substantial achievements with its start-ups raising 428 million euros, with the entire Portuguese ecosystem raising 884 million euros in 2022 (Dealroom.com), while leaving room for further improvement. For instance, the Portuguese ecosystem raised 451 million euros in VC investment in 2022 (Dealroom.com). As a benchmark for comparison, the Spanish ecosystem reached 4 billion euros in VC investment alone in 2022 (Dealroom, 2023), while France raised 16.1 billion euros only in 2022 (14 Juillet 2023: Startups & VC in France, 2023). Expressed in per capita terms, this results in 44.2 euros

⁴ Startup Visa is a residence visa- provided through IAPMEI (Instituto de Apoio Às Pequenas e Médias Empresas e ao Investimento) for entrepreneurs, which aims to attract investment, talent, and capacity for innovation to Portugal (Startup Visa).

in Portugal, 84.2 euros in Spain and 182.4 euros in France of Venture Capital investment in start-ups⁵.

IDC (International Data Corporation) and Startup Portugal have identified crucial elements in their *Scale Up Nation 2022* report to ensure the ecosystem maintain start-ups after their first development stages. These factors aim to facilitate Portugal's ability to attract and retain international talent and foster investment, enabling the country to accommodate companies during their scale-up phases. Utilizing tax incentives, both for corporations and individuals, is seen as an effective strategy for attracting talent (Startup Portugal & IDC, 2022). Additionally, Portugal's specialization in key sectors in which it arguably has a comparative advantage, like the ocean economy, life sciences, healthcare, and sustainability, while simultaneously solidifying its position in fintech and tech industries, further enhances its appeal on the international scene (Startup Portugal & IDC, 2022). In addition to industries in which it holds a competitive advantage because of its geographical location namely the ocean economy; there currently exists a pharmaceutical cluster of firms in Portugal, which could benefit from further targeted investment (Daniel Guedelha, Deloitte, 2018). Facilitating collaboration between start-ups and established large companies is also essential for fostering systemic growth within the sector.

A pivotal role is played by start-up incubators, which have recently multiplied across the country including Startup Lisboa, Centro de Incubação de Évora, and Startup Braga, among the over 150 existing in the country (Startup Portugal). Incubators are a prime example of the

⁵ Per capita amounts were calculated by dividing the absolute VC investment amounts reported by Dealroom by population of the respective country (Statista).

necessary collaboration between private and public players in the start-up landscape, established on public initiatives, like Startup Lisboa.

Although several incentives and laws have been created to support the entrepreneurial setting in Portugal, the Portuguese start-up ecosystem also faces weaknesses, primarily associated with the tax system, which is considered to be too burdening (especially in the early stages of start-ups), and the availability of capital, particularly in the later stages of development (IDC & Startup Portugal, 2022). Global market uncertainties represent the primary threats to the ecosystem's sustainability (IDC & Startup Portugal, 2022).

II. Literature Review

1. Winning Characteristics of Founders

Firstly, it is important to determine what is seen as the “success” and “failure” of a start-up as the objective of this work is to measure success in relation to the characteristics that founders possess. Failure can be seen as occurring when a business shuts its doors due to the lack of generated profit or other factors and success looked at as purely the survival of a company after 3 years of opening its doors. (D. Silva, A. Cerqueira, E. Brandão, 2016). The ROI (Return on Investment) is a mathematical formula that considers investment and profit and informs us of an enterprise’s current financial situation, as a result it also serves as a key performance indicator to assess the success of a business (Kent Barnett, John R. Mattox, 2010).

At the core of the creation of a start-up, or any other business, is its founders, who uses their knowledge and takes on all associated risks to pursue an idea and turn it into a reality. The likelihood of success of these founders in relation to their characteristics, background and individual identity is of interest and has been discussed by various scholars (Gruber, 2011).

According to the Human Capital Theory, a person’s success in their work is directly linked to the amount of education that they receive, defending that a longer time and higher level of education, translates into an increase in their productivity and therefore income and success. This theory also identifies experience, expertise, and age as being relevant elements of success (Becker, 1962). This idea is confronted by Reuber, Dyke & Fisher, which have found that university degrees cannot reflect on the performance of a new business, as the experience and expertise gained at this level are not directly applicable to business settings. (N. Yaacob, R. Mahmood, S. Zin, M. Puteh, 2016)

A study conducted in 2014, on the “Changing Face of Entrepreneurs in Portugal” spanning the decades 1980s, 1990s and 2000s, indicated that a substantial proportion of entrepreneurs had a lower level of education, with no university attendance and that this segment of entrepreneurs did not demonstrate a trend of increasing educational attainment over time. (Gomes, 2014) Nevertheless, it is important to consider that this finding may not be reflective of the contemporary start-up landscape as this statistical observation may encompass a broad spectrum of entrepreneurs, including farmers, bar owners, and businesses that wouldn't fit the current definition of a start-up. As recent studies suggest that university attendance, particularly from prestigious universities, is considered to have a positive impact on founders' skills and knowledge and consequently on the valuation of their start-ups (Cardoso, 2023).

Robert N. Lussier developed a success vs. failure prediction model that focuses on the non-financial resources of young firms that was first tested in the United States in 1995. This model studies 4 different dimensions (characteristics of founders; characteristics of start-ups; capital; and external factors), through 15 different explanatory variables with 6 being with respect to the first dimension: industry experience, management experience, education, age, business partners and parents' background. (Robert N. Lussier, 2002) This model has since been used over nine different contexts by Lussier to test results across different types of businesses and countries and gives away a predictive success between 63% and 85% (D. Silva, A. Cerqueira, E. Brandão, 2016).

In Portugal, this model has been used to predict start-up success and obtained an accuracy of 82%, the results showed that founders' characteristics and external factors had a significant impact on start-up success. However, the authors mention that a more focused study with a

smaller number of variables should be considered to obtain a more objective understanding of the impact of such (D. Silva, A. Cerqueira, E. Brandão, 2016).

1.1. Gaps Related to Characteristics of Founders

A criticize on prior research efforts is not intended as it is seen that different perspectives and variables have been tested to study star-up success. However, none of the previous studies have directly tackled the primary inquiry of the chapter V: what distinct qualities define start-up founders and how they can be translated into start-up success. As a result, the focus is shifted away from Lussier's dimensions to pursue a more specialized perspective. This shift was influenced by the request by Startup Portugal prompting me to explore founders' educational backgrounds and university origins, offering a novel angle on their role within the start-up ecosystem.

The objective of this study is to bridge the existing gaps in the literature by amalgamating insights from various studies and adopting a customized approach. Its ultimate goal is to furnish a comprehensive understanding of the specific characteristics and educational experiences that wield significant influence over the success of start-up founders.

2. The Role of Investment

Investment is not only necessary to enable start-up funders to scale up their enterprise ideas, but it can also actively shape them depending on the involvement of the investor in the project and its risk preferences. Debt financing is associated, for instance, with a rather conservative approach to investment: there exists a trade-off faced by start-ups between developing highly efficient technology early on with significant initial investment in R&D and the need to be profitable as early as possible to avoid bankruptcy. Joglekar et al. (2012) construct a theoretical model both under deterministic and stochastic realizations of demand, highlighting how debt

exposure can ultimately heavily impact operational choices towards a more conservative approach to preserve repayment of positive interest rates at the end of each period. An empirical analysis drawing from 17 European countries, including Portugal, by Barbosa et al. (2013) finds that Venture Capital investment is positively associated with patent applications (taken as measure of innovation). These results might help explain why start-ups in the high-tech industry make use of signalling devices such as showing commitment through filing for patent registration or securing Friends Family and Fools' (FFF) investment⁶ to attract Venture Capital (VC) and Business Angels' (BA) investment respectively (Conti, Thursby, & Rothaermel, 2013), which would otherwise be unable to observe the founders' commitment under asymmetry of information. The attraction of reputable VC investment early on is crucial not only for capital and innovation-intensive industries but also to attract in turn more funds; it is a stamp of trustworthiness, as found by Hsu (2004). This is associated with a 10-14% average discount on equity prices, as the VCs are found to offer "extra-financial" services (not only reputation, but also hiring experienced executive managers) with respect to their competitor investors, and start-ups are willing to sacrifice such capital for these affiliations. It is in fact crucial to stress how this phenomenon strictly relates to an elite of highly reputable VCs rather than the entirety of them, which is a quite heterogenous reality. The importance of VC investment and its timing is also found by Jeong et al. (2020), who relate the initial market evaluation of a firm to early or delayed investment in firms with a potential or realized

⁶ Friends, Family and Fools (FFF) are people investing in the startup who are also typically linked to the founder(s) through personal ties. The funds are essentially raised through crowdfunding and sometimes even interest-free. The investment can work as a signaling device and help partly overcome information asymmetries as it shows later investors that the project is considered promising and trustworthy by people who are the closest to the funder(s).

absorptive capacity. Jeong et al. find that the earlier the VC investment, the greater the positive impact on the firm's performance. This especially holds true for reputable VCs and firms with a high potential absorptive capacity (measured as development costs up to IPO). Understanding the dynamics of Venture Capital and its benefits with respect to debt financing is especially important for Portugal, as innovation is often used as a metric of the country's ecosystem (Startup Portugal & IDC, 2022). Moreover, the definition of start-up enclosed in the legislative text of 25th May 2023 uses innovation and growth potential as one of the possible criteria to define a start-up “[a start-up] is an innovative company with high growth potential, with innovative business model, products or services (..) or granted recognition by the competent authority in the field of R&D activities or certification of companies in the technological sector” (Pwc).

2.1. Gaps Related to Investment

The analysed literature partly addresses our research questions, from the most recent descriptive report on the Portuguese ecosystem (Startup Portugal & IDC, 2022) to a theoretical analysis on the negative relationship between debt financing and innovation (Joglekar, 2012); and an empirical analysis regarding the significance of the information asymmetry problem in investment (Conti, Thursby, & Rothaermel, 2013); the importance of reputation of VCs (Hsu, 2004), and the implications of matching investment to absorptive firms (Jeong, Kim, Son, & Nam, 2020), which all exploit US datasets in the early 2000s. In essence, this report aims to give a novel insight into the importance of securing VC investment for innovative firms, the role of early investment in providing reassurance for later investors and enabling start-ups growth. The novelty of the analysis is its focus on the Portuguese ecosystem in 2023.

3. Management Practices and Company's Performances

The U.S. Census Bureau's Management and Organizational Practices Survey (MOPS) in 2015 evaluated management practices' impact on firm performance, highlighting the positive relationship between effective business techniques and growth (Nunn & Shambaugh, 2018).

In 2011, Eric Ries defined a set of practices called the Lean Start-up method “for helping entrepreneurs increase their odds of building a successful start-up” (Ries, 2011).

The emerging academic understanding of the Lean Start-up method mainly comprises qualitative studies, although research concerning its application exists. For example, Bocken & Snihur (2019) investigate the impact of Lean Start-up on business model innovation, finding that it reduces uncertainty, engages stakeholders, and enhances collaborative learning. Ghezzi et al. (2015) confirm this through quantitative analysis, showing that combining Business Model Design with Lean Start-up leads to better performance than conventional planning. Moreover, Harms & Schwery (2020) conduct a quantitative study confirming Lean Start-up's positive impact on company performance, particularly in uncertain markets.

3.1. Gaps Related to Management Practices

However, the Lean Start-up method has some notable limitations and gaps in existing literature offer opportunities for future investigation. Firstly, the method lacks a strong theoretical foundation, which makes challenging to acknowledge its academic relevance (Lizarelli, et al., 2022). Current research often focuses on specific industries, limiting the understanding of Lean Start-up method's effectiveness in diverse contexts. Moreover, there is a lack of research on the method's long-term effects, sustainability, and innovation potential. Finally, the impact of team dynamics, leadership styles, and organizational culture on Lean Start-up implementation is an underexplored area as well as the influence of contextual elements and external factors.

To complement these gaps, the following study examines Lean Start-up adoption in start-ups at different growth stages and evaluates the extent of Lean Start-up adoption in Portuguese companies compared to traditional methods. Finally, it investigates a topic not typically addressed in the literature: companies that unconsciously implement Lean Start-up principles and, as a result, potentially could benefit from targeted training to foster their capabilities.

III. Methodology

To comprehensively investigate and answer the questions of interest of each individual part, and with the guidance of the literature review done on each topic throughout the common part, the following methodology was used to draw results for our study.

Firstly, a literature review on the topics of interest was developed in section ii of the report, which the reader has just encountered.

Secondly, secondary data on the Dealroom⁷ portal made available through Startup Portugal profile was used. The Dealroom database, accessed through Startup Portugal profile, gave us access to a sample of 2,524 verified start-ups and 77 Venture Capital (VC) funds observations. Its strength lies in having an extended reach, including different Portuguese regions with constantly updated information. Information includes cross-sectional data about firm characteristics (market, location, revenue etc.).

Thirdly, the report uses primary data coming from a survey developed by us and distributed online to our sample through network sampling⁸ (circulated online from 1st August 2023 to 7th September 2023) which reached a sample of 43 respondents. Primary data coming from our survey (see Appendix 1 for more detail) includes demographic questions on gender and education level attained of the respondent, and demographic data about the start-up itself (year of establishment, development stage, number of employees, number of funders, field in which

⁷ Dealroom.co is a provider of data and intelligence on startups and tech ecosystems, Startup Portugal profile is available at <https://startupportugal.dealroom.co/intro?applyDefaultFilters=true>

⁸ we made use of our personal connections and open-source lists of startup funders, who we then tracked down on LinkedIn.

it operates, type of customer base). The rest of the survey was tailored to answer the three sections of the report and its corresponding research questions. The rationale for each research question will be further developed in the relative sections of the report.

Finally, the analysis exploits a qualitative interview with Head of Incubation at Startup Lisboa to gain better insight into the data and strategic objectives of these major players in the Portuguese start-up ecosystem. Some integrations were made based on the exchanges had with Head of Data and Standards at Startup Portugal.

IV. Limitations

We are aware of the challenges in establishing causal relationships and the severe constraints posed by limited sample sizes of 43 total respondents, non-probabilistic samples, and self-selection bias. This is why we present our research as a descriptive analysis of the landscape. We would also like to address a methodological challenge in defining what is a start-up, and even more precisely what is a Portuguese start-up. The perimeter of our analysis heavily depends on these definitions, which are all but straightforward (as discussed in section i, chapter 1). This issue is common across the different attempts to create a census of the existing start-ups, no matter the scope of the analysis. The EU start-up monitor in 2018, which ranges across all EU member states, in its methodological note stresses (Steigertahl, Methodological note, 2018) *“First, there are no reliable data about the overall population of start-ups in Europe. Hence it is unclear what relative sample size our sample emerged from. Second, in terms of representativeness, there is variation in the response behaviour among countries, which often is dependent on the level of sophistication within each country's start-up ecosystem. This, there is a clear bias towards start-ups with a digital business model”*.

As mentioned above we make reference to the Dealroom portal as a source for our secondary data and definition of our population of interest (the entire Portuguese ecosystem), however, we are aware of some limitations of the sampling method: start-ups can either self-register into the portal (which the only verification needed is that there exists a web domain corresponding to the enrolled start-up) or the start-ups can be included through web scraping carried out by web crawlers of Dealroom itself: anytime there are press releases, media outlet attention or data coming from the Portuguese Stock Exchange Authority (Euronext Lisboa), the platform verifies the existence of a start-up to match with this information. Despite being reassured by the verification process adopted by the platform, we acknowledge there might be a bias in our

dataset coming from the exclusion of non-digital businesses and commercial activities that would formally satisfy the definition of a start-up but are not interested in having a web presence. These limitations should be borne in mind when interpreting results, even though the included start-ups may be arguably the ones of greater interest from a policy point of view as in recent years Portugal has tried to target scalable projects in more innovative industries (European Investment Bank (EIB), 2018).

In addition, Dealroom itself recognizes that there exists a lag in data registration affecting the last 12 months of activity, leaving consolidated figures only up until 2021 (Dealroom.com).

Limitations further exist in our survey as we relied on snowball sampling, and we are aware of the self-selection of participants (i.e., the response rate is not independent of characteristics such as time availability) on top of possible Hawthorne effects⁹ triggered by the survey, even though full anonymity was ensured. Moreover, we targeted our sample based on personal connections responsiveness through LinkedIn, all but random criteria. However, we also counted on the help of Startup Portugal, which spread the survey in their bi-weekly newsletter, and Startup Lisboa, which shared the survey with their portfolio of start-ups.

For our qualitative interview, we tried to gain insights through the perspective of a professional in the field and complementing it with relevant information Startup Portugal has shared with us, however, we acknowledge that with only one opinion the resulting view might be skewed towards several important directions.

⁹ Hawthorne effect: type of human behavior reactivity in which individuals modify an aspect of their behavior in response to their awareness of being observed (McCarney & Warner, 2007)

V. Start-up Founders in Portugal: Exploring Predictive Characteristics for Success

1. Introduction

Founders can be seen as being at the core of the creation of a start-up, as they are the ones who, generally, come up with the idea and further put it into practice. However, not all founders are successful in creating their own start-ups, as data shows that 10% of new businesses fail within the first year of activity and another 70% fail in the span of the first 5 years (Howarth, 2023). This chapter has the objective of studying the probability of start-ups being successful (as mentioned in the beginning of the literature review) when considering founders' characteristics and backgrounds, and additionally to identify which of these attributes Portuguese start-ups' founders share.

1.1. Problem Statement

What funders' characteristics are associated with the success of the start-ups? Which ones are considered "more important/outstanding"? Is it possible, for e.g., for an incubator, to predict the chance of success when choosing to help an entrepreneur?

As the literature review on the topic suggests, and unlike the human capital theory defends, the success of a start-up cannot be directly measured by the number of school years one has gone through. However, as Lussier's model predicts, there are some characteristics among founders that can be highlighted and are found among a high percentage of successful start-ups. Moreover, as competition between universities escalates, studies on an individual's alma mater have shown to be relevant. Lastly, although incubators have shown interest in the founders' traits when choosing which start-ups to incubate, these have been demonstrated to be part of a bigger equation.

1.2. Background

After the preceding literature review section on the Winning Characteristics of Founders, which serves as the foundation for this chapter, a deeper background into the subject is offered to give the reader a more comprehensive view on the subject before proceeding with the analysis.

Non-Financial Predictors of Success

In 1995, Professor Robert N. Lussier, a researcher in the field of management, designed a model to test non-financial predictors of success and failure of a young enterprise, the Success vs Failure Prediction Model (Lussier, 1995). This model has been applied worldwide by Lussier in over 9 different settings, and in addition by other researchers and students to create comparative studies in both young enterprises and start-ups. Lussier determined the following as being the four dimensions that would impact and therefore determine the success of said business: characteristics of founders; characteristics of start-ups; capital; and external factors. Within these four dimensions, a total of fifteen explanatory variables were selected by Lussier from twenty previous studies on the subject (Table 3) (P. Gyimah, S. Marom, R. Lussier, 2019).

When considering the theme of this research the following five hypotheses defined by Lussier are seen as relevant as they refer to the dimension of this study, founders' characteristics. Start-ups managed by individual with prior industry experience are more likely to succeed than those led by individuals without. Start-ups managed by individuals with prior management experience are more likely to succeed than those led by individuals without. University education is considered to lead to a higher chance of success. A start-up with more than one founder is considered to have a higher chance of success. An individual whose parent do or did own a business are more likely to succeed (Lussier, 1995).

The Role of Universities

According (Hazelkorn, 2008) and (Hoekstra, 2009), University rankings are a key decision-making tool for higher education leaders, since they have proved to be a valuable asset on an institution's recognition, which attracts more appealing students, funding, and sponsorship. Moreover, employers and other decision makers (i.e., investors) of the business world will also have an individual's academic path into account. Additionally, attending a higher-quality university results in unobserved traits that will eventually result in higher earnings. The findings in these two studies are coherent with the previously mentioned (Cardoso, 2023).

1.3. Research Objectives

This chapter has the objective of studying and comprehending the portfolio of founders that exist within the Portuguese start-up ecosystem. Additionally, it has the objective of understanding if the characteristics and backgrounds that these founders possess can predict their success in the creation of a business. To achieve this goal, five of the variables in the first dimension of Lussier's Success vs. Failure Prediction Model, the characteristics of founders, will be highlighted.

Moreover, with the objective of making this study more pertinent, it will also include information on the educational background of the founders, to test its relevance, while using the ROI as the determinant of success. In summary, the ambition of this work is to test whether the literature found on the subject stands within our sample, and eventually within the entrepreneurs' population in Portugal.

1.4. Gaps in the Literature

Extensive research on finding the determinants of success within a young enterprise has been ongoing for the past four decades. In addition, finding a relationship between individuals'

personal traits, acquired skills, and background and their success in the business world as an employee, leader, or entrepreneur has been a subject of interest for scholars, education leaders, and enterprises.

Nevertheless, there is a noticeable gap in the literature when it comes to isolating the focus on the specific characteristics that drive an entrepreneur to success, particularly in the context of start-up founders. While the existing literature has explored various aspects of entrepreneurship, it is evident that previous studies either consider individual characteristics as part of a broader setting that includes other factors (as it is the case of Lussier and his 4 defined dimensions), or they lack an adequate examination of relevant variables (P. Gyimah, S. Marom, R. Lussier, 2019).

It is important to note that my approach is not necessarily a critique of previous studies but rather an acknowledgment that none of them directly address my specific research question, which revolves around analysing the unique skills and characteristics that distinguish successful start-up founders. Therefore, I have chosen to shift the focus away from the other three dimensions mentioned by Lussier, recognizing that my research question requires a more specialized perspective.

Furthermore, my research approach has been influenced by the request from Startup Portugal during the presentation of the PAP to investigate the level of education and the universities from which founders graduate. This additional focus is intended to contribute to a "new approach" in understanding the importance of founders in the start-up ecosystem, as it acknowledges the potential influence of educational background on entrepreneurial success.

This study seeks to bridge these gaps in the existing literature by incorporating variables from various studies and adopting a more tailored approach. By doing so, I aim to provide a more comprehensive and nuanced understanding of the specific characteristics and educational backgrounds that play a significant role in the success of start-up founders.

2. Data

2.1. Questions of Interest

Based on the literature review and on the objectives of this study, as mentioned in the background, the following were defined as being the questions of interest to be analysed: What characteristics among founders are associated with the success of the start-ups? For which ones is the relation between the characteristics and start-up success stronger? Is it possible, for e.g., an incubator, to predict the chance of success when choosing to help an entrepreneur?

The first three questions will be answered through an analysis of the data collected by our survey, which will take into consideration five of Lussier's variables (industry experience, management experience, university attendance, existence of partners, parents as entrepreneurs) and additionally the institution from which the entrepreneur graduated, and which is their highest level of education.

The last question will be studied through a qualitative analysis of an interview with the Head of Incubation, at Startup Lisboa. Startup Lisboa is a private non-profit association and one of the biggest national incubators, with 11 years of presence in the ecosystem and based in the capital of Portugal, they work exclusively in the technology market. They support entrepreneurs on the creation of start-ups through various programs. Most recently, they have launched the Unicorn Factory Lisbon as a scale-up program for potential unicorns.

2.2. Data Collection and Hypotheses Testing

To analyse the questions of interest defined, a “demographic and preliminary questions” section was included in the survey. Firstly, respondents were given questions on their background education, the first one being “What is your highest level of education?”, with possible categorical answers given (less than high school education, high school diploma or equivalent, bachelor's degree, master's degree, doctorate degree, other). Additionally, they were asked “What is the name of the institution where you completed your highest level of education?”, the answer to this question was open.

They were asked “How many founders does the start-up have?”. Furthermore they were asked to answer “Yes” or “No” to a series of questions: “Are you one of the founders of the start-up?”; “Did you have any work experience in management before launching the start-up?”; “Did you have any formal training in management before launching the start-up?”; “Did you have any experience in this specific industry before launching the start-up?”; “Do/did your parents own a business?”.

Lastly, they were asked to answer the following question on their ROI “Please rate the Return on Investment (ROI) of your company (according to the latest filed financial statement).”, with possible answers (“Negative”; “Positive, lower than 15%”; “Positive, between 15% and 34%”; “Positive, between 34% and 105%”; “Higher than 105%”; “Do not know or prefer not to say”) which will be used as an indication of success.

Outlined below are the hypotheses of the study, which were formulated by considering the questions of interest and the data collected through the survey:

H1: Founders with a higher level of education are more likely to succeed (have a higher ROI).

H2: Founders who attended a top university are more likely to succeed (have a higher ROI).

H3: Founders with formal training in management are more likely to succeed (have a higher ROI).

H4: Founders with experience in management are more likely to succeed (have a higher ROI).

H5: Founders with industry experience are more likely to succeed (have a higher ROI).

H6: Founders whose parents that have/had a business are more likely to succeed (have a higher ROI).

H7: Start-ups with more than 1 founders are more likely to succeed (have a higher ROI).

2.3. Regression Analysis

Dependent Variable

The Return on Investment serves as a critical indicator of start-up performance and, as such, is used as the dependent variable (Y) in this study. This research aims to examine the influence of each independent variable on ROI, shedding light on the factors that contribute to start-up success.

Independent Variables

As for the independent variables of this study the following are considered: level of education; institution of education attended; formal training in management; management work experience; industry work experience; parents owning a business; and lastly number of founders.

Econometric Models

The following econometric models will be used to test the effect of each independent variable on the dependent variable, ROI:

$$(1) \quad roi = \beta_0 + \beta_1 education + \varepsilon$$

in which $\beta_0 > 0$ and $\beta_1 > 1$. This univariate linear regression correlates (positively, according to the correspondent hypothesis 1) the level of ROI of a start-up (dependent variable) to the level of education attained by the founder (independent variable).

$$(2) \quad roi = \beta_0 + \beta_1 institution + \varepsilon$$

in which $\beta_0 > 0$ and $\beta_1 > 1$. This univariate linear regression correlates (positively, according to the correspondent hypothesis 2) the level of ROI of a start-up (dependent variable) to the whether they attended a prestigious institution (independent variable).

$$(3) \quad roi = \beta_0 + \beta_1 trainingmanagement + \varepsilon$$

H3: Founders with formal training in management are more likely to succeed (have a higher ROI).

in which $\beta_0 > 0$ and $\beta_1 > 1$. This univariate linear regression correlates (positively, according to the correspondent hypothesis 3) the level of ROI of a start-up (dependent variable) to the whether the founder completed formal training in management (independent variable).

$$(4) \quad roi = \beta_0 + \beta_1 workmanagement + \varepsilon$$

in which $\beta_0 > 0$ and $\beta_1 > 1$. This univariate linear regression correlates (positively, according to the correspondent hypothesis 4) the level of ROI of a start-up (dependent variable) to the whether the founder has work experience in management (independent variable).

$$(5) \quad roi = \beta_0 + \beta_1 workindustry + \varepsilon$$

in which $\beta_0 > 0$ and $\beta_1 > 1$. This univariate linear regression correlates (positively, according to the correspondent hypothesis 5) the level of ROI of a start-up (dependent variable) to the whether the founder has work experience in the industry of the start-up (independent variable).

$$(6) \quad roi = \beta_0 + \beta_1 parents + \varepsilon$$

in which $\beta_0 > 0$ and $\beta_1 > 1$. This univariate linear regression correlates (positively, according to the correspondent hypothesis 6) the level of ROI of a start-up (dependent variable) to the whether one of the founders' parents have/had a business (independent variable).

$$(7) \quad roi = \beta_0 + \beta_1 founders + \varepsilon$$

in which $\beta_0 > 0$ and $\beta_1 > 1$. This univariate linear regression correlates (positively, according to the correspondent hypothesis 7) the level of ROI of a start-up (dependent variable) to the number of founders of a start-up (independent variable).

$$(8) \quad roi = \beta_0 + \beta_1 education + \beta_2 institution + \beta_3 trainingmanagment + \beta_4 workmanagement + \beta_5 workindustry + \beta_6 parents + \beta_7 founders + \varepsilon$$

in which $\beta_0 > 0$; $\beta_1 > 1$; $\beta_2 > 1$; $\beta_3 > 1$; $\beta_4 > 1$; $\beta_5 > 1$; $\beta_6 > 1$; $\beta_7 > 1$, . This multivariate linear regression, corresponds to the integration of hypothesis 1 to 7 and aims at correlating the ROI (dependent variable) with all independent variables previously mentioned, predicting a positive correlation for all.

2.4. Data Analysis

Although the sample is small and non-probabilistic, this group of respondents should still give information about the population of interest, considering that the answers obtained all vary in regards in background and start-up features. However, since all the responses were anonymous

and none of the questions were made mandatory to answer, a significant number of respondents did not answer to the ROI question which led to an even more restricted sample.

The answers to the question “What is your highest level of education?”, was transformed from a categorical into a numerical discrete, 0 to 5, with 0 corresponding to “less than high school diploma” and 5 to “doctorate degree”. The answer to “What is the name of the institution where you completed your highest level of education?” was open, therefore research on top international rankings by area of expertise using QS Top Universities Ranking 2023 (Symonds, 2023). Universities ranked in the list were considered to be part of the top universities, those not ranked were not. The variable will be turned into a dummy where 1 will correspond to “Yes” (they met the criteria) and 0 to “No”. The question on the number of founders was kept as answered. The question on the ROI “Please rate the Return on Investment (ROI) of your company (according to the latest filed financial statement).” was turned into numerical discrete variables, 0-4, with 0 corresponding to “Negative” and 4 to “Higher than 105%.”. The answers to the remaining question were also coded into a dummy variable taking 1 for “Yes” and 0 for “No”. (Table 4)

3. Results

Table 1: Frequencies of the Return on Investment | Source: Own Elaboration

ROI	Freq.	Percent	Cum.
Do not know or prefer not to say.	14	34.15	34.15
Higher than 105%.	8	19.51	53.66
Negative.	7	17.07	70.73
Positive, between 15% and 34%	2	4.88	75.61
Positive, between 34% and 105%	4	9.76	85.37
Positive, lower than 15%.	6	14.63	100.00
Total	41	100.00	

As the Return on Investment is used as our primary source of measuring the success of a start-up in this study, it important to mention that as observed in the above table, 14 people did not answer this question which accounts for over 33% of the population and therefore these observations were dropped (Table 1).

To test the proposed econometric models, both univariate and multivariate regressions were drawn. In the cases where a multivariate regression was studied, univariate ones were considered to check whether the isolated independent variables would head towards different directions, which was not verified. To evaluate how suitable the models were, the most used statistical data was the coefficient of determination (R-squared) and the p-value.

Table 2: Regressions testing | Source: Own Elaboration

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	roi	roi	roi	roi	roi	roi	roi	roi
education	0.395 (0.263)							0.395 (0.309)
institution		0.683 (0.629)						0.319 (0.787)
trainingmanagement			0.516 (0.631)					0.258 (0.736)
workmanagement				-0.230 (0.698)				0.268 (0.872)
workindustry					-0.830 (0.629)			-0.818 (0.713)
parents						0.522 (0.631)		0.408 (0.800)
founders							-0.556 (0.669)	-0.0517 (0.890)
_cons	0.619 (0.948)	1.583*** (0.469)	1.714*** (0.438)	2.125*** (0.586)	2.455*** (0.484)	1.692*** (0.454)	2.333*** (0.546)	0.434 (1.976)
Observations	27	27	27	27	27	27	27	27
R ²	0.0824	0.0451	0.0261	0.00433	0.0650	0.0266	0.0269	0.199
r2_a	0.0457	0.00695	-0.0129	-0.0355	0.0276	-0.0123	-0.0121	-0.0960

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Even if not very high, the bivariate model that corresponds to equation 1, had the most satisfying results of this analysis. As it can be observed in the above table 2, the model explains 8.2% of the observations with a positive coefficient of 0.395 and a p-value of 14.7% for β_1 and of 52.0% for β_0 (Table 6). Hence, one can argue that a positive correlation exists between level of education attained by a founder and the level of ROI of the start-up.

Positive relationships are also found between variables – university, training in management, and familial exposure to entrepreneurship – and start-up success with positive coefficients as seen in table 2. However, there seems to be a negative relationship between “industry experience” and the ROI with a coefficient of -0.830 (variable 5 – table 2).

As for the two remaining regressions, a relation between independent variables and the ROI seems to not exist. At first when looking at the short models a negative relationship is seen, however when analysing the long model, the direction of the coefficient for “previous work in management” shifts completely to positive while the coefficient for “number of founders” becomes very close to 0.

Lastly, the multivariate regression containing all variables represents a r-squared of 20% with positive coefficients for five out of 7 of the variables. As possibility is to interpret that as less variables appear omitted the more accurate the prediction of a model can be, leading to a reduce in bias and incorrect casual interpretations.

Although statistical significance wasn't achieved due to our limited non-probabilistic sample size, the consistent positive direction of coefficients supports Lussier's hypotheses within our context for most variables.

3.1. Qualitative Interviews Analysis

To further improve this research by understanding incubators' thought on founders' characteristics, an in-depth interview with the Head of Incubation at Startup Lisboa was conducted. Startup Lisboa is a non-profit organization with 11 years of experience in helping more than 650 companies in the technology industry. They support start-ups from pre-seed to series A stages, and they most recently launched the scaling-up Unicorn Factory Lisboa programme.

The questions posed to the interviewee revolved around understanding the factors contributing to a founder and start-up's perceived success through Startup Lisboa's selection criteria. Additionally, the interviewee was inquired about the impact of founders' educational backgrounds, particularly their institutions and degree types, on their entrepreneurial journeys and how this may intersect with networking opportunities.

In respect to selecting the businesses that they support; Startup Lisboa has a very selective process. They emphasise three main points in particular team, market, and traction. They assess the talents and cohesiveness of the founding team, considering their technical proficiency and market understanding. They evaluate the size and growth potential of the market, the level of competition, and whether the business actually fills a demand in the market or has the ability to disrupt the industry. They examine the start-up's progress and whether they have tested their idea or gained any traction. Traction, in this context, refers to the measurable evidence of a start-up's growth and market acceptance using indicator such as customer acquisition rates, retention rates, lifetime value of a customer, and revenue growth.

Founders' educational background does have an impact on their company path, particularly for those with limited prior experience. Recent university graduates benefit from their connections

and technical knowledge. However, the founders' academic background, in terms of bachelor's and masters' degrees, becomes less significant as they get more expertise. Instead, factors such as past start-up or industry expertise, an MBA, and participation in the start-up ecosystem are more important.

Furthermore, the interviewee explained that an educational background for example in Instituto Superior Técnico is seen by Startup Lisboa as being helpful for a founder in the technology sector as the university is renowned for producing highly skilled engineers, and therefore it is seen as bringing substantial value to their entrepreneurial pursuits. However, for this circumstance to retain validity, educational background must match the specialised talents needed for the start-up's success.

4. Discussion

4.1. Interpretation of Findings and Comparison with Previous Studies

Most of the hypotheses proposed by Lussier in 1995 hold relevance and coherence with the findings derived from our survey. Lussier's hypotheses suggest that start-ups managed by individuals with a university education, management training, familial exposure to entrepreneurship, prior industry experience, prior management experience, or multiple founders are more likely to succeed. It is essential to acknowledge that statistical significance was not achieved. This study has drawn positive relationship between the first three variables and start-up success, a negative relationship for the fourth and inconclusive relation for the remaining two. And additionally a positive relation between the added variable “top university attendance” and start-up success was also found. However, it is essential to acknowledge that statistical significance was not achieved.

This absence of statistical significance can be attributed to the nature of our non-probabilistic sample, which was constrained by a relatively small size of respondents. Despite the lack of statistical significance, the consistent positive direction most coefficients in our analysis supports the validity of Lussier's hypotheses within our specific context. While our findings do not provide conclusive evidence, they do align with part of Lussier's conceptual framework, suggesting that these factors indeed play a role in influencing start-up success.

Furthermore, the data suggests that individuals with higher education levels and those who attended prestigious universities tend to exhibit a higher likelihood of start-up success, which is confirmed by previous literature (Hazelkorn, 2008), (Hoekstra, 2009) and (Cardoso, 2023) that defend that university rankings and university attendance is a key tool for entrepreneurs' success. However, it is important to note that the qualitative interview performed indicates that the relevance of these factors applies to founders who are newer to the market as with time and experience, relevance of their academic background starts to disappear.

4.2. Limitations

Throughout this analysis, several challenges were encountered, with the most significant being the limited sample size due to low survey response rate (43 responses). However, this number dwindled further because 2 respondents were not start-up founders, and 14 participants responded with “Don't know or prefer not to say” when asked about Return on Investment (ROI). As understanding the relationship between our variables and success relied heavily on the ROI data, those who did not answer that question had to be cut from the sample. This resulted in a non-representative sample of the population of interest.

Regarding the determination of start-up success, relying solely on Return on Investment was not our initial intent. However, due to the limited response rate and the anonymous nature of

the survey, we were unable to link responses to a public database containing additional determinants of success. Although the survey included a question about annual revenue, we ultimately excluded it from the analysis due to the reduced number of responses and perceived inconsistencies with the ROI question.

Lastly, it is important to note that the qualitative analysis relied on a single interview, although with a dynamic incubator, Startup Lisboa. The responses obtained may carry some bias and may primarily apply to the technology industry or the specific geographical area in which Startup Lisboa operates.

5. Recommendations to Startup Portugal

In light of the findings drawn throughout this study, three recommendations are given to Startup Portugal. Firstly, Startup Portugal should consider the development of entrepreneurial education and management training programs. These programs should not just be accessed through formal training (e.g., university), and instead should encompass non-formal channels provided by the organisation.

Secondly, Startup Portugal should prioritise the creation of funding mechanisms and mentorship programs explicitly tailored to young entrepreneurs and early-stage start-ups to enhance their chances of success.

Lastly, Startup Portugal should intensify efforts to fortify its relationships with start-ups already entrenched within the ecosystem. This can be achieved by promoting collaboration, encouraging knowledge sharing, and facilitating resource pooling. This measure would create a beneficial environment, fostering innovation and growth for both start-ups and the broader ecosystem. By implementing these strategies, Startup Portugal can make substantial

contributions to the development and expansion of the Portuguese start-up ecosystem on retaining talent while bolstering the nation's economy as a whole.

6. Conclusion

In summary, this study aligns with Lussier's hypotheses and previous literature, showing positive associations between various mentioned factors and start-up success, for most variables. However, due to a limited sample size and the non-probabilistic nature of our survey, statistical significance was not achieved.

Further research, based on larger sample size would be necessary to better identify the statistical significance of these coefficients in the population, and also to explore whether the coefficients found for the other two variables are indeed not positive. While not definitive, our results are partially in line with Lussier's framework, suggesting that these factors do influence start-up success.

Additionally, previous literature highlighting the significance of university rankings and attendance is confirmed to which primary data from the survey also confirmed it. However, these factors may lose relevance with experience.

Ultimately, I hope that this study will be helpful to Startup Portugal in better understanding the community of founders that exists in Portugal and their needs as the Portuguese start-up ecosystem grows exponential.

VI. Recommendations to Startup Portugal

As one of the greatest limitations to our study was the lack of entirely reliable secondary data, we urge anyone wishing to conduct a more thorough analysis to focus on the quality of datasets. Startup Portugal reported to be already working on a merged dataset between different providers which include Dealroom, Crunchbase and Pitchbook. It is imperative that the merging of datasets focuses on granularity and accuracy of information collected, as the cited private providers of data have an interest in inflating numbers of a given ecosystem to attract more subscriptions to their service.

Additionally, Startup Portugal should explore the creation of entrepreneurial education and management training programs that extend beyond formal channels, ensuring accessibility through non-formal avenues. Furthermore, it should emphasise the establishment of dedicated funding mechanisms and mentorship initiatives tailored explicitly to support young entrepreneurs and early-stage start-ups, enhancing their prospects for success. Moreover, fostering stronger relationships with entrenched start-ups in the ecosystem by actively promoting collaboration, knowledge sharing, and resource pooling is essential.

In light of survey results, Startup Portugal should evaluate the role of incubators in the ecosystem more in depth as they seem to be used only by a minority of the contacted start-ups, unlike its previous estimates (Startup Portugal & IDC, 2022). Moreover, the organizations shall take on more structured efforts to address possible capital constraints causing the heavy gender unbalance in the funders' population; these efforts would be of great support to associations like Women in Tech in pursuing goal 5 of UN SDGs on gender equality. Lastly, if Startup Portugal is interested in evaluating satisfaction of funders regarding investment access should make use of additional data through additional studies.

Moreover, the study's findings indicate that StartUp Portugal should take steps to help start-ups fully utilize the potential of Lean methodologies, which are widely embraced in the Portuguese start-up scene. These actions involve offering customized training, workshops, and mentorship programs to equip entrepreneurs with the necessary expertise for effective implementation. Additionally, fostering knowledge exchange among start-ups can nurture a culture of ongoing learning. Lastly, emphasizing customer-centricity principles in Lean practices should be a priority. These recommendations arise from the recognition of significant opportunities to enhance Lean implementation among Portuguese start-ups.

These efforts will contribute significantly to the growth and enrichment of the Portuguese start-up ecosystem while retaining valuable talent and bolstering the nation's economy as a whole.

VII. Conclusion

Findings drawn from the chapter on founders' characteristics support previous literature and show the importance of diverse attributes and characteristics of an entrepreneur, especially when all these factors are accounted for together as one singular characteristic will not be as probabilistic on determining success among founders. However, as a government organization, Startup Portugal should consider a focus on giving everyone a similar opportunity when it comes to entrepreneurship by fighting on eliminating barriers that could prevent a business from succeeding.

Primary data regarding investment broadly confirms what has been found by previous reports on the main sources of investment for Portuguese start-ups (Startup Portugal & IDC, 2022) and what had been portrayed by analysis of secondary data (Dealroom.com). Unfortunately, results stemming from questions on collaboration with Startup Portugal are inconclusive as there are too many limitations in the way the sample was reached. On the other hand, the analysis highlighted the perceived high significance of funding barriers (46.5% of total sample), with a possible path forward in exploring the phenomenon through more exhaustive analysis by involving larger samples and investigating systematic the presence of gender effects. Finally, results indicate that public VCs are not functional to obtaining further investment for most of our respondents, we conclude that their "certification" role is aimed at a minority of start-ups.

This study found that management experience or training among founders does not significantly affect Lean implementation, highlighting the role of factors like organizational culture and market conditions. While the study aligns with existing literature by confirming the positive link between Lean implementation and financial performance, it suggests that Lean practices may not strongly influence respondents' perceptions of competitive advantage and

organizational impact. Notably, respondents tend to overstate their successful Lean implementation, possibly due to their familiarity with Lean concepts. Relying on self-reported data introduces potential bias, and the study doesn't explore changes in Lean implementation over time. Additionally, it primarily focuses on Lean practices and financial performance, neglecting other influential variables. In conclusion, further research is needed to better understand Lean implementation's effects. Startup Portugal could play a role in helping local start-ups effectively utilize Lean methodologies, which are widely adopted in the start-up community.

Despite challenges, this study contributes valuable insights to the entrepreneurship discourse, emphasising the need for larger, more representative samples for definite conclusions in this dynamic field. Finally, some recommendations to Startup Portugal were elaborated in hope that they can take them into account as they strive to foster the Portuguese start-up ecosystem.

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IX. Appendix

1. Appendix A: Survey - Fostering Start-up Success in Portugal: Exploring Founders, Investors, and Business Practices

Dear Participant,

The survey aims to measure start-up founders' attitudes towards management practices and investment opportunities. The survey is part of three Master Theses inserted in the International Development and Public Policy Master at Nova School of Business and Economics.

The survey takes 4 minutes to complete. To adhere to general data protection rights, all data collected will be anonymized and it will be exclusively used for our dissertation.

We would like to thank you in advance for your participation.

Sincerely,

Angela Salomone (55902@novasbe.pt)

Francisca Garrido (54382@novasbe.pt)

Ludovica Bignami (56075@novasbe.pt)

Are you over 18 and consent to answering the following questionnaire?

- Yes
- No

Demographic and Preliminary Questions

What is your gender?

- Female
- Male
- Other
- Prefer not to say.

What is your highest level of education completed?

- Less than high school education
- High school diploma or equivalent
- Bachelor's degree
- Master's degree
- Doctorate degree
- Other

What is the name of the institution where you completed your highest level of education?

What is your field of study?

In which year was your start-up founded?

What stage is the start-up at?

- Pre-seed stage
- Seed stage
- Early stage
- Growth stage
- Later stage
- Expansion stage

How many employees does the start-up have?

How many founders does the start-up have?

Are you one of the founders of the start-up?

- Yes
- No

Did you have any work experience in management before launching the start-up?

- Yes, I did.
- No, I did not.

Did you have any formal training in management before launching the start-up?

- Yes, I did.
- No, I did not.

Did you have any experience in this specific industry before launching the start-up?

- Yes, I did.
- No, I did not.

Do/did your parents own a business?

- Yes
- No

What type of customer base does your company serve?

- Business-to-Business (B2B)
- Business-to-Consumer (B2C)
- Both

Which is the MAIN industry in which the start-up operates?

- Information & Communication Technology (ICT)
- Medicine & Health Care
- Automobile & Mobility/Logistics
- Consulting & Agency
- Media & Creative Industries
- Tourism
- Energy & Electricity
- Industrial Goods
- Nutrition & Food/Consumer Goods
- Education
- Human Resources
- Leisure, Sports & (online) Gaming
- Banking & Finance/Insurance
- Biology Chemicals & Pharmaceuticals
- Other

Investment Opportunities

Was the start-up launched with the help of an incubator?

- Yes
- No

What type of investment did your start-up receive? Select all that apply.

- Friends and family
- Personal savings
- Incubator/company builder and/or accelerator
- Venture Capital
- Business Angel
- Bank loans
- Government loans/subsidies
- Crowdfunding
- Internal financing (operating cash flow)
- Venture debt/IPO/ICO
- Vouchers

- Other

How much do you agree/disagree on a scale from 1 to 5 with the statement "My start-up entered the Startup Portugal network to meet new investors"? *If you haven't entered Startup Portugal Network, please leave it blank.*

1. Strongly disagree
 2. Somewhat disagree
 3. Neutral
 4. Somewhat agree
 5. Strongly agree

How much do you agree/disagree on a scale from 1 to 5 with the statement "Working with Startup Portugal has improved the chances of receiving the needed investment for my start-up"? *If you haven't entered Startup Portugal Network, please leave it blank.*

1. Strongly disagree
 2. Somewhat disagree
 3. Neutral
 4. Somewhat agree
 5. Strongly agree

How much do you agree/disagree on a scale from 1 to 5 with the statement "The main barrier that my start-up faced in the early stages of development was a lack of funding"?

1. Strongly disagree
 2. Somewhat disagree
 3. Neutral
 4. Somewhat agree
 5. Strongly agree

How much do you agree/disagree on a scale from 1 to 5 with the statement "Public Venture capital funds have helped me secure private investment"?

1. Strongly disagree
 2. Somewhat disagree
 3. Neutral
 4. Somewhat agree
 5. Strongly agree
 Never interacted with a publicly participated VC

Management Practices

Rank the top 3 sentences that better describe how your company operates before launching a new product. *1st choice being the most representative of all*

- Conducting small-scale experiments to test ideas before investing resources.
- Ensuring flawless product even if it means longer development cycles.
- Involving customers to activate feedback loops.
- Long-term planning and minimizing changes based on customer feedback.
- Working in small cross-functional teams.
- Adopting a linear project management approach.
- Making decisions based on actionable metrics (e.g. conversion rate).
- Making decisions based on long extensive analyses.

According to the top choice selected in the previous question, have you been operating this way since the company was founded?

- Yes
- No

Do you consider that this way of operating had positive impacts on the company?

- Yes, it contributed to the achievement of measurable positive economic, financial, and operational results.
- Yes, although the financial-economic impact cannot be measured, this way of operating contributed to an overall improvement of the organizational functioning.
- Do not know, choosing to operate this way is part of a strategic decision.
- No, no positive impacts.

Do you consider your operating method to be a differentiating factor from your competitors?

- Yes
- No

Please rate the Return on Investment (ROI) of your company (according to the latest filed financial statement).

- Negative.
- Positive, lower than 15%.
- Positive, between 15% and 34%.
- Positive, between 34% and 105%.
- Higher than 105%.
- Do not know or prefer not to say.

What is approximately your annual revenue? *Please express in euros or leave blank if you wish not to say.*

Are you familiar with at least one of the following concepts: Lean techniques, Lean Start-up, Lean transformation, Agile?

- Yes
- No

Do you consider that your company successfully implements at least one of these techniques?

- Yes
- No

2. Appendix B: Return on Investment – Calculation and Explanation

The concept of Return on Investment (ROI) is crucial in business finance. The simplified formula to calculate it is:

$$ROI = \frac{\text{Total Revenue} - \text{Investment}}{\text{Investment}} \times 100$$

It means that for every dollar you invest in assets, you need to match it with a dollar borrowed from financial markets, which you have to pay for at market rates (Walsh, 2003). The money to pay for this borrowing comes from the profit you make by efficiently using these assets. To measure this, the profits are compared to the value of the assets and funds borrowed: if this ROI is equal to or greater than the cost of borrowing, then the business is viable (Walsh, 2003).

Furthermore, ROI serves as an indicator of a company's competitiveness within its market segment. Typically, the company's ROI is compared to the industry average. When the company's ROI surpasses that of the sector, it signifies a distinct competitive advantage in the market (Coda, Invernizzi, & Russo, 2017).

3. Appendix C: Tables and Graphs

Table 3: Robert Lussier's Model Explanatory Variables | Source: Lussier (1995)

Variables	Explanation
Capital (capt).	Businesses that start undercapitalized have a greater chance of failure than firms that start with adequate capital.
Record keeping and financial control (rkfc).	Businesses that do not keep updated and accurate records and do not use adequate financial controls have a greater chance of failure than firms that do.
Industry Experience (inex).	Businesses managed by people without prior industry experience have a greater chance of failure than firms managed by people with prior industry experience.
Management Experience (maex).	Businesses managed by people without prior management experience have a greater chance of failure than firms managed by people with prior management experience.
Planning (plan).	Businesses that do not develop specific business plans have a greater chance of failure than firms that do.
Professional Advisors (prad).	Businesses that do not use professional advisors have a greater chance of failure than firms using professional advisors. A more recent source of professional advisors are venture capitalists (Barney et al. 1996; Fiet 1995).
Education (educ).	People without any college education who start a business have a greater chance of failing than people with one or more years of college education.
Staffing (staff).	Businesses that cannot attract and retain quality employees have a greater chance of failure than firms that can.
Product/Service Timing (psti).	Businesses that select products/services that are too new or too old have a greater chance of failure than firms that select products/services that are in the growth stage.
Economic Timing (ecti).	Businesses that start during a recession have a greater chance of failing than firms that start during expansion periods.
Age (age).	Younger people who start a business have a greater chance of failing than older people starting a business.

Partners (part).	A business started by one person has a greater chance of failure than a firm started by more than one person.
Parents (pent).	Business owners whose parents did not own a business have a greater chance of failure than owners whose parents did own a business.
Minority (mior).	Minorities have a greater chance of failure than non-minorities.
Marketing (market).	Business owners without marketing skills have a greater chance of failure than owners with marketing skills.

Table 4: Recoding of Variables | Source: Own Elaboration

Original Variable	Type of Variable	Variable Name
Education level: - less than high school education - high school diploma or equivalent - bachelor's degree - master's degree - doctorate degree	(less than high school education – 1; high school diploma or equivalent – 2; bachelor's degree – 3; master's degree – 4; doctorate degree – 5)	education
University name: - top university - not a top university	(Yes – 1; No – 0)	institution
Number of founders: - numerical	(Yes – 1; No – 0) Yes à 2 or more founders No à 1 founder	founders
Return On Investment: - Negative - Positive, lower than 15% - Positive, between 15% and 34% - Positive, between 34% and 105% - Higher than 105%”	(Negative - 0; Positive, lower than 15% - 1; Positive, between 15% and 34% - 2; Positive, between 34% and 105% - 3; Higher than 105% - 4)	roi
Formal training in management	(Yes – 1; No – 0)	trainingmanagement
Management work experience	(Yes – 1; No – 0)	workmanagement

Industry work experience	(Yes – 1; No – 0)	workindustry
Parents own/owned business	(Yes – 1; No – 0)	parents

Table 5: Observed Universities Ranked as Top Universities in QS Top University 2023 | Source: Own Elaboration

Area of Expertise	University Ranked in the QS Top Universities Ranking
Engineering & Technology	- Universidade de Lisboa (IST) - Universidade do Porto - Universidade Nova de Lisboa
Life Sciences & Medicine	- Universidade do Porto - Universidade de Lisboa - Universidade de Coimbra
Natural Sciences	- University of Southampton - Universidade de São Paulo
Law & Legal Studies	- Universidade de Coimbra - Universidade Nova de Lisboa - Universidade de Lisboa - Universidade Católica Portuguesa
Business & Management	- Universidade Nova de Lisboa - Universidade de Lisboa (ISEG) - Universidade do Porto - Iscte - Vlerick Business School - Universidad de Navarra
Communications & Media Studies	- Universidade Nova de Lisboa
History	- Universidade Nova de Lisboa

Table 6: Regression Output Roi Education | Source: Own Elaboration

. reg roi education

Source	SS	df	MS	Number of obs	=	27
				F(1, 25)	=	2.25
Model	5.6840583	1	5.6840583	Prob > F	=	0.1465
Residual	63.2789047	25	2.53115619	R-squared	=	0.0824
				Adj R-squared	=	0.0457
Total	68.962963	26	2.65242165	Root MSE	=	1.591

roi	Coefficient	Std. err.	t	P> t	[95% conf. interval]	
education	.3945233	.2632709	1.50	0.147	-.1476933	.9367399
_cons	.6186613	.9478837	0.65	0.520	-1.333542	2.570864

Table 7: Regression Output Roi Institution | Source: Own Elaboration

. reg roi institution

Source	SS	df	MS	Number of obs	=	27
				F(1, 25)	=	1.18
Model	3.11296296	1	3.11296296	Prob > F	=	0.2874
Residual	65.85	25	2.634	R-squared	=	0.0451
				Adj R-squared	=	0.0069
Total	68.962963	26	2.65242165	Root MSE	=	1.623

roi	Coefficient	Std. err.	t	P> t	[95% conf. interval]	
institution	.6833333	.6285698	1.09	0.287	-.6112304	1.977897
_cons	1.583333	.4685083	3.38	0.002	.6184225	2.548244

Table 8: Regression Output Roi TrainingManagement | Source: Own Elaboration

. reg roi trainingmanagement

Source	SS	df	MS	Number of obs	=	27
Model	1.7981278	1	1.7981278	F(1, 25)	=	0.67
Residual	67.1648352	25	2.68659341	Prob > F	=	0.4210
				R-squared	=	0.0261
				Adj R-squared	=	-0.0129
Total	68.962963	26	2.65242165	Root MSE	=	1.6391

roi	Coefficient	Std. err.	t	P> t	[95% conf. interval]
trainingmanagement	.5164835	.6313165	0.82	0.421	-.7837372 1.816704
_cons	1.714286	.4380634	3.91	0.001	.8120773 2.616494

Table 9: Regression Output Roi WorkManagement | Source: Own Elaboration

. reg roi workmanagement

Source	SS	df	MS	Number of obs	=	27
Model	.298489279	1	.298489279	F(1, 25)	=	0.11
Residual	68.6644737	25	2.74657895	Prob > F	=	0.7444
				R-squared	=	0.0043
				Adj R-squared	=	-0.0355
Total	68.962963	26	2.65242165	Root MSE	=	1.6573

roi	Coefficient	Std. err.	t	P> t	[95% conf. interval]
workmanagement	-.2302632	.6984835	-0.33	0.744	-1.668817 1.20829
_cons	2.125	.5859372	3.63	0.001	.9182398 3.33176

Table 10: Regression Output Roi WorkIndustry | Source: Own Elaboration

. reg roi workindustry

Source	SS	df	MS	Number of obs	=	27
Model	4.48569024	1	4.48569024	F(1, 25)	=	1.74
Residual	64.4772727	25	2.57909091	Prob > F	=	0.1992
Total	68.962963	26	2.65242165	R-squared	=	0.0650
				Adj R-squared	=	0.0276
				Root MSE	=	1.606

roi	Coefficient	Std. err.	t	P> t	[95% conf. interval]	
workindustry	-.8295455	.6290119	-1.32	0.199	-2.12502	.4659288
_cons	2.454545	.4842136	5.07	0.000	1.457289	3.451802

Table 11: Regression Output Roi Parents | Source: Own Elaboration

. reg roi parents

Source	SS	df	MS	Number of obs	=	27
Model	1.83658934	1	1.83658934	F(1, 25)	=	0.68
Residual	67.1263736	25	2.68505495	Prob > F	=	0.4160
Total	68.962963	26	2.65242165	R-squared	=	0.0266
				Adj R-squared	=	-0.0123
				Root MSE	=	1.6386

roi	Coefficient	Std. err.	t	P> t	[95% conf. interval]	
parents	.521978	.6311357	0.83	0.416	-.7778704	1.821826
_cons	1.692308	.4544697	3.72	0.001	.7563099	2.628306

Table 12: Regression Output Roi Founders | Source: Own Elaboration

. reg roi founders

Source	SS	df	MS	Number of obs	=	27
				F(1, 25)	=	0.69
Model	1.85185185	1	1.85185185	Prob > F	=	0.4141
Residual	67.1111111	25	2.68444444	R-squared	=	0.0269
				Adj R-squared	=	-0.0121
Total	68.962963	26	2.65242165	Root MSE	=	1.6384

roi	Coefficient	Std. err.	t	P> t	[95% conf. interval]	
founders	-0.5555556	.6688852	-0.83	0.414	-1.93315	.8220393
_cons	2.3333333	.5461425	4.27	0.000	1.208532	3.458135

Table 13: Regression Output Roi Education Institution TrainingManagement WorkManagement WorkIndustry Parents Founders | Source: Own Elaboration

. reg roi education institution workmanagement workindustry trainingmanagement parents founders

Source	SS	df	MS	Number of obs	=	27
				F(7, 19)	=	0.67
Model	13.7272239	7	1.96103199	Prob > F	=	0.6914
Residual	55.235739	19	2.90714416	R-squared	=	0.1991
				Adj R-squared	=	-0.0960
Total	68.962963	26	2.65242165	Root MSE	=	1.705

roi	Coefficient	Std. err.	t	P> t	[95% conf. interval]	
education	.3951243	.3090357	1.28	0.216	-.2516949	1.041943
institution	.3191606	.7867496	0.41	0.690	-1.327525	1.965846
workmanagement	.2677351	.8723876	0.31	0.762	-1.558193	2.093663
workindustry	-.8175283	.7126561	-1.15	0.266	-2.309135	.674078
trainingmanagement	.258411	.7357304	0.35	0.729	-1.28149	1.798313
parents	.407776	.8002314	0.51	0.616	-1.267128	2.08268
founders	-.0517466	.8900788	-0.06	0.954	-1.914703	1.81121
_cons	.4339954	1.975634	0.22	0.828	-3.701055	4.569046

4. Appendix D: Qualitative Interview

Francisca: Firstly, I would like to give you an explanation of our thesis. It's based on start-ups, founders, and investment. We want to get your perspective, as someone who works in an incubator, on the founders and investments and try to understand what makes a founder successful, and what makes a start-up successful in getting investment. So, I went through your website a bit and I saw that you have different programs and the whole idea is to help entrepreneurs and their ideas as start-ups kind of grow within the first years. And I would like to ask, how do you decide who you're going to help and who you're not?

João Rosado – Startup Lisboa: Great question, thank you. First of all, thank you also for your interest in working with a thesis about start-ups, it's always cool. That's the first thing. The second thing regarding what we do, Startup Lisboa, let's quickly recap just for us to be on the same page. So, Startup Lisboa, we are a non-profit, 11 years old. In the last 11 years, we helped more than 650 companies. Nowadays, we have an active portfolio of 181 companies between pre-seed to series A, basically, so early stage before product market fit. Most recently, we launched Unicorn factory Lisboa, which is a scaling-up program, so post-market fit, and an acceleration program of eight months dedicated to scaling-up programs, we work from pre-seed ideation, let's assume like this, until a series B, covering different areas. We are agnostic in terms of the industries in which we work, so we work with technology. Also, for you to have that in mind, all the reasoning that I'm going to give you is just regarding start-ups that have the technology behind them. So, regarding what we select, I will divide most probably for the early stage, and I think that's the sweet spot that you are focusing on. So, regarding the early stage, what we look over in the companies that we are working with is mainly one to three things. So, the first thing is really regarding the team. So, if the team is already in place, what I mean by this is if the team is already complete. So, if they have the technical capabilities of

executing the project that they are looking for, if they have a good CTO, if the CEO is also good, so in terms of the experience that they have, if they have background in the industry that they are focusing. So basically, we do a general assessment of the team itself. So, understanding if the team is able or not to execute their idea in the market or industry that they are looking over. So that's the first thing. The second thing is regarding the market in which they are acting. So, if it's a market that is growing, if it's a market that is already a very crowded space if they are just tackling something that we don't consider that is a need, or if they are tackling something that we believe that might disrupt the market an industry. So again, we don't work with like-- let me just probably do the following. So, when a VC is investing, they are investing in their top 1% or 0.5% of the companies that they saw. When we are incubating companies, we are accepting between 5 to 10% of all the companies that we review. And the general incubators, when they do so, they target between 25 to 50% of the companies that they look at. So as an incubator, we try to just work with like a very specific group of founders and a very specific group of people. So, the team, and the market are important for us. The third one is the proven background that they have regarding their idea. What I want to say with this is, do they already have some traction? Have they already started to test how to develop this DDP? It's just an idea. Because whenever it is an idea, we need to look over probably if like, it's an idea and the founders are good, really technical, like second- or third-time founders, or they are really well backed up by someone that already proves their background, then probably we can accept. But usually, it's a mix between the team, the markets, and the traction that they already have. The fourth thing that I mentioned is the referral basis. So, are they coming by any recommendation from a VC? Are they coming from any recommendations from other founders? So how well they are already on our network and in the ecosystem? Because if it's

just someone with the overall idea without any hands-on and skin in the game, probably will last.

Francisca: Okay, thank you so much. It was really interesting, and kind go in line with our research. I mean, you already mentioned most of the things that I was kind of looking for in the founders, however, I wanted to ask you if you feel that the institutions where they studied and the type of degree that they did. Do you think that impacts them? I mean, as you're talking about networking, I'm sure that in some way it will. Also, in Nova, we have the Haddad Institute whose main purpose is to help entrepreneurs, but I would like to kind of have your view on how important you think their background is.

João Rosado – Startup Lisboa: I will divide the question into two things. So, we have founders that are coming straight away from universities and think that background, like if you have five years maximum of experience, your background as a university student will continue to impact you. Because the people that you know are coming also from university, the technical experience that you have is very related to the skills that you got from the university. So, for instance, if you are coming from Instituto Superior Tecnico, you probably are a very good engineer. So, the background that you have can be impactful on the business that you are heading towards. So, the type of background that you have in terms of education I think will be interesting. For instance, when we scout university projects, mainly they are coming from Instituto Superior Tecnico because the type of founders that we are looking, they are a little bit more technical. So, the type of support that we give is more on the management side. So, for instance, we work a lot with junior enterprises mainly with Junitec, that is the junior enterprise from Instituto Superior Técnico, as well as with the university itself. So, there is a very close relationship with them. We also work with Católica, Nova and even with Iscte, but usually, it's

more like helping them. So, for instance, we give the MBA, the Lisbon MBA, that is with Nova and Católica, and we also give the MBA from ISEC. So, this is the support that usually we give to people who are attending still university, but I would say that there is not really a thing we look for when we are talking about experienced people. So, if you already have 10-plus years on the market, it's irrelevant the university that you attended. I usually think the things that we look over are: Did you do an MBA? Are you coming from any consulting firm like McKinsey? Are you already in the ecosystem of start-ups? So, did you go to any scale of start-up or VC, or do you have a very technical experience in a very specific industry like telecoms or some industry heavy? You know this is the type of thing that we look over when we are analysing the team so it's the experience on the field but if we are looking for like more non-experienced founders yeah, we probably will look over more the university but usually, I would say that the importance of the university is really on the skill set that you win and if it's technical or non-technical. And if you look over the unicorn, the Portuguese unicorns, you are going to see that probably, I think it's like 70 or 60% are coming from universities with technical backgrounds, so non-management stuff, so really engineering.

Francisca: Okay, thank you very much. I think that for me this is it and I'd like to thank you again I think Ludovica has some questions as well.

Ludovica: Most of it has been mentioned partially, but on selecting the start-ups for the incubator, you haven't really gone over this wanted to be sure. Is it interesting for the investors or the incubator itself that friends and family and both founders have invested in the idea and does commitment play a role like showing commitment to the idea play a role in selecting?

João Rosado – Startup Lisboa: Good question, very good question. Yes and no. Yes, if you have a strong network and you are showcasing that people are already willing to commit

something. So, if you fundraise like 25k, 50k, or it's a very small amount, but at least it showcases that you were able to fundraise that. But that's only relevant when you are not like an experienced founder. What I want to say with this is, it's your first time. You are not very deeply connected with the start-up ecosystem or with an industry specifically. So, if you are just starting, it's very good for you to fundraise from family or friends or fools let's assume like this because it's a good way for you to showcase that you have some skin in the game already, so you are already differentiating from all the others. But second-time founders or people with a bit more experience, sometimes can just fund, and quickly fundraise. You know, so it's not really a problem. It's not something that they are really looking over. So, fundraise from an accelerator like TechStars, like Combinator, or even from a talent VC like Antler, or Demium. So, there are quite a few examples that you don't need to fundraise from Family, Friends, and Fools. But if you are coming like straight from university or you're not of experience in the market, very good to show that. So, it's something that we look at, but usually we, just ask, did you fundraise yet something? And we don't look over if it's coming from a seller, a VC, an angel, or just someone from the family. So, we just guarantee that they fundraise something or if they fundraise something.

Ludovica: Okay, clear, thank you. And on the fact that you see the team, and their technical backgrounds, do you often find yourself advising on adding a partner or an employee to the team to add more backgrounds or not?

João Rosado – Startup Lisboa: Your question is regarding whether the founding team needs to add someone for the founding team itself? I didn't understand.

Ludovica: Either the founding team itself, so someone that has a stake in the entire idea of the start-up or adding someone that maybe has a more technical background but does not have the same ranking.

João Rosado – Startup Lisboa: It depends really on the composition of the founding team. So, you have founding teams that are more technical and others that are less technical. Usually, when the team is looking forward, I will give a straightaway example, it's a has they have a CTO, and they have a CEO. The CEO's background in is management, and the CTO's background is in deep tech, but what they were focusing on was more engineering stuff. So never much AI-driven. So, the solution that they were building was very AI deeply connected. So, what they needed to do was they hired someone that was their AI expert and added them like with a stake of like 2% of equity, 3% of equity from the rest of the equity that they had. So that's very common when you lack expertise in one field. As well as it can be if you are a technical founder and you need someone that is more marketing or sales, you can still do the same. So, it really depends on the needs of the founding team and it's very common for founders to add someone to the founding team later with a stake between one to 5% to help them to grow. So, it's very common for that. And usually, the early employees of the majority of like the bigger scale-ups, unicorns, you see that they have like a lot of equity because, in the early days, they were the first employees to enter and to help the company to grow.

Ludovica: Okay, thank you. And lastly, in your incubator, you often witness that investors, private investors, look for sort of a certification from a public VC like Portugal Ventures in this way it comes to mind, or if this is not?

João Rosado – Startup Lisboa: The opposite way around. If they are private and if they are international, better. If they are national, it's not really something really that important. So

usually, the first advice for any founder is to try to fundraise private VCs or international VCs, because that will give you a stamp. If you are going to Portugal Ventures, for instance, or Banco do Fomento or FIJ, that is other funds, those types of things usually are more seen as a grant and not really seen as an investment.

Ludovica: This one was really interesting actually because we were working mostly with the start-up Portugal on our thesis and what I got from them was the other way around. Like, they stressed a lot the fact that public VCs are somewhat a green light for later investment. But you're telling me the opposite, so it's interesting.

João Rosado – Startup Lisboa: No, no, the way opposite around. If you analyse the success of each investment, and if you compare, for instance, Armilar, Faber, and Indicu, with the portfolio of Portugal Ventures, you are going to see that the number of successful next rounds is better on international VCs than on public VCs. And if you look for the thesis of investment of Portugal Ventures, you are going to see that the main thing that they usually analyse is where you have your geography. For instance, if you are in Coimbra or Évora, you have the most willingness from their side to invest when compared with Porto or Lisbon because the funds that they are deploying are national funds and the national funds have a preference if you are not on the main cities in Portugal. So just a few examples of the type of investment that they are doing.

Ludovica: Okay, so maybe they have also non-profit reasons to invest?

João Rosado – Startup Lisboa: Yeah, I wouldn't say non-profit, but I would say that they look over the impact they can also have by looking for non-traditional or non-private areas in which there is money. So, for instance, if you are a very good founder with a lot of expertise,

obviously they probably will try to put you some money, but as a founder, usually majority of the founders tend to go away from public money and try to fundraise from private VCs or international VCs.

Ludovica: Okay, thank you. That's all on my side, I don't know if Francisca has other questions.

Francisca: Okay, thank you so much. I think from us we got everything that we needed. We really thank you a lot. It was interesting what you said and I'm sure it will help us with giving in our thesis.