

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-**

Portuguese Start-up Investors: Enhancing the Ecosystem's Potential through Matching

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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

BA: Business Angel

EBITDA: Earnings Before Interest, Taxes, Depreciation and Amortization

EU: European Union

EV: Enterprise Value

HQ: Headquarters

IDC: International Data Corporation

IAPMEI: Instituto de Apoio Às Pequenas e Médias Empresas e ao Investimento

IPO: Initial Public Offering

LS: Lean Start-up

MOPS: Management and Organizational Practices Survey

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 multifaced 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).

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 (Kuczmarski, 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).

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?

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. In addition, we will illustrate the most prevalent forms of investment in Portuguese start-ups

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

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, & Christopulos, 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.

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 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

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).

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).

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

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

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

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).

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.

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 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

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).

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).

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.

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.

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. Portuguese Start-up Investors: Enhancing the Ecosystem's Potential through Matching

Introduction

Investment is a crucial condition for enabling a start-up's development and growth. Investment arrangements, however, vary significantly depending on repayment conditions and level of risk taken by funding entity. This report aims at highlighting how access to investment, in its broad meaning, is perceived from Portuguese start-up founders' point of view and providing insights into what investment forms would best match their expectations.

Problem Statement

On top of the literature review presented in section ii chapter 2, there are specificities of the Portuguese start-up ecosystem that should be analysed more in depth. As the title of the "Building a Scale Up Nation" report (2022) suggests, one of the greatest hindering factors for the Portuguese start-up ecosystem is the trend in relocation abroad of scale-ups, typically to more fiscally attractive countries such as the UK or the US. Startup Portugal sources have confirmed that it is commonplace for investors to condition their contributions to a re-settlement of the company HQ in the US to better ensure property rights protection (i.e., faster appearance before court in case of disputes among shareholders and management). This phenomenon, together with a reported risk-averse Portuguese culture (Burton, 2015) could help explain the low number of Portuguese based VCs, as there are only 69 of them (Dealroom.com), with most of them taking on a limited number of rounds of investment in the last 12 months (*Graph 6.2*).

Moreover, the absence of sizeable exits¹⁰ and small number of IPOs in the Portuguese market with only 15 of them in the 2018-2022 period (Euronext) makes the ecosystem unappealing for VC investors, who have IPOs as their preferred way of securing a return on investment (Akhmejanova, Vikulina, Votchel, Vashina, & Kutznetsova, 2015). Notwithstanding these factors, the Portuguese ecosystem has witnessed a significant increase in investments in 2021 (last period with consolidated data) with respect to previous years, with a preponderance of the funds (1.1 bn euros) coming from domestic investors, and US-based investors contributing with 210 million euros (Dealroom.com). This report aims to provide an overview of the current forms of investment, the degree of reliance on incubators of start-ups, and expectations of start-up founders when collaborating with Startup Portugal. Lastly, the report seeks to estimate whether or not lack of funding is perceived as an important barrier in the early development of start-ups in Portugal either by the entirety of start-up founders or by its female subpopulation.

Background

Start-up Development and Investment Types

The start-up development process is often stylized across six stages: pre-seed stage, seed stage, early stage, growth stage, later stage and expansion phase (Cemex Ventures, 2021), even though denomination and decomposition into different phases may vary slightly (Fonseca, 2023). Importantly, the distinguishing factor among these stages is the primary source of funding (Cemex Ventures, 2021). Parallel to the development of the start-up as a firm, there exist different sequential fundraising rounds: pre-seed, seed, series A, series B, and series C (Reiff,

¹⁰ An exit from a start-up is defined as the transaction through which the founder(s) of a startup sell either majority of ownership of the company or its entirety. Early investors are interested in exit opportunities as it is their way of realizing returns on their cash outlays (Mac Sween & Seaman, 2023).

2023). In each of these five rounds, the company exchanges a portion of its equity for capital and could eventually be listed through an IPO (Ziuznys, 2022). Depending on the stage of development the start-up, the type of investor and series A, B, C of investment or IPO there exists a best match (Reiff, 2023). In the very early days, start-ups often rely on friends and family (also referred to as “FFF”: family, friends, and fools (Cemex Ventures, 2021)). These investors cover- at least partially- the initial expenses and signal to other types of investors the trustworthiness of the project (Cremades, 2019). The personal network of the founders, even if able to raise up to 200,000\$, usually is followed by more structured forms of investment such as Business Angels (either as individuals or in groups), which typically enter the picture at seed stage (Cremades, 2019). They are commonly able to provide relatively modest amounts of capital, but they have other advantages as they enter businesses on a regular basis, they have personal connections and expertise in supporting enterprises in their early days, in addition to having generally less stringent requirements and being more prone to undertake risky ventures than corporate players. However, when providing significant amounts of capital (above 1 million USD), Business Angels might prefer to directly participate in the business venture through stocks and respective voting rights (Kopp, 2022), something that debt financing does not impose on management. On the other hand, banks and government agencies are often hard to attract in the early days of activity as the business models still need to be proven effective; moreover, they usually provide support in the form of loans, something the entrepreneurs need to manage carefully to meet the repayment expectations. Venture Capital firms generally provide larger sums of funds and expertise as they frequently venture into businesses. Lastly, Corporate Investors are one of the possibilities at the disposal of entrepreneurs, however, the efficacy of this collaboration (which can take different forms, from a simple joint venture to a full integration or acquisition) highly depends on the goals of both the established player and

the founders of the start-ups, as they can easily be diverging or, even, in conflict (Cremades, 2019).

In general, there is no single ideal source of funding due to the numerous factors influencing this decision. Importantly, not all investors have the same function: some have a relevant signalling role to later investors such as FFF, but also reputable VCs for other players, while others mainly provide expertise and/or capital.

Investment in the International Landscape

All information regarding the Portuguese ecosystem must be contextualized internationally to extract meaningful information and insights. Startup Portugal chose Spain, France, Ireland, Israel, Singapore, and the UK as benchmarks for its Scaleup Nation report (2022), either due to their geographical proximity or their remarkable achievements in innovation and the development of start-ups. This section will only focus on Israel as best performer and Spain for its proximity for brevity purposes.

Israel, which shares with Portugal the characteristic of having a small domestic market, has a vibrant start-up market with around 100 of them being evaluated at 1 billion dollars (unicorns) cumulated through the years - 83 just from 2020 to August 2022- (Sapphire Ventures, 2022) and active Venture capital funds. Importantly, these evaluations are often reached during exit and acquisition transactions by US-based companies such as Amazon, Apple, Cisco Systems and Facebook; Israel's ecosystem is in fact specialized in cybersecurity (Buckly, 2023). This R&D intensive industry benefits from the government's commitment to boost a vibrant start-up ecosystem through tax incentives (e.g., de-taxed returns to patents (Buckly, 2023)) and heavy investments: 5.6% of Israel's GDP is invested in innovation, two times the OECD average (2022). Israel's best performance at global level (measured as VC investment in per

capita terms (Blue Future Partners, 2017) is a result of many favourable factors among which its international relationship with the US and sizeable structural investment in R&D.

Due to its geographical and cultural proximity to Portugal, it is interesting to analyse the case of Spain, which passed in 2018 the mark of 1 billion USD in funding, even though its environment is generally regarded as moderately interesting from an investment point of view as the ecosystem still lacks conspicuous exits larger than 200 million euros (Novoa). However, the comparatively cheaper availability of skilled workforce with respect to the US makes the dual structure of engineering and producing in Spain, and sales and marketing in the US a relatively common practice (Novoa). The mechanisms underlying the outsourcing dynamic make the Spanish case even more similar to the Portuguese availability of highly skilled labour. Finally, comparability between the Iberian start-up ecosystems is enhanced by their similar share of GDP invested in R&D in 2021: 1.66% for Portugal and 1.43% for Spain (OECD, 2022)), figures dramatically distant from Israel.

Research Objectives

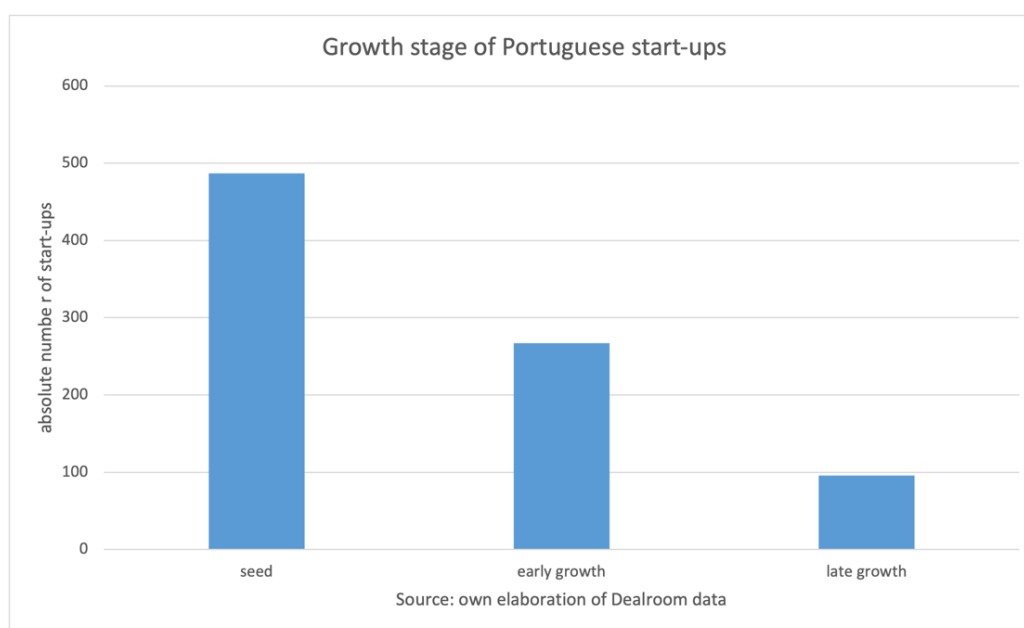
This report aims at profiling both national and international investors in the Portuguese ecosystem through a descriptive analysis of secondary data. Importantly, the analysis will highlight correlational relationships, rather than causal links as endogeneity and omitted variables might affect the analysis. Moreover, using primary data from the survey and qualitative interviews, the report will outline the founders' perspective on access to investment. The report will provide preliminary evidence on the perspective of female founders, as funding barriers could help explain the dramatically unbalanced gender composition of the population of founders in Portugal (Steigertahl & Mauer, 2018). Lastly, it will provide recommendations

on how Startup Portugal can better respond to start-ups' founders expectations regarding access to investment and use its database from past surveys for more in-depth analysis.

Analysis of Secondary Data and Qualitative Interviews

The analysis of secondary data from (Dealroom.com) confirms what had been highlighted in the previous sections: Portuguese start-ups tend to concentrate in the early stage of growth (*Graph 6.1*), while few survive to the late growth stage. While part of this phenomenon is attributable to a natural self-selection of firms, it is likely that the Cold Start problem (Chen, 2021) is a relevant specific to the Portuguese ecosystem: its small population (Wikipedia) allows for a reduced potential customer base and it makes it hard to exploit network effects, which are at the core of the expansion phase for many industries.

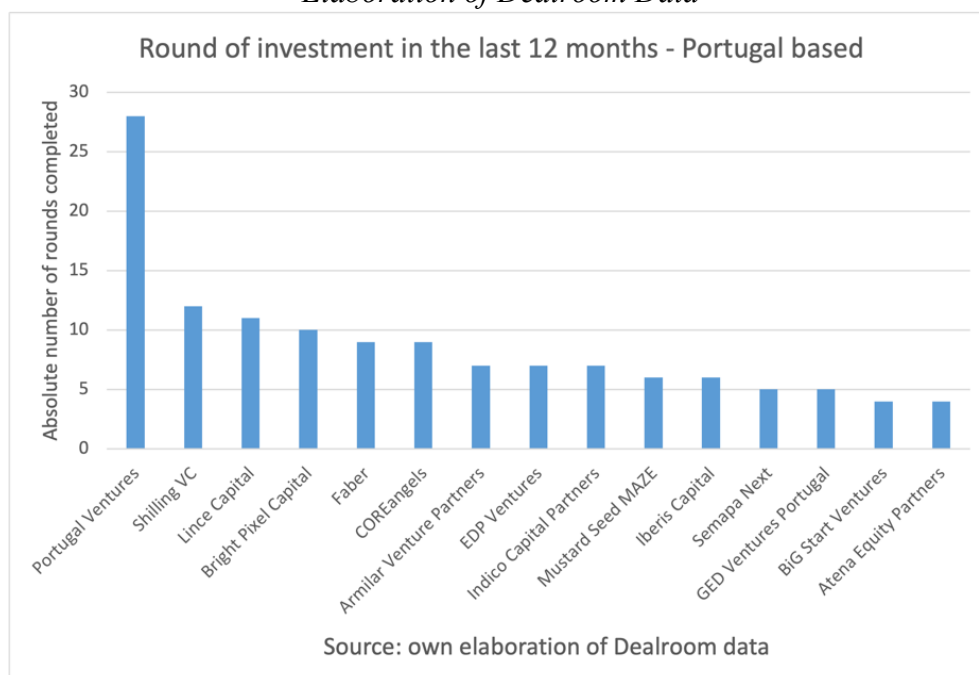
Graph 6. 1: *Growth Stage of Portuguese Start-ups | Source: Own Elaboration of Dealroom Data*



The data analysis confirms that reliance on foreign investors, which constitute 19.6% of the total investors registered in the database, has been decreasing over the last few years with 66%

of total investments in 2021 coming from domestic sources (Dealroom.com). When isolating Portugal-based investors, Portugal Ventures (a publicly participated VC with HQ in Porto) strikes as a very active investor in terms of rounds completed in the last 12 months (*Graph 6.2*), with an active portfolio of 201 investments in the country (Dealroom.com). The rationale for such a dispersed and early investment (155 seed-rounds in its portfolio) is to screen through due-diligence start-ups and grant them with a “trustworthy” status for later investors. This signalling value of publicly backed VCs has been suggested by Startup Portugal as well. On the other hand, a qualitative interview with the Head of Incubation of Startup Lisboa, has highlighted how this screening process and the subsequent “trustworthy” status play a rather marginal role when considering the entire start-up population in Portugal. From a founder point of view, private VCs such as Armilar, Faber and Indico are much more sought after as they typically are much more selective in their screening, as shown by the lower number of participated rounds in the last 12 months (*Graph 6.2*). Additionally, private VCs contribute with larger amounts of capital (Dealroom.com) and are associated with more successful next rounds than public counterparts, as reported by the interviewee.

Graph 6. 2: Round of Investment in the last 12 Months - Portugal based | Source: Own Elaboration of Dealroom Data



Data Collection

The distributed survey included questions to address the following research questions:

Reliance on an incubator: response to question “*Was the start-up launched with the help of an incubator?*”, taking values 1 and 0 for Yes/No

Type of investment received: response to “*What type of investment did your start-up receive?*”, multiple choice with multiple answer possible. The list was designed following closely what had been asked in the “Building a scaleup nation report” (IDC & Startup Portugal, 2022) to include an exhaustive list of possible forms of investment, together with a “other” option to allow for any further specification.

An opinion section made us of a 1-5 scale on strongly disagree (1), somewhat disagree (2), neutral (3), somewhat agree (4) and strongly agree (5).

Expectations linked to Startup Portugal’s network: response to “*My start-up entered Startup Portugal network with the objective of meeting new investors?*”.

Evaluation of collaboration with Startup Portugal: response to "*Working with Startup Portugal has improved the chances of receiving the needed investment for my start-up*".

Relevance in the early days of lack of funding: response to "*The main barrier that my start-up faced in the early stages of development was a lack of funding*".

Role of public VCs is perceived to be instrumental to securing further investment: response to "*Public Venture capital funds have helped me secure private investment*". In this case a "*Never interacted with a publicly participated VC*" option was added to address this eventuality.

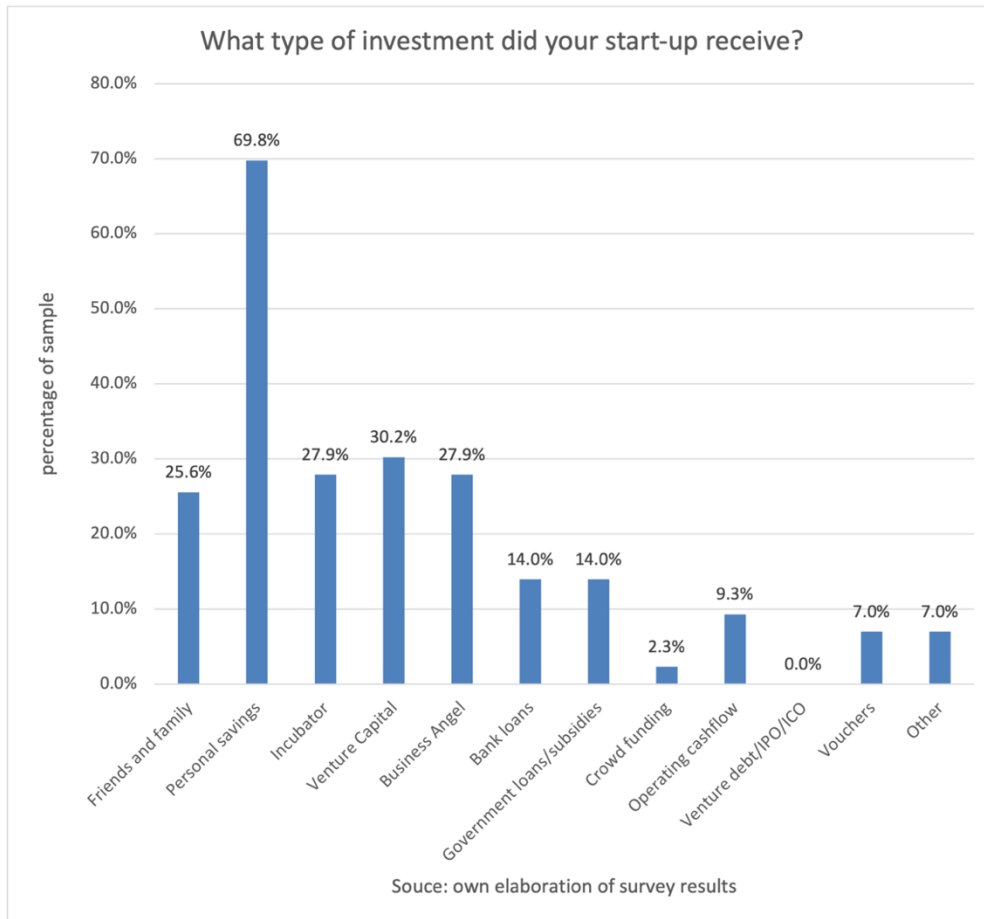
All collected data is categorical. In the opinion section the 1-5 scale is ordinal, where "*somewhat agree*" and "*strongly agree*" answers have been pooled as positive, while "*somewhat disagree*" and "*strongly disagree*" answers have been considered negative. Results were analysed also in subsamples determined by gender of the founder and stage of development of the start-up (*see Appendix 1 for specifics of first part of the survey*).

Results

A first striking result relates to relatively marginal role played by incubators in our sample, as only 34.88% of interviewed funders reports that their start-up was launched with the help of an incubator. The percentage slightly drops in the following question on type of investment received where only 27.91% of the sample reports having received incubator (and/ or accelerator) investment (*see Graph 6.3*). This fact is especially salient as our sample was, on average, made of more mature start-ups than the ones present in the Dealroom data set (*see Appendix, Graph 6.5*) meaning they have survived more development stages.

The results confirm the primary role of personal savings and Friends and Family contributions, reported by 69.77% and 25.58% of the sample respectively. Start-ups have received Venture Capital (30.23%) and Business Angel (27.91%) investments.

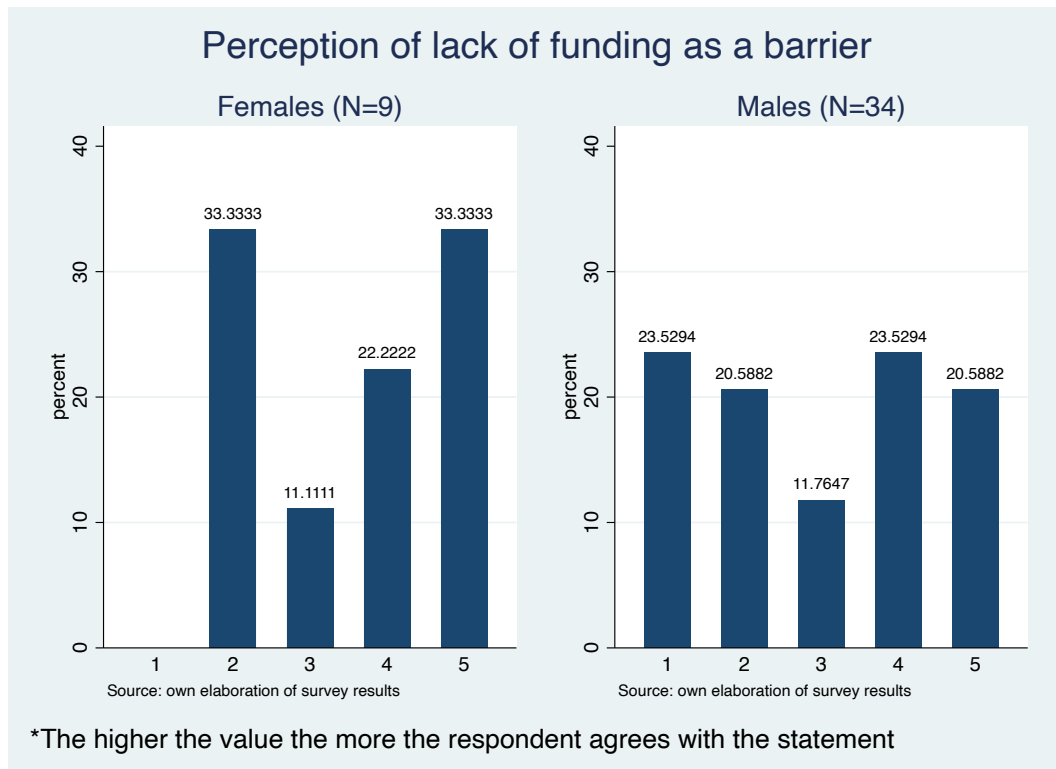
Graph 6. 3: *What Type of Investment Did Your Start-up Receive?* | Source: Own Elaboration



The opinion section of the survey delivers interesting results when it comes to the expectations of founders in joining Startup Portugal with 44.4% of them reporting to have joined the network in hopes of meeting new inventors (*see Appendix, Graph 6.6*), however only 13.5% state to have improved their chances of receiving investment for their start-up (*see Appendix, Graph 6.7*). The figures become even more relevant when 46.5% of the sample reports that lack of funding has been the main barrier faced by their start-up in the early days (*see Appendix, Graph 6.8*). When splitting the sample across genders a further difference is observable as female

respondents tend to agree more with the statement as the distribution of answers is skewed to the left (see *Graph 6.4*). Finally, 67.38% of respondents indicate that they have either never interacted or not been helped secure further investment by public Venture Capital (see *Appendix, Graph 6.9*).

Graph 6. 4: Perception of Lack of Funding as a Barrier | Source: Own Elaboration



1. Discussion

1.1. Interpretation of Findings and Comparison with Previous Studies

Data on the reliance on incubators is slightly incongruous as the sample seems to give contradicting answers. The phenomenon might be explained by Rudy Aernoudt (2004), who defines business incubators as institutions whose role is to “*nurture young firms, helping them to survive and grow during the start-up period when they are most vulnerable*”, which could

mean that the interaction with an incubator does not occur at the launch moment for a start-up, hence the negative answers to the Yes/No question. Moreover, founders may have answered the question concerning funds received thinking that incubation does not constitute a form of investment, despite the mobilized resources. Another explanation is that the respondents did not carefully read options in the multiple-choice question. Regardless of the exact true percentage of firms having been supported by incubators, the results around 30% indicate lower use of incubators than what the Scale Up Nation Report had found, with 50% of the sample having been supported by incubators in that case (IDC & Startup Portugal, 2022).

On the other hand, results regarding the source of funding match more closely to what had previously been found with 62% of respondents having reported having used personal savings and 27% having received VC investment and bank loans being exactly at 13% (IDC & Startup Portugal, 2022). Our sample is relatively more exposed to Business Angels and Family and Friends than the one analysed by Startup Portugal and IDC. It is plausible that by having contacted founders of start-ups with a significant web presence and more mature on average, our sample is skewed towards particularly known start-ups with founders who have notable personal connections.

Finally, there is no precedent to evaluate the change in perception of Startup Portugal's role towards investment. However, these preliminary results seem to indicate that there exist unmet expectations: founders often join the network with the objective of meeting new investors (44.4%), but their collaboration with the organization is not perceived to have improved chances of receiving needed investment for their start-ups (54% of negative answers and 32.4% of neutrals).

A Focus on Funding Barriers in Female Entrepreneurship

Especially interesting are the capital constraints in breaking down the gender composition of founders: do women in Portugal have less access to financial resources when compared to their male counterparts? The provided insights serve as very preliminary evidence as unfortunately the extremely limited sample size does not allow for a thorough exploration of the topic. On top of this we reckon that a survivorship bias might be affecting the analysis as the sample is constituted by respondents who successfully established a start-up; we are not collecting answers from those who struggled the most (i.e., entrepreneurs unable to pool the necessary resources), so the estimates are likely to report a lower bound for the phenomenon. Unfortunately, accessing secondary data through Dealroom portal did not contribute to the analysis of gender effects in the Portuguese ecosystem as a filter “*has a female founder*” exists for the database of start-ups but it screens only 142 elements from the total of 2,548 (Dealroom.com). This would mean a 0.056% of start-ups with female founders, a significant underreporting of these characteristics, compared with previous reports on the Portuguese population of founders (Steigertahl & Mauer, 2018).

If these extremely preliminary results were confirmed by more extensive studies, they could build on novel literature by Morazzoni et al. (2022). The study in question explores a misallocation of funds in the US capital market, suggesting the presence of entry barrier for female-lead firms and “an *imbalance along the extensive margin of entrepreneurship*” (Morazzoni & Sy, 2022). No previous analysis on the matter has been performed in Portugal.

Limitations

All data limitations listed in the common part (section iv) apply to the interpretation of the findings of this individual report, on top of the underreporting affecting secondary data highlighted in the previous section. Furthermore, opinion questions referring to the expectations

tied with joining Startup Portugal network and its helpfulness in securing investment are to be taken with extreme caution as our main distribution channel was not the organization itself as it was initially in the research design. Data anonymization prevents double checking if respondents answered neutrally or negatively when faced with a question that did not relate to their first-hand experience.

Further Research

To further explore the dynamics of investment in Portugal a greater investment should be made in reaching an appropriate sample size through surveying, specifically to detect any potentially significant gender effect. Ideally funders of start-ups which did not survive the first stages of development should be included to limit a survivorship bias.

Questions regarding the presence of barriers in accessing investment determined by gender are especially compelling because Portugal presents a particularly unbalanced general population of start-up founders; it is the worst performer in the EU with just 5.1% of female founders in 2018 against an EU average of 15.6% (Steigertahl & Mauer, 2018). An analysis aiming to establish causal relationships would of particular value.

Recommendations to StartUp Portugal

Although to be taken with all the above-mentioned limitations, these results indicate that Startup Portugal might be overestimating the role of incubators in the ecosystem in its previous studies (Startup Portugal & IDC, 2022). We suggest conducting a bivariate analysis on the organization's primary data from its own survey to better understand which subpopulation of start-ups (across sectors and growth stages) makes most use of the incubators.

Similarly, further research regarding perception of investment barriers by different genders could be first preliminarily explored through accessing raw data from Startup Portugal's survey

and analysing - for instance- how many of the 81% of respondents reporting “*limited capital*” as a weakness of the Portuguese ecosystem (Startup Portugal & IDC, 2022) are women. Further research in this direction would not only enrich academic knowledge on the matter but also support activities of associations such as Women in Tech towards the achievement of goal number 5 of UN SDGs on Gender Equality (Women in Tech).

The collected evidence also suggests exploring more in depth, perhaps through qualitative interviews with founders so to ensure a direct channel, if there exist significant unfulfilled expectations regarding Startup Portugal, especially in terms of effectiveness of collaborations in attracting the needed investment.

Conclusion

Primary data 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). Survey data shows that, after personal savings (70% of respondents), Venture Capital is the most popular form of investment (30%), closely followed by and Business Angels and incubators (which are only used by 28% of our sample each).

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.

VI. Common 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. Common 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?

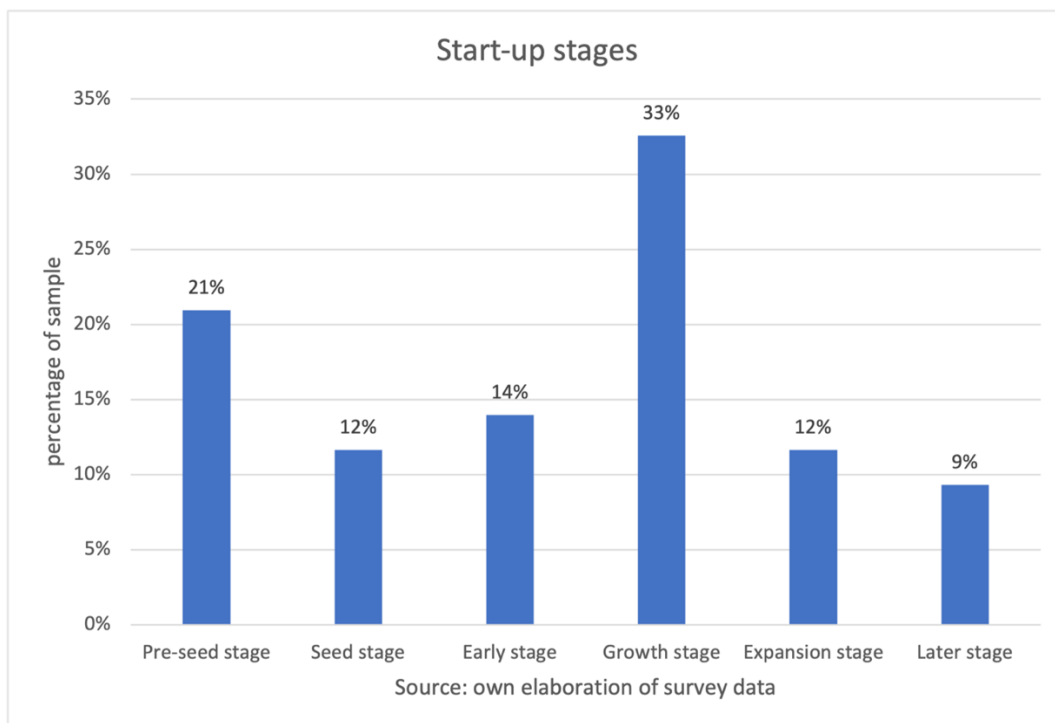
- Yes
- No

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

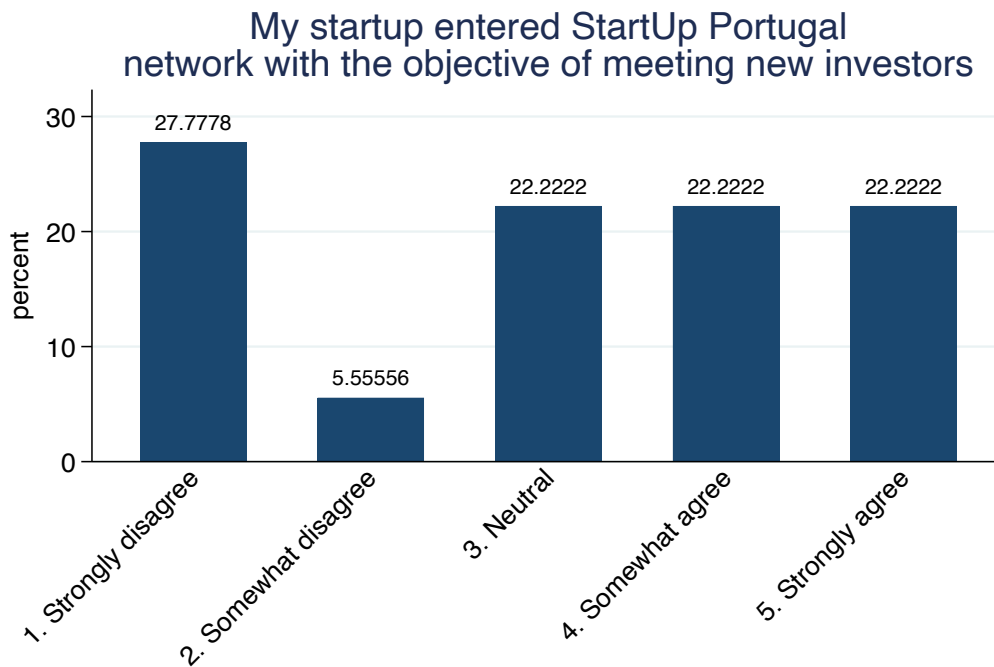
- Yes
- No

Graphs

Graph 6. 5: Start-up Stages | Source: Own Elaboration of Survey Data

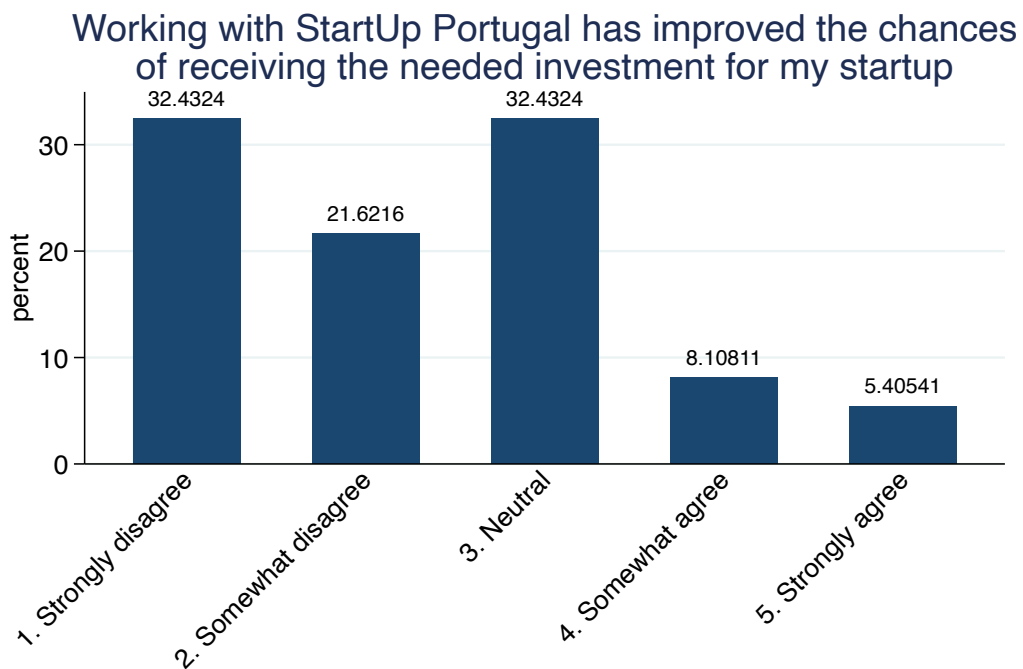


Graph 6. 6: "My Start-up entered Startup Portugal network with the objective of meeting new people" | Source: Own Elaboration of Survey Data



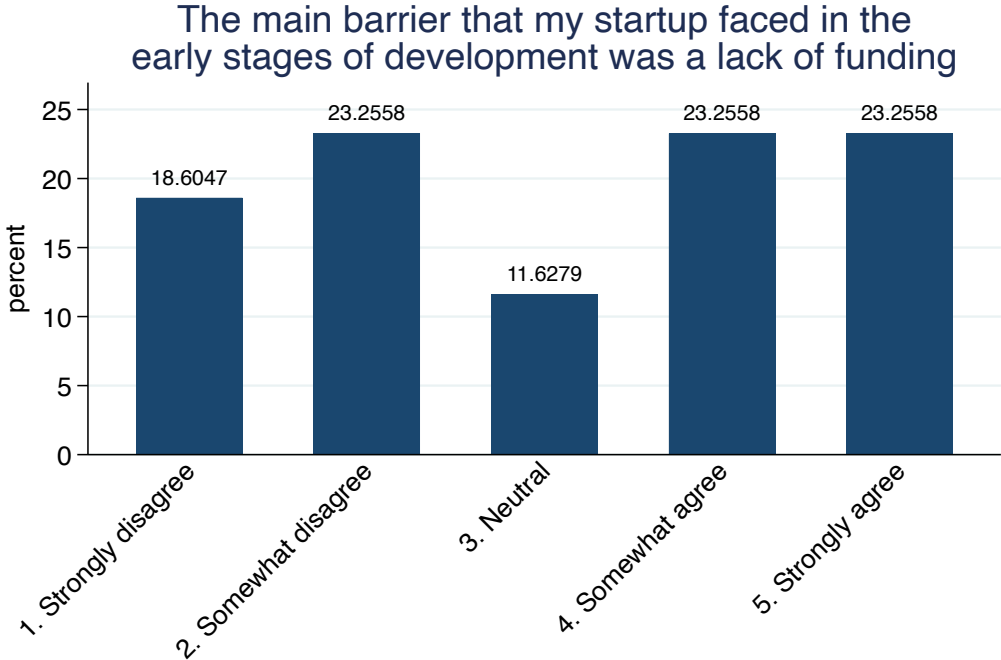
Source: Own elaboration of survey results

Graph 6. 7: "Working with Startup Portugal has improved the chances of receiving the needed investment for my start-up" | Source: Own Elaboration of Survey Data



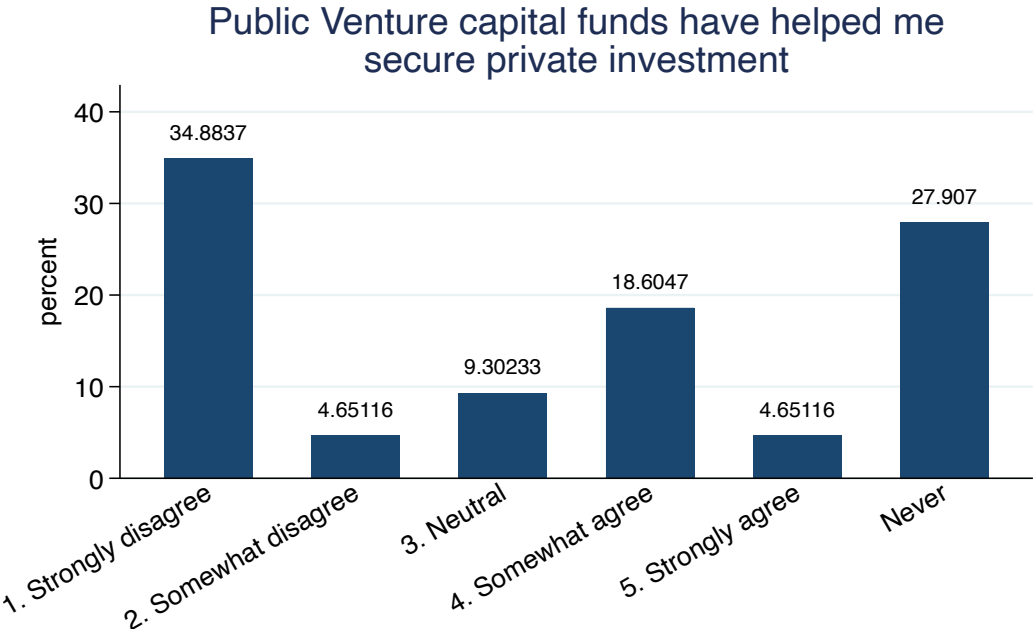
Source: own elaboration of survey results

Graph 6. 8: *The main barrier that my start-up faced in the early stages of development was a lack of funding" | Source: Own Elaboration of Survey Data*



Sources: own elaboration of survey results

Graph 6. 9: *"Public Venture Capital funds have helped me secure private investment" | Source: Own Elaboration of Survey Data*



Source: own elaboration of survey data

* Never "I have never interacted with a public VC"

2. 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.