André Filipe Pelicano Águeda

Licenciado em Ciências da Engenharia e Gestão Industrial

Interconnectivity between Ecosystem Builders and Investor Groups in European Startup Ecosystems

Dissertação para obtenção do Grau de Mestre em
Engenharia e Gestão Industrial

Orientador: Professor Aneesh Zutshi, Professor Auxiliar Convidado, FCT-UNL
Co-orientador: Professor António Grilo, Professor Auxiliar com Agregação, FCT-UNL

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In memory of my beloved grandfather Manuel

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Abstract

Currently the world's economies are facing great challenges in the creation of employment, especially due to the transformation of the employment structure associated to the technological progress and globalization of organizations. To address this issue, entrepreneurship has been increasingly used by policy-makers in developed economies as a central element in their policies to promote economic growth.

While entrepreneurship is now considered to be a key element in growth-oriented policies, there exists a need for a larger foundation of knowledge about how to develop successful entrepreneurship ecosystems. Several studies have been conducted with the purpose of understanding the characteristics and specificities of the ecosystem actors in startup ecosystems, however most research works have tended to ignore how these actors interact and cooperate with other ecosystem actors within the ecosystem. The development of an academic study about this subject could provide valuable insights with the potential to impact greatly the effectivity of future approaches to the development of startups ecosystems.

The objective of this work is to characterize the interconnectivity between ecosystem builders and investor groups in European startup ecosystems, with particular attention to the aspects of the ecosystem builders' contribution to startups and to the cooperation between ecosystem builders and investor groups. This investigation is composed by an extensive literature review to startups, startup ecosystem and ecosystem actors, and by an empirical study to investor groups' perception concerning to this subject. To acquire empirical data it was conducted an online questionnaire directed to a sample of investor groups located in Portugal, U.K. and Germany.

This study concluded that the aspects of the ecosystem builders' contribution towards startups that investor groups most value are startup screening, entrepreneurial education and access to mentoring. As for the cooperation between ecosystem builders and investor groups the results showed that there exists room for improvement, especially with regard to communication and information sharing.

Keywords: Entrepreneurship, Ecosystem Builders, Investor Groups, European Startup Ecosystems

Resumo

Atualmente, as economias mundiais enfrentam enormes desafios no que diz respeito à criação de emprego, principalmente, devido à transformação da estrutura de emprego associada aos avanços tecnológicos e à globalização das organizações. Como forma de resposta, o empreendedorismo tem sido utilizado de forma crescente por parte dos decisores políticos de economias desenvolvidas como um elemento central nas suas políticas para promover o crescimento económico.

Ainda que o empreendedorismo seja atualmente considerado um elemento-chave nas políticas de crescimento, existe a necessidade de uma maior base de conhecimento no que diz respeito ao desenvolvimento de ecossistemas de empreendedorismo de sucesso. Têm sido realizados vários estudos ao longo do tempo com o intuito de compreender as características e as especificidades dos atores presentes em ecossistemas de empreendedorismo, no entanto, a grande maioria destes trabalhos tem ignorado a forma como estes atores interagem e cooperam entre si dentro do ecossistema. O desenvolvimento de um estudo académico dentro desta temática poderá contribuir com informação valiosa com o potencial para impactar de forma significativa a efetividade de abordagens futuras quanto ao desenvolvimento de ecossistemas de empreendedorismo.

O objetivo deste trabalho passa por caracterizar a interligação entre construtores de ecossistema e grupos de investimento em ecossistemas de empreendedorismo europeus, com particular atenção aos elementos da contribuição dos construtores de ecossistema a *startups*, e à cooperação entre construtores de ecossistema e grupos de investimento. Esta investigação é composta por uma ampla revisão bibliográfica aos conceitos de *startup*, ecossistema de empreendedorismo e atores do ecossistema, assim como por um estudo empírico à perceção dos grupos de investimento quanto a este tema. Por forma a recolher dados empíricos foi realizado um questionário on-line a uma amostra de grupos de investimento localizada em Portugal, Reino Unido e Alemanha.

A partir deste estudo concluiu-se que os aspetos mais valorizados pelos grupos de investimento na contribuição dos construtores de ecossistema a *startups* são a triagem de *startups*, a formação em empreendedorismo e o acesso a *mentoring*. Quanto à cooperação entre construtores de ecossistemas e grupos de investimento, os resultados demonstraram a existência de espaço para melhorias, especialmente no que diz respeito à comunicação e partilha de informação.

Palavras-chave: Empreendedorismo, Construtores de Ecossistema, Grupos de Investimento, Ecossistemas de Empreendedorismo Europeus

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Acronyms

BA	Business Angel
Benelux	Belgium-Netherland-Luxembourg
DACH	Germany-Austria-Switzerland
DE-U.K.	Germany-United Kingdom
EB	Ecosystem Builder
EBAN	European Business Angel Network
EVCA	European Private Equity and Venture Capital Association
EU	European Union
GP	General Partners
ICT	Information and Communications Technology
IG	Investor Group
IPO	Initial Public Offering
LP	Limited Partner
OECD	Organization for Economic Co-operation and Development
PT	Portugal
R&D	Research and Development
SaaS	Software as a Service
SME	Small and Medium Enterprises
U.K.	United Kingdom
U.S.A	United States of America
VC	Venture Capitalist

Chapter 1

Introduction

This section aims to introduce the context of this dissertation, and to depict the raison d'être of this research work. It will also provide the reader with a description about this work's objectives and research questions. Finally, the organization of the dissertation will be presented, where a brief preview to each the following chapters is provided.

1.1 Context

Throughout recent history entrepreneurship has gradually become a vital element of modern societies. As highlighted by several researchers (Peng, 2001; Audretsch, 2003; OECD, 2009; Kane, 2010), SMEs and entrepreneurs play a crucial role in all economies, being inclusively hailed as the sole source of new net job growth over the last 28 years in the U.S.A. (Herrmann *et al.*, 2015). This escalation in the importance of entrepreneurship in the world economies has led governments to start shifting from traditional enterprise policies to growth-oriented enterprise policies, in order to promote the creation of favorable environments for business startups to thrive (Mason & Brown, 2014).

While creating supportive framework conditions alone is insufficient to drive the promotion of entrepreneurship (Mason & Brown, 2014), nowadays it's possible to witness a conjugation of factors which, combined with appropriate approaches to the entrepreneurial ecosystem, explain today's entrepreneurial explosion on the global scene (Herrmann *et al.*, 2015). According to Steve Blank (2013), there are four key factors which explain the current startup burst:

1. Startups can now be built for thousands, rather than millions of dollars;
2. Access to financing has decentralized from its clusters and expanded worldwide;
3. Entrepreneurship developed its own management science and tools;
4. Speed of consumer adoption of new technology has increased.

As a significant part of the global economic future lies on the performance of high-growth firms, society must be prepared to nurture entrepreneurs and support the growth of startups through their development stages. While several approaches to support new ventures have been attempted, most proved to be of limited effectiveness (Herrmann *et al.*, 2015). Currently however, several researchers (Neck *et al.*, 2004; Isenberg, 2011b; Mason & Brown, 2014; Herrmann *et al*., 2015) have come to recognize the importance of supporting entrepreneurial ecosystems as whole, in order to better provide support to entrepreneurs and startups.

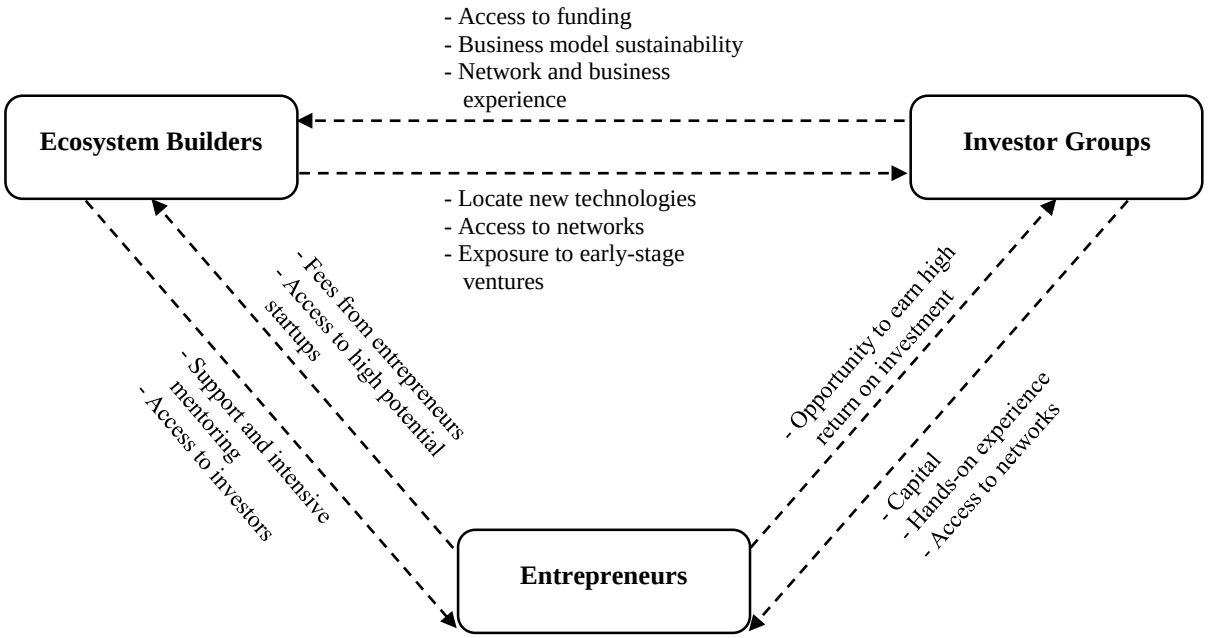
With regard to the specific case of the European region, in the last few years EU has been showing considerable commitment about promoting innovation and sustainable growth within its region, putting great efforts in developing supportive entrepreneurial ecosystems that encourage innovation, research and development, and entrepreneurship. This commitment was further stressed out by the implementation of the program Horizon 2020, the biggest EU funding program for research and innovation ever, with nearly €80 billion of funding available over the period of 7 years, from 2014 to 2020. Through this program the EU aims to allocate funds to drive economic growth and create jobs in all European regions, by promoting the production of world class science in Europe, removing barriers to innovation and by facilitating the cooperation between public and private sectors in the delivery of innovation (European Commission).

The implementation of supportive programs like Horizon 2020 are of great importance in the promotion entrepreneurship and innovation, as funding is a rather critical element in the development of new ideas and businesses. Similarly to the funding, many other variables within an entrepreneurial ecosystem play equally crucial roles to the entrepreneurial success of a region. Being comprised by a diversity of actors, roles, and environmental factors that interact to determine the entrepreneurial performance of a region (Spilling, 1996), entrepreneurial ecosystems are dynamic, and complex systems that need careful assessment by policy-makers, both at a micro and at a macro level, when developing regional initiatives dedicated to foster entrepreneurship.

At a macro level, entrepreneurial ecosystems are influenced by several determinants which influence a region's propensity towards entrepreneurship, such as technology, economic development, demography, culture and institutions (Wennekers *et al.*, 2002). At a micro level, entrepreneurial ecosystems depend on how ecosystem actors perform their role within their local communities and how they interact with each other and create value to their ecosystems from such relationship. While the conditions at both levels impact the performance of entrepreneurial ecosystems, the emerging policy focus on supporting high-growth companies distinguishes from traditional enterprise policies for enacting its efforts at a local level (Mason & Brown, 2014), thus emphasizing the importance of supporting entrepreneurship through a micro level approach in order to better stimulate economic development and innovation.

This dissertation aims to address this thematic and to provide some insights about entrepreneurial ecosystems at a micro level, by focusing on two ecosystem actors which we regard as being extremely pertinent to the success of new ventures: ecosystem builders and investor groups. While each ecosystem actor possesses its own individual role in an entrepreneurial ecosystem, few contribute so directly to the success of new ventures as ecosystem builders and investor groups. Ecosystem builders, mainly comprehended by incubators and accelerators, focus on supporting entrepreneurs developing their businesses by providing business support intervention, and access to financial support (Dee *et al.*, 2015). On the other hand, investor groups, comprised by business angels and venture capitalists, are individuals or organizations who invest in high growth companies with the expectation of earning a high rate of return on their investment (Davila *et al.*, 2003; Wiltbank, 2009).

Figure 1.1 – Relationship between ecosystem builders, investor groups and entrepreneurs



Although ecosystem builders and investor groups differ on their purposes, ultimately they depend on each other to be successful: ecosystem builders need sources of income to be sustainable, and that can only be achieved by either being funded by outside entities, such as corporates or investors, or by generating enough value to startups (e.g. access to financial sources) so that they are willing to pay for the ecosystem builder's services; investor groups need quality entrepreneurs and startups with high-growth potential, so that they are able to earn future profit on their investments (Dee el al., 2015). The relationship between ecosystem builders, investor groups and entrepreneurs is illustrated in Figure 1.1.

The relationship between these two ecosystem actors will be the core of this dissertation, where we aim to understand the interconnectivity between ecosystem builders and investor groups, and how they interact with each other to create value to the community. With this research work we also expect to reach the ultimate objective of proposing conclusive solutions about how to improve the

interconnectivity between ecosystem builders and investor groups, and consequently the overall European entrepreneurial ecosystem.

1.2 Research Objectives

With this academic research work we intend to reach the ultimate goals of acquiring knowledge about the interconnectivity currently existing between ecosystem builders and investor groups, and of proposing a list of conclusive recommendations about how to improve the overall European entrepreneurship ecosystem.

In order to achieve the above mentioned goals, first it will be conducted a literature review about startups, startup ecosystems, and startup ecosystem actors, in order to discern the important aspects behind the concepts and the entities addressed in this dissertation. By addressing these topics, we expect to obtain a solid foundation of knowledge, which will support and contribute to better define the overall direction of the subsequently developed research work.

Having fulfilled this objective and based on the findings and on the collected feedback from experts in this field, it will be elaborated a questionnaire where we aim to evaluate investor's perception about ecosystem builder's added value and to comprehend the intricacies of the interactions between both entities.

Finally, following the questionnaire data collection, an analysis of the results will be conducted, where we will attempt to identify in which aspects the interconnectivity between ecosystem builders and investor groups could be improved, with the aim of providing answer to the research questions of this dissertation and of reaching the objective of proposing a list of recommendations about how to improve the overall European entrepreneurship ecosystem.

1.3 Research Questions

This research will revolve around the acquisition of knowledge about the interconnectivity between ecosystem builders and investor groups, with particular focus on the investor's perception of ecosystem builder's added value to entrepreneurs and on the intricacies of the interactions between both entities. In order create value to these two elements by understanding how the relationship between ecosystem builders and investor groups could be improved, we will seek to answer the following two research questions:

1. **Which aspects of the ecosystem builders' contribution towards startups are valued most valued by investor groups?**

2. **Which factors should ecosystem builders address in order to promote an enhanced relationship with investor groups?**

1.4 Organization of the Dissertation

The present dissertation is organized into seven chapters. The first chapter consists of a brief introduction to the topic of this research, as well as to the objectives and research questions. The second and third chapters will provide a theoretical review of the literature related to the scope of this study, where it will be discussed several concepts pertinent to the topic of startups, startup ecosystems, and to the main actors in startup ecosystems. The fourth chapter describes the methodology used to address the research questions. In the fifth and sixth chapters the results of the empirical research will be presented and analyzed, and the research questions will be answered. Finally, the seventh chapter will be dedicated to the conclusions of the research and to the recommendations about how to improve the interconnectivity between ecosystem builders and investor groups.

Table 1.1 illustrates the organization of the dissertation, and the main topics discussed in each chapter.

Table 1.1 – Organization of the dissertation

Chapter 1 – Introduction	Context
	Research Objectives
	Research Questions
Chapter 2 – Defining Startups	Startup Definition
	Startup Development Stages
	Types of Web Startups
Chapter 3 – Startup Ecosystems & Ecosystem Actors	Startups Ecosystem Definition
	Global Startup Ecosystems
	Startup Ecosystem Actors
Chapter 4 – Methodology	Research Design
	Research Questions
	Data Collection Methods
	Sample Selection
Chapter 5 – Results	Sample Characterization
	Overall Results

Table 1.1 – Organization of the dissertation (continuation)

	Results by Sample Group
Chapter 6 – Analysis to the Results	Overall Results Analysis
	Comparison by Sample Group
	Addressing the Research Questions
Chapter 7 – Conclusions & Recommendations	Conclusions
	Recommendations
	Limitations

Chapter 2

Defining Startups

The present section intends to introduce to the literature considered to be relevant to the scope of the dissertation, in order to provide to the reader a proper background in terms of concepts related to startups. In this theoretical review, it will be given an overview to the definition of startup, followed by a classification on the types of Internet Startups and an assessment on the startup life cycle. Through the conduction of the following theoretical study we aim to understand the concept of startup and the challenges inherent to the development of such organizations by ecosystem builders.

2.1 Startup definition

The term "startup" became widely popular during the dot-com bubble in the 1990´s, when a great number of internet-based companies were founded. Throughout recent history, startups have assumed an increasingly important role on the global scene, being considered the dynamos of our society (Malone, 2003). Startup's current relevance to society's economic systems cannot be ignored, as they are of vital importance for job creation and economic growth, being for example considered to be the only source of net job growth in the economy of the U.S.A. (Kane, 2010). However, startup's part in society contemplates more than its economic relevance. According to Carree and Thurik (2010), successful startups promote efficiency due to intensified competition and process innovation, and enhance market demand due to product innovation, thus emphasizing the importance of startups concerning innovation purposes.

At this point, it's interesting for the purpose of the dissertation to clarify the concept of startup, which will be used throughout the rest of the study. A widely popular definition proposed by Steve Blank, defines startups as:

"*(…) an organization formed to search for a repeatable and scalable business model"* (Blank, 2010)

From the above mentioned definition, it's possible to conclude that a startup is a company built to search, develop and commercialize innovative ideas, through a repeatable, scalable, profitable business model.

Later on, in an attempt to better address this question and help differentiate startups from large companies, Blank (2012) added to its prior definition that a startup is a "temporary organization". By stating this, Blank stressed out that a startup can be a new venture or a new division of an existing company, but also the non-permanent nature of startups, which due to its inherent search journey for a business model, after a certain period of time, normally up to five years, either the startup succeeds in developing a repeatable, scalable business model, and transitions from a startup to a company, or it fails in achieving that goal and the organization ceases operations.

Unlike what can be seen in small businesses or in large companies, where organizations execute predictable, "known" business models, that maximize their chances of success, startups have reduced chances of survival, especially in their early stages (van Gelderen *et al.*, 2004), as they explore new, "unknown" business models, where they must embrace as failure is an integral part of the search for a business model, and go from failure to failure while trying to find the path to build a winning startup (Blank & Dorf, 2012). While exploring for a successful business model, several dimensions must be considered. According to Osterwalder & Pigneur (2010), a business model describes the rationale of how an organization creates, delivers, and captures value. In its comprehensive work started in 2004 (Osterwalder, 2004), and later revised in 2010 (Osterwaler & Pigneur, 2010), the author affirms that a business can be better explained through nine build blocks that show all the dimensions involved in the process of generating revenue in a company. These build blocks cover the four main areas of a business: customers, offer, infrastructure, and financial viability. The nine build blocks are comprehended by the following:

- ***Customer Segments*:** The Customer Segments block defines the different groups of people that a company aims to reach and serve. Each segment is composed by groups of people with common needs, common behaviors, or other common attributes. A company must decide which segments to serve, and which segments to ignore, and then design a business model based on the specific customer needs of each segment;
- ***Value Propositions*:** The Value Propositions block describes the bundle of products and services that create value for a specific customer segment, by solving a specific customer problem or satisfying a customer need. The value creation can be quantitative (e.g. price, speed of service, performance) or qualitative (e.g. design, customer experience, brand);
- ***Channels*:** The Channels block describe how a company communicates and reaches its customer segments to deliver a value proposition. A company's interface with customers is constituted by communication, distribution, and sales channels;
- ***Customer Relationships*:** The Customer Relationships block describes the types of relationships that a company establishes with specific customer segments. Customer relationships may be

aimed to acquire customers, to retain customers, or to boost sales. There are several categories of customer relationships, ranging from automated to personal;

» ***Revenue Streams*:** The Revenue Streams block represents the cash flow of a company, generated from each customer segment. A business model can involve two different types of revenue streams: transaction revenues resulting from one-time customer payment; and recurring revenues, resulting from ongoing payments. Each revenue stream may have different pricing mechanisms;

» ***Key Resources*:** The Key Resources block describes the most important assets required to make a business model work. These resources allow a company to create and offer a value proposition, reach markets, maintain relationships with customer segments, and earn revenues. Key resources can be physical, financial, intellectual, or human;

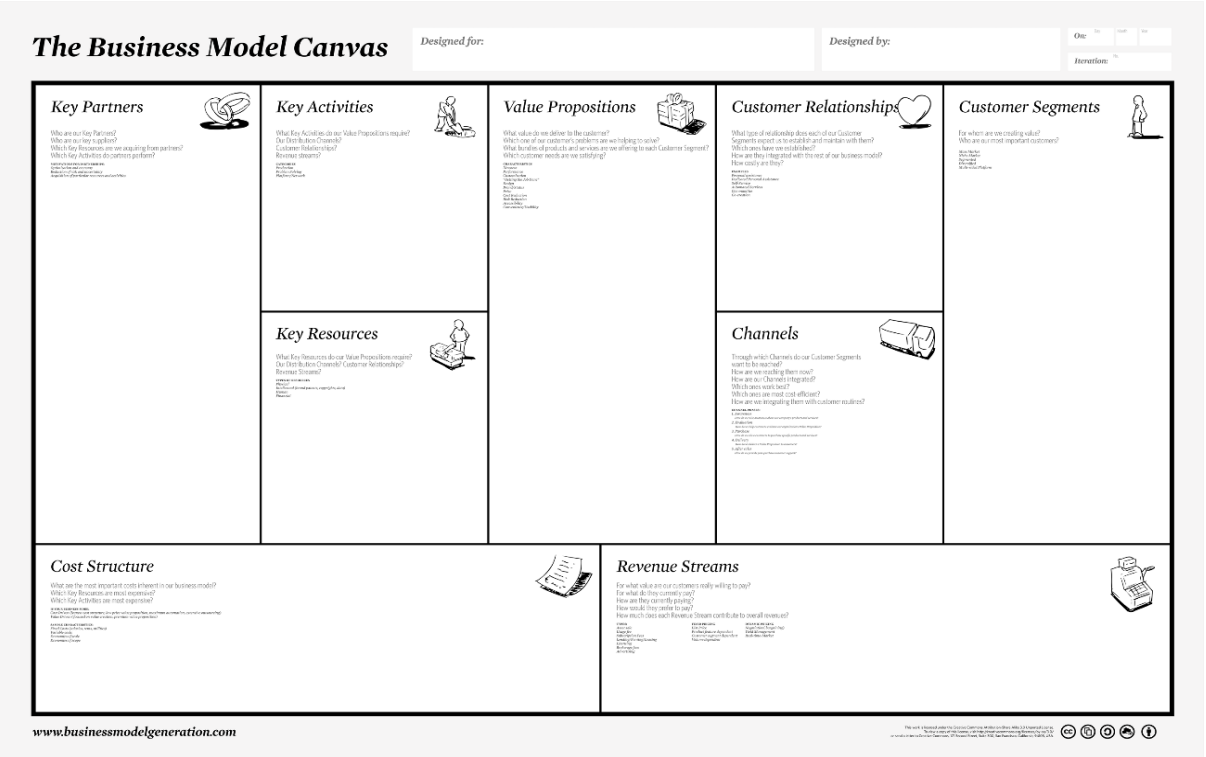
» ***Key Activities*:** The Key Activities block describes the most important activities that a company must perform to make its business model successful. Like key resources, these activities allow a company to create and offer a value proposition, reach markets, maintain relationships with customer segments, and earn revenues. Key activities can be categorized into three different types: production; problem solving; and platform/network;

» ***Key Partnerships*:** The Key Partnerships block describes the network of suppliers and partners that make a business model work. Partnerships are extremely important for business models, as they allow companies to optimize their business models, reduce risk, or acquire resources. Key partnerships can be classified into four different categories: strategic alliances; cooperation; joint ventures; and buyer-supplier relationship;

» ***Cost Structure*:** The Cost Structure block describes all the costs resulting from the business model execution. Business model cost structures can be categorized into two different types: cost-driven, where the business model focus on minimizing costs as much as possible; and value-driven, where the business model focus on value creation instead of cost minimization.

The previously introduced business model dimensions can be represented through a business model canvas, as depicted in Figure 2.1, which is essentially a template with the nine blocks of a business model used as a tool to brainstorm hypotheses.

Figure 2.1 – Business model canvas (Osterwalder & Pigneur, 2010)



One other characteristic regarded as typical of startups is their rapid growth. As stated by the startup guru, Paul Graham (2012):

"A startup is a company designed to grow fast. (…) The only essential thing is growth. Everything else we associate with startups follows from growth." (Graham, 2012)

Perhaps due to the success case of companies such as Uber, Dropbox, Airbnb, WhatsApp, among many other, startups are perceived as being designed to grow fast. However, according to evidence (Autio & Lumme, 1998; Heirman & Clarysse, 2004; Davila *et al.*, 2014), only a small amount of startups achieves to grow rapidly, with the majority of startups registering slow growth, or no growth at all. While several factors throughout the life cycle of a startup can be perceived as barriers to their growth, ultimately their ability to adapt and innovate in new and dynamic environments assumes a key role in the survival and prosperity of these organizations (Heirman & Clarysse, 2004; Zahra *et al.*, 2006).

2.2 Startup development stages

Understanding the diverse development stages of a startup is of great importance, as each stage in a startup's lifecycle presents different challenges to the organization, which the startup will have to address in order to assure its survival and move on to the following stages of development. Over the years, several frameworks have been proposed concerning the development stages of startups. While

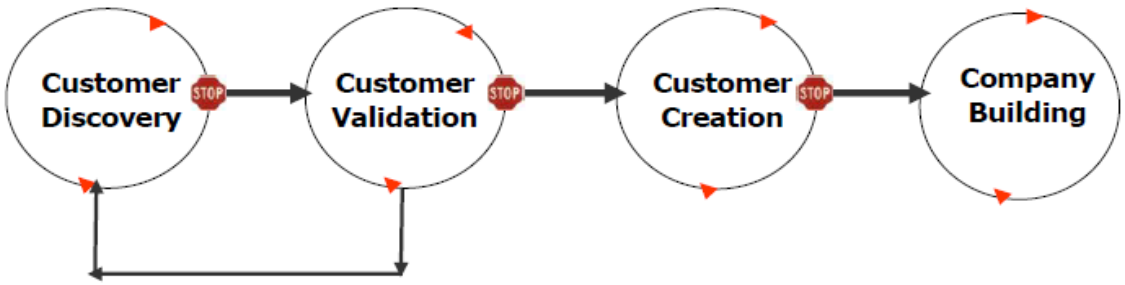
each framework might allow one to get some insights about the situation of a startup and to draw some conclusions from it, these stages do not provide information about which aspects should be improved in order for startups to develop further sustainable growth (Mota *et al.*, 2016). In this research it will compared three popular frameworks, where we aim to see how each author's perspective about the development stages of a startup differs from one another. The proposed frameworks are the Customer Development Model by Steve Blank (2005), the Marmer Stages, proposed by Marmer *et al.* (2011), and the framework proposed by Ash Maurya (2012).

2.2.1 Customer Development model

The Customer Development model, proposed by Steve Blank in his book "The Four Steps to the Epiphany" (2005), and later complemented in "The Startup Owner's Manual" (Blank & Dorf, 2012), is an iterative model designed to describe a startup's lifecycle, through four developmental stages, which focus on understanding the customer's problems and needs in order to develop a replicable sales model, to create and drive end user demand, and to grow the company based on the customers' feedback.

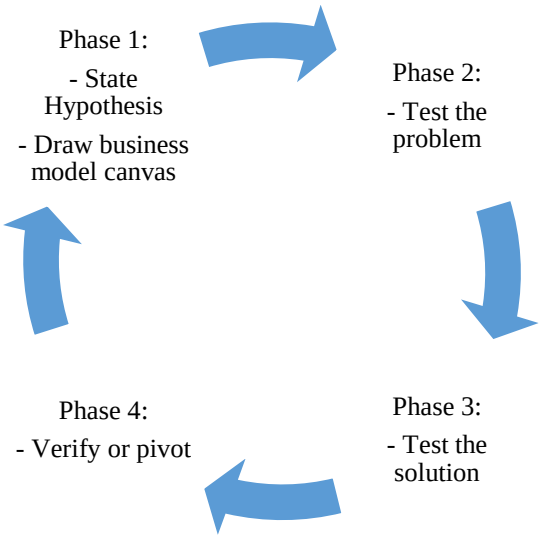
This model, depicted in the Figure 2.2, is comprehended by four iterative steps: Customer Discovery, Customer Validation, Customer Creation, and Company Building. In this methodology, a startup shall keep iterating through each step until it achieves "escaping velocity", i.e., until it generates enough success to carry the organization out into the next step.

Figure 2.2 – Customer Development Model (Blank, 2005)



» ***Customer Discovery:*** Customer discovery represents the first step in Blank's framework. The customer discovery process searches for a problem/solution fit, i.e., to find out whether the problem, product and customer hypotheses in the business model are correct, and to determine whether the startup's value proposition (product, pricing, features, and other components) matches the customer segment it plans to target. In order to achieve this, startups should learn about customer's high-value problems, determine what problems will their product aim to solve, and understand specifically who will be their customers (who has the power to make or influence the buying decision) and their end-users (who will effectively use the product).

Figure 2.3 – Customer Discovery Phases (adapted from: Blank & Dorf, 2012)



As illustrated in Figure 2.3, the customer discovery step is composed by four phases. In the first phase, the founder's vision is deconstructed into the nine blocks of the business model canvas, and then hypotheses' propositions are made concerning each block, as well as experiments to test the hypotheses. In the next phase, the startup conducts experiments to test the "problem" hypotheses. This assessment is conducted by testing most of the elements of the previously proposed business model, with the purpose of acquiring deep understanding about the customer's actual problems, and to use their feedback to turn the hypotheses into facts. On the third phase, the founders present a value proposition to address the problem, and proceed to validate the results by comparison with the results obtained earlier. Finally, on the fourth stage the results from the experiments are assessed, and the startup must decide if the results obtained can assure whether a proper value proposition has been achieved, or if additional learning of the customer's problem is required to develop an appropriate problem/solution fit.

» ***Customer Validation:*** Following the customer discovery phase, customer validation comes as the second step in Blank's framework, in which it is determined whether the previously iterated business model is repeatable and scalable. During the customer validation phase the organization tests the business model's ability to scale (i.e. product, customer acquisition, pricing and channel activities) in a larger sample of customers, using more rigorous tests than in the customer discovery phase. Only when a repeatable sized group of customers with a repeatable sales process that yields a profitable business model is properly identified and validated can a startup move to the next phase.

» ***Customer Creation:*** After completing the customer discovery and customer validation phases, and successfully develop a repeatable and scalable business model, the startup moves to the customer creation phase, where its goal will be to build up on the initial success and sales of the

business model, in order to create end-user demand, and to turn that demand into sales for the organization. Alongside the scaling in sales, this stage is also characterized by an increase in the investment in marketing, as well as an overall further refinement of the business activities.

» ***Company Building:*** The fourth and final stage of the customer development model is represented by the company building phase, in which following the search for a repeatable and scalable business model, and the consequent successful business scaling verified in the previous stage, the organization transitions from a startup to company focused on executing the validated business model. At this stage several changes happen inside the organization, mainly at a foundational structure side, with the establishment of a formal, and structured departmental frame, alongside with the hiring of experienced executives focused on scaling the company.

2.2.2 Ash Maurya's Development Stages

Influenced by Blank's customer development model, and by Eric Ries's lean startup methodology (2011), Maurya proposed in his book "Running Lean" (2012) a rather straightforward approach to describe the different development stages of startups. As depicted in Figure 2.5, in his framework Maurya has identified three different stages in the development of a startup: Problem/Solution Fit, Product/Market Fit, and Scale.

Figure 2.4 – Ash Maurya's Startup Development Stages (Maurya, 2012)

» ***Problem/Solution Fit:*** The first stage of Maurya's framework, which shares many similarities with Blank's "customer discovery" phase, is about validating the problem/solution fit. The main question throughout this stage is: "Do I have a problem worth solving?" According to the author, a problem worth solving is defined by being something that customers want, as well as for being feasible and viable. Thus, the focus of startups throughout this stage centers on learning, and on applying the acquired insights about the problem to pivot the business model hypotheses. In order to validate the problem/solution fit, the problem is decoupled from the solution, testable hypothesis are formulated, and afterwards customer interviews are conducted, in order assess if the problem has been comprehended, and if the problem is worth solving before start building

a solution. From there, startups derive a minimum viable product (MVP) to address the set of problems determined before.

» ***Product/Market Fit:*** Following the analysis to the problem, and the development of a minimum viable product, startups enter the second stage in their development, the product/market fit, in which they start the process of learning from customers and testing how well their solution solves the problem. The main question throughout this stage is: "Have I built something people want?" Similarly to the problem/solution fit stage, the focus of startups during this stage revolves around validating learning, and pivoting. Throughout the course of this development stage, the target is creating a solution that can satisfy the market. To achieve that, the first step is defining a metric to measure product/market fit, and then systematically iterate the solution until this stage's goal is accomplished. According to the author, during this stage startups should focus on achieving retention, i.e. repeated use of the product over a time period. The use of an appropriate metric is an effective way to measure if the organization is building something customers want, hence Maurya proposes that startups should continue iterating their solution until they reach a retention rate of 40% of its customers. Before moving on to the scaling stage, startups should also get paying customers, as a form of validation of the product, and pass the Sean Elis test, which consists in a survey to customers, where they are asked on how would they feel if they could no longer use the product, and where Ellis identified that if over 40% of the users replied that they would be very disappointed without the product, there would be a great chance that a sustainable, scalable customer acquisition growth could be built on that product (Ellis, 2009).

» ***Scale:*** After the product/market fit stage, startups have reached an important milestone in their lifecycle, as they enter into their last development stage, the scaling stage. The key question for this stage is: "How do I accelerate growth?" Although Maurya does not provide many insights concerning this stage, it is referred by the author that startup's priority throughout this stage shifts from the core product features towards customer acquisition and referral. This shift on startups focus is in line with their new goals, as during this stage, rather than validating learning and pivoting the business model, startups aim to accelerate growth and optimize the previously developed business plan. Finally, this stage is also defined by Maurya as being the ideal time to raise funding, because only after product/market fit is reached, are the organization's and investor's goals aligned towards scaling the business.

2.2.3 Marmer Development Stages

Loosely based on Blank's Customer Development model, Max Marmer proposed a startup's development stages framework in his work in "Startup Genome Report" (Marmer *et al.*, 2011), named Marmer Stages. This model explains the startup lifecycle by describing how startups evolve through stages of development, and by characterizing the different set of milestones, challenges and metrics of each stage. Although Marmer's model was built on Blank's work, both frameworks differ in some aspects, with the most noticeable difference being that the Marmer stages are product centric rather than company centric.

As illustrated in Figure 2.4, Marmer defined the startup lifecycle as being composed by six stages of development: Discovery, Validation, Efficiency, Scale, Profit Maximization, and Renewal/Decline.

Figure 2.5 – Marmer's Development Stages (adapted from: Marmer et al., 2011)

» ***Discovery:*** The discovery stage represents that first stage in Marmer's framework. Similarly to the customer discovery phase in Blank's development phases, during this stage startups aim to validate whether they are solving a meaningful problem and whether anybody would hypothetically show interest in their solution. During this stage the founding team is formed, customer interviews are conducted in order to find a value proposition, minimally viable products are created, the startup joins an incubator or an accelerator, achieves its first financing round, usually through family and friends, with an estimated round size of 10-50k dollars, and its first mentors and advisors join the team. This stage typically lasts an average of 5-7 months.

» ***Validation:*** Following the discovery stage, in which startups find a value proposition, comes the validation phase, where startups look to get early validation that people are interested in their product through the exchange of money or attention, thus validating the value proposition found previously. Throughout validation, startups refine their core features, initial user growth is registered, metrics and analytics are implemented, achieve to get seed funding, with an estimated round size of 100k-1.5M dollars, hire their first key employees, pivot their business model (if necessary), get their first paying customers, and succeed in finding a proper product market fit. This stage generally has an average duration of 3-7 months.

» ***Efficiency:*** The third phase of Marmer development stages, the efficiency stage, is characterized for the refinement of the startup's business model and for the improvement of the efficiency of the customer acquisition process, with the objective of preparing the startup for the scaling stage

that will follow. In that sense, the events that take place during this stage include value proposition refinement, user experience overhauling, conversion funnel optimization, viral growth accomplished, and repeatable sales process and/or scalable customer acquisition channels discovery. No funding round takes place during this stage, as it is recommended to wait until the next stage before raising more funds. The efficiency stage has an average duration of 5-6 months.

» ***Scale:*** After the conclusion of the previous stage, in which startups refine their business model and prepare themselves for scaling its businesses, comes the scaling stage, where startups try to drive a very steady growth in their business, by achieving a massive customer acquisition. To sustain such growth at a business level, this stage is also defined by a series A funding round, with an estimated round size of 1.5M-7M dollars, back-end scalability improvements, first executive hires, process implementation, as well as establishment of departments. This stage has a comprehended duration of approximately 7-9 months.

» ***Profit Maximization:*** Following the business scaling verified throughout the previous stage, this next step in the startup lifecycle is defined by an increase in business, and a maximization of profits, while growing and being funded by venture capitalists. During this stage the customer acquisition process continues, massive funding rounds are undertaken, and production and operations keep expanding.

» ***Renewal/Decline:*** The renewal/decline stage marks the final stage in the development phases of a startup. During this stage startups are faced with the reality of their success or failure, and decide on their expansion, if the startup succeeds in renewing their products and/or services, or their market exit, if the startup fails. In the event that the startup succeeds, the potential outcomes of this stage are a business expansion, an acquisition of other companies, or an IPO. In case the startup fails, this stage will be defined by a business decline, and eventually death.

2.2.4 Framework Comparison of Startup Development Stages

Table 2.1 provides an overview and compares the perspectives of each author about the development stages of startups. While the three frameworks previously presented do not entirely coincide regarding the development stages that they cover, as Marmer's model goes beyond the scaling stage in which both Blank and Maurya conclude their frameworks, they share several traits between each other, only deviating slightly in aspects such as the duration and the events covered by each stage.

It's interesting to observe that, while the three models previously studied share great similarity, the distinct perspective of each author with regard to the proposed startup development stages is quite

perceptible, with Steve Blank's framework being company centric , the Marmer stages being product centric, and finally Maurya's development stages being a mix of product and company centric.

Table 2.1 – Comparison between Startup Development Stages Frameworks (adapted from: Mota et al., 2016)

Steve Blank	Max Marmer	Ash Maurya
Customer Discovery Purpose: Find out whether the problem, product and customer hypotheses in the business model are correct, and determine whether the startup's value proposition matches the customer segment it plans to target. Events: Learn about customer's high-value problems; Determine what problems will the product aim to solve; Understand who the potential users are.	*Discovery (5-7 months)* Purpose: Validate whether the startups are solving a meaningful problem and whether anybody would hypothetically show interest in their solution. Events: Founding team is formed; Customer interviews are conducted; Value proposition is found; Minimally viable products are created; Team joins an accelerator or incubator; Friends and Family financing round; First mentors & advisors come aboard.	*Problem/Solution Fit* Purpose: Test the problem in order to validate whether the startups have a problem worth being solved in the first place, before investing effort building a solution. Events: Learn about customer's problems; Conduct customer interviews; Determine if the problem is worth solving; Find a product/solution fit; Build a minimum viable product;
Customer Validation Purpose: Determine whether the previously iterated business model is repeatable and scalable, and able to deliver the volume of customers required to build a profitable company. Events: Develop a sales roadmap and marketing strategies; Define a positioning statement; Find a group of repeatable customers with a repeatable sales process.	*Validation (3-5 months)* Purpose: Get early validation that people are interested in their product through the exchange of money or attention. Events: Refinement of core features; Initial user growth; Metrics and analytics implementation; Seed funding; First key hires; Pivots (if necessary); First paying customers; Product market fit.	*Product/Market Fit* Purpose: Learn from customers and test how well does the startup's solution solves the problem. Events: Define metrics to measure the product/market fit; Surveys are conducted to customers; Refinement of the solution; First paying customers; Retention of customers is achieved.
Customer Creation Purpose: Build up on the initial success and sales of the business model, to create end-user demand, and turn that demand into sales. Events: Create end-user demand and drive that demand into the startup's sales channels; Heavy investment in marketing, and expansion of marketing activities.	*Efficiency (5-6 months)* Purpose: Startups refining their business model and improve the efficiency of their customer acquisition process. Startups should be able to efficiently acquire customers in order to avoid scaling with a leaky bucket. Events: Value proposition refined; User experienced overhauled; Conversion funnel optimized; Viral growth achieved; Repeatable sales process and/or scalable customer acquisition channels found.	*Scale* Purpose: Startups priority throughout this stage shifts from the core product features towards customer acquisition and referral. Startups aim to accelerate growth and optimize the previously developed business plan. Events: Scaling of the company and operations; Funding raise; Optimization of the business model; Quantitative metrics and split testing play a larger role in the validation process.
Company Building Purpose: Focus on the execution of the business model, and maximization of profits.	*Scale (7-9 months)* Purpose: Startups try to drive a very steady growth in their business.	-

Table 2.1 – Comparison between Startup Development Stages Frameworks (adapted from: Mota et al., 2016) [Continuation]

Company Building Events: Transition from informal learning and discovery-oriented teams to formal departments; Focus on building departments and scaling the company.	*Scale (7-9 months)* Events: Large A round; Massive customer acquisition; Back-end scalability improvements; First executive hires; Process implementation; Establishment of departments.	-
-	*Profit Maximization* Purpose: Increase in business, and a maximization of profits, while growing and being funded by venture capitalists. Events: Continued customer acquisition; Massive funding rounds; Expansion of production and operations.	-
-	*Renewal/Decline* Purpose: Startups are faced with the reality of their success or failure, and decide on their expansion, or exit. Events: Constant renewing of the products and/or services; Business expansion; Acquisition of other companies; IPO; or if the startup fails to renew their products/service lifecycle: decline and death.	-

2.3 Types of Web Startups

To better define startups, it's important to clearly outline the different types of startups, and respective unique characteristics. Given that currently the most expressive type of startups are digital startups, the following presented classification is directed at startups focused on developing innovative digital technology. In the Startup Genome report (Marmer *et al.*, 2011), the author differentiates four different types of Internet startups: the automizer (type 1); the social transformer (type 1N); the integrator (type 2); and the challenger (type 3).

» ***Type 1 – The Automizer:*** This type of startups is typically characterized for being consumer focused, product centric, executing faster than other startups, and for often automating a manual process. Unlike most traditional companies, these startups don't depend on a sales department to acquire customers, having instead a self-service customer acquisition strategy, where

customers buy the product/service with very little to no human interaction with the startups, thereby allowing startups to have a lower overhead, and consequently a lower cash burn rate (Compass, 2013a). More information about this type of startups is presented in Table 2.2.

Product types: Search, Payments, Games, File storage, Mobile, Media, Travel, and E-Commerce.

Examples: Google, Dropbox, Eventbrite, Slideshare, Mint, Groupon, Pandora, Kickstarter, Zynga, Playdom, Modcloth, Chegg, Powerset, Box.net, Basecamp, Hipmunk, OpenTable, etc.

Table 2.2 – Summary of Type 1 Characteristics (adapted from: Marmer et al., 2011)

Avg. # of Months to Move Through Marmer Stages	***Primary Service Providers Hired***	***Type of Founding Team that is Most Successful***	***Market Size Estimation (Efficiency & Scale Stages)***	***Primary Motivation***
21	User Experience, Backend Development	Technical Heavy Team	$11 Billion	Change the World
Market Type	***Avg. Team Size (Scale Stage)***	***Avg. Funds Raised (Scale Stage)***	***Avg. User Growth in Last Month***	***Percentage of User Base is Paid***
Existing Market (Better or Cheaper)	20	$600.000	14%	8%

» ***Type 1N – The Social Transformer:*** While not completely distinct from Automizer startups, as they share many characteristics with this type of organizations, Social Transformers can be seen as a subset of the first type of startups. Like type 1 startups, these organizations are commonly characterized for having a self-service customer acquisition strategy, and a product/service that benefits from network effects. Due to the social nature of the offered solution, these startups' success is largely defined by its user growth. While achieving critical mass of users might come as challenging, once it is achieved startups have the potential to have runaway user growth in markets where typically "winner takes all". Social Transformers are often characterized for creating new ways for people to interact (Compass, 2013a). More information about this type of startups is presented in Table 2.3.

Product types: Marketplaces, Social Networks, Social Games, Media Sharing/Hosting, Communication Platforms, User-Generated Content, Payment Processing.

Examples: Ebay, OkCupid, Skype, Airbnb, Craiglist, Etsy, IMVU, Flickr, LinkedIn, Yelp, Aardvark, Facebook, Twitter, Foursquare, YouTube, Dailybooth, Mechanical Turk, MyYearbook, Prosper, PayPal, Quora, Hunch, etc.

Table 2.3 – Summary of Type 1N Startups Characteristics (adapted from: Marmer et al., 2011)

Avg. # of Months to Move Through Marmer Stages	***Primary Service Providers Hired***	***Type of Founding Team that is Most Successful***	***Market Size Estimation (Efficiency & Scale Stages)***	***Primary Motivation***
32	User Experience, Backend Development	Balanced Team	$13 Billion	Change the World
Market Type	***Avg. Team Size (Scale Stage)***	***Avg. Funds Raised (Scale Stage)***	***Avg. User Growth in Last Month***	***Percentage of User Base is Paid***
New Market	28	$2.300.000	33%	10%

» ***Type 2 – The Integrator:*** Integrator startups are characterized for being in a middle term concerning their customer relationship strategy, relying on marketing to lure customers, but often needing inside sales reps to close sales. These organizations are product centric, focusing their solutions to SMEs, typically tackling already existing smaller markets, and look for early monetization. Integrators' offered products usually have a high "problem/solution" certainty, often making existing business processes more effective by taking innovations from consumer Internet and rebuilding for smaller enterprises (Compass, 2013b). More information about this type of startups is presented in Table 2.4.

Product types: E-commerce, Media Automation, Business Automation, Human Resources Management.

Examples: PBworks, Uservoice, Kissmetrics, Mixpanel, Dimdim, HubSpot, Marketo Xignite, Zendesk, GetSatisfaction, Flowtown, etc.

Table 2.4 – Summary of Type 2 Startups Characteristics (adapted from: Marmer et al., 2011)

Avg. # of Months to Move Through Marmer Stages	***Primary Service Providers Hired***	***Type of Founding Team that is Most Successful***	***Market Size Estimation (Efficiency & Scale Stages)***	***Primary Motivation***
16	Sales, Business Development, PR	Balanced Team	$7 Billion	Build a Great Product
Market Type	*Avg. Team Size (Scale Stage)*	*Avg. Funds Raised (Scale Stage)*	*Avg. User Growth in Last Month*	*Percentage of User Base is Paid*
Existing Market (Cheaper)	11	$700.000	11%	20%

» ***Type 3 – The Challenger*:** Type 3 startups are defined for centering their business around enterprise sales. Through repeatable sales processes, Challenger startups focus on complex and often rigid markets, that although difficult to penetrate, are highly rewarding, as they generate a very high revenue per customer, which enables them to be very profitable with a small number of customers, but also highly dependent from their customers. Its noteworthy mention that the market size of Challengers is on average 6-7 times larger than others from other startup types. While this type of startups typically can close its first sales rather easily if its founders have a solid network of business contacts, they often stall out once they start trying to sell their product to people outside their social circle (Compass, 2013c). More information about this type of startups is presented in Table 2.5.

Product type: ERP, Business Information Systems, Security.

Examples: Oracle, Salesforce, MySQL, Redhat, Jive, Ariba, Rapleaf, Involver, BazaarVoice, Atlassian, BuddyMedia, Palantir, Netsuite, Passkey, Workday, Apptio, Zuora, Cloudera, Splunk, SuccessFactor, Yammer, Postini, etc.

Table 2.5 – Summary of Type 3 Startups Characteristics (adapted from: Marmer et al., 2011)

Avg. # of Months to Move Through Marmer Stages	***Primary Service Providers Hired***	***Type of Founding Team that is Most Successful***	***Market Size Estimation (Efficiency & Scale Stages)***	***Primary Motivation***
64	Sales, Business Development, PR	Business Heavy Team	$65 Billion	Build a Great Product
Market Type	***Avg. Team Size (Scale Stage)***	***Avg. Funds Raised (Scale Stage)***	***Avg. User Growth in Last Month***	***Percentage of User Base is Paid***
Existing Market (Better) or New Market	46	$4.100.000	36%	27%

Chapter 3

Startup Ecosystems & Ecosystem Actors

The present section intends to provide to the reader an analysis to the concept of startup ecosystem, followed by an overview to the top startup ecosystems in the world, and to the main startup ecosystems in Europe. Finally, the main actors in startup ecosystems will be identified, and consequently overviewed concerning their characteristics and role within the ecosystem.

3.1 Defining Startup Ecosystems

While several internal factors contribute to the success of startups, behind the scene of innovative businesses there exists a multitude of dynamic processes, resources and entities focused on entrepreneurship, that interact with the purpose of making startups thrive and of boosting the entrepreneurial performance of a region.

Such framework, denominated of "ecosystem", was first coined by James Moore, who claimed that successful business can't evolve in vacuum, necessitating to attract resources of all types, such as capital, partners, suppliers and customers to create cooperative networks, where companies can work jointly and competitively to support new products, satisfy customer needs, and eventually incorporate the next round of innovations (Moore, 1993). A startup ecosystem, also commonly named as "entrepreneurial ecosystem" (Mason & Brown, 2014), "entrepreneurial system" (Spilling, 1996; Neck *et al.*, 2004), "entrepreneurial environment" (Gnyawali & Fogel, 1994; Fogel, 2001), or "local entrepreneurial climate" (Roxas *et al.*, 2007), consists on the combination of factors that promote the entrepreneurship spirit, assist and support the startup process, and play a role in the development of entrepreneurship (Gnyawali & Fogel, 1994). Although several authors presented slightly different definitions, most concepts converge into the startup ecosystem's definition presented by Mason and Brown in their work about entrepreneurship ecosystems:

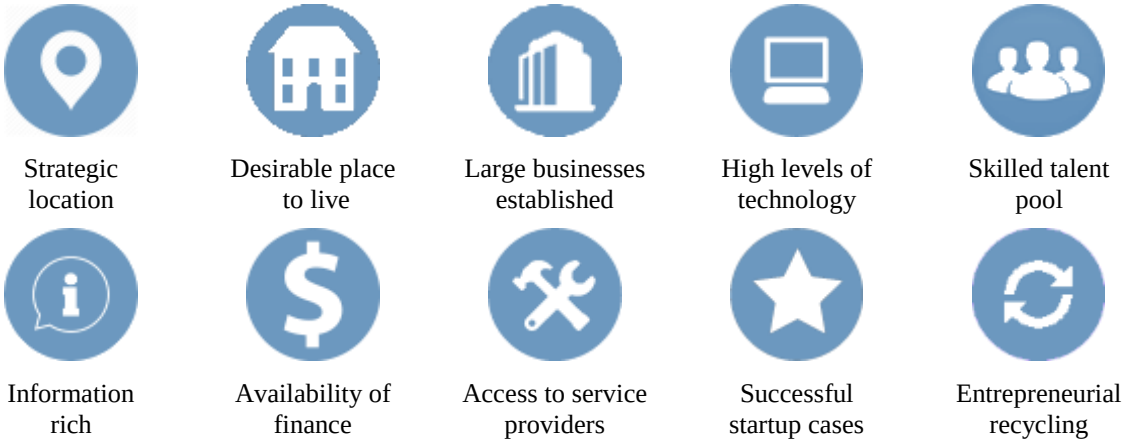
"A set of interconnected entrepreneurial actors (both potential and existing), entrepreneurial organizations (e.g. firms, venture capitalists, business angels, banks), institutions (universities, public

sector agencies, financial bodies) and entrepreneurial processes (e.g. the business birth rate, numbers of high growth firms, levels of 'blockbuster entrepreneurship', number of serial entrepreneurs, degree of sell-out mentality within firms and levels of entrepreneurial ambition) which formally and informally coalesce to connect, mediate and govern the performance within the local entrepreneurial environment." (Mason & Brown, 2014, p. 5)

From the above presented definition it's possible to infer that a startup ecosystem is a structure composed by entrepreneurial actors, institutions, and processes, in a specific geographic location, where the entities interact through formal and informal connections, with the purpose of supporting the creation and development of startup companies.

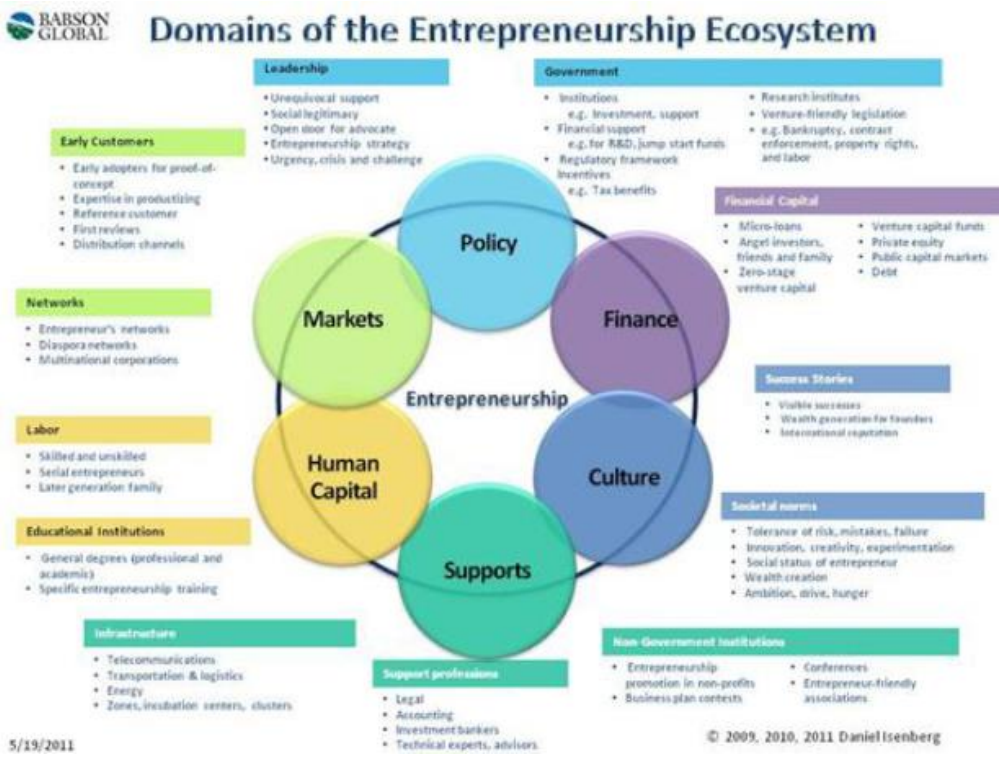
Startup ecosystems can be industry specific, or may evolve from a single industry to several industries, they may be bounded but not limited to a geographic scale (e.g. campus, city, region), and they are not related to the particular size of its city. These ecosystems generally emerge in locations that have place-specific assets (e.g. Oxford's strategic location close to London and to the airport, as well as its university and its unique cluster of U.K. government laboratories), being typically desirable places to live, with at least one or several 'large established businesses', generally associated to high levels of technology, that serve as 'talent magnets' to the ecosystem, attracting skilled workers to the area, and thus contributing to develop their regional ecosystems. Startup ecosystems are also characterized for being 'information rich' – individuals can access information about new buyer needs, new and evolving technologies, component and machine availability, etc. –, having availability of finance and the presence of service providers – lawyers, accountants recruitment agencies, and business consultants –, living under the 'law of small numbers', i.e. a small number of entrepreneurial successes can be responsible for igniting an entire ecosystem and greatly benefit the entrepreneurial community, and also for having its growth driven by a process of 'entrepreneurial recycling', in which former successful entrepreneurs remain involved in the cluster, reinvesting their wealth and/or experience to create more entrepreneurial activity (Isenberg, 2011a; Mason & Brown, 2014). Figure 3.1 provides an illustration of the generic characteristics of startup ecosystems.

Figure 3.1 – Generic characteristics of startup ecosystems



While the dynamic knowledge and competence activities undertaken within each ecosystem are unique, as they result from the highly complex and idiosyncratic elements' interaction in each entrepreneurial environment, Daniel Isenberg proposed a model which consolidated those elements into six generic domains. Those domains, as depicted in Figure 3.2, are composed by: a conductive culture, enabling policies and leadership, availability of appropriate finance, quality human capital, venture friendly markets for products, and a range of institutional supports.

Figure 3.2 – Isenberg's model of an entrepreneurship ecosystem (adapted from: Isenberg, 2011a)



A conclusion possible to draw from this model is that it lacks generic causal paths, as they would be of limited value, due to the fact that, as mentioned before, each ecosystem results from the highly complex and distinctive elements' interaction within each entrepreneurial environment. That implies that, while certain ecosystems might be seen as references within the entrepreneurial community, societies have no choice but to develop their own startup ecosystems instead of trying to emulate other success cases, as growing an entrepreneurial environment requires time, effort, and resources, as well as experimentation and learning, until the right unique configurations evolve. (Isenberg, 2011a; Isenberg, 2011b)

As previously acknowledged, the interaction between the diverse elements within the entrepreneurial community play a vital role to the success of a startup ecosystem. From a network perspective, an entrepreneurial system can be defined as an array of nodes, such as entrepreneurs and organizations, linked by a set of social relationships of a specific type, comprising formal and informal networks between the several actors of the ecosystem, with the aim of facilitating exchange of resources and information (Laumann *et al.*, 1978; Carlson & Stankiewicz; 1991; Neck *et al.*, 2004). According to

Motoyama and Watkins' research article for the Kauffman Foundation (Motoyama & Watkins, 2014), there are four types of connections enabled by the ecosystem: connections between entrepreneurs; connections between support organizations; connections between entrepreneurs and key support organizations; and miscellaneous support connections.

- ***Connections between entrepreneurs:*** Entrepreneur-to-entrepreneur connections are seen as extremely valuable. These interactions not only allow entrepreneurs to learn from its peers, but it also create a sense of community among all parties involved, in which entrepreneurs support each other, while at the same time constantly observe and provide feedback on each other's progress. These connections assume a particularly crucial role in the relationship between novice and experienced entrepreneurs, as it allows the more experienced ones to serve as mentors, and to 'give back' to the community by sharing experience with the newer generations of entrepreneurs.

- ***Connections between support organizations:*** The connections between support organizations are identified as being of the utmost importance to success of a startup ecosystem. Unlike entrepreneur-to-entrepreneur connections, where exists an informal relationship between peers, the interactions between support organizations are highly formal, collaborating in strategic and functional way. With the proliferation of support organizations there is concern over redundancies on the support being provided to startups, thus emphasizing the importance of a close collaboration between organizations. These interactions manifest themselves through several different ways, with the organizations attending or jointly organizing events with its peers, board members being shared through organizations, with the purpose of aligning strategies of each organization and avoid startup support overlapping, etc.

- ***Connections between entrepreneurs and key support organizations:*** These connections relate to the interactions between entrepreneurs and support organizations, and to the primary support provided to entrepreneurs. Support can be classified into two different types: 1) broad support, being composed by mentoring, finding people, connecting, and financial; 2) functional support, comprised by more specific types of support such as business model refinement, pitch practice to investors and customers, due diligence, and incubation. Among all services provided by support organizations, mentoring has been identified as their primary service.

- ***Miscellaneous support connections:*** This last type of connections relates to those interactions that go beyond entrepreneurs and support organizations to include other miscellaneous entities in the ecosystem. These connections is mainly comprised by periodic entrepreneurship-oriented events, and other miscellaneous organizations. The ultimate goal of these connections is to connect entrepreneurs, that otherwise might not meet, mostly through open events where entrepreneurs have the opportunity to interact with its peers.

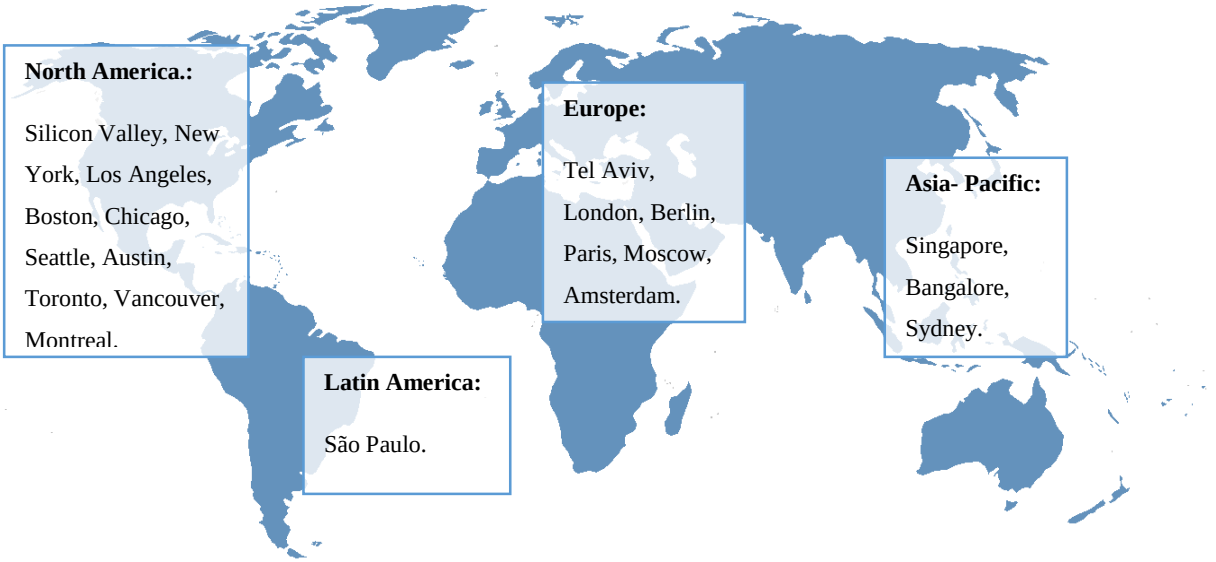
Recently, the concept of startup ecosystem has been receiving greater attention from governments, through the intensification of initiates and policies focused on the promotion of entrepreneurship (Hospers, 2006; OECD, 2010; Ernst & Young, 2011). This increasingly greater focus in creating more favorable environments to startups is supported by the fact that entrepreneurship has been recognized as having an important impact on the global economy, being acknowledge for its importance concerning the creation of innovation, driving productivity growth, promoting business internationalization, and most prominently for its role in job creation, both directly, through job creation in startups, as well as indirectly, through the growth of others firms in the region (OECD, 2010; Mason & Brown, 2014; Herrmann *et al.*, 2015).

3.2 Global Startup Ecosystems

While there exists several startup ecosystems spread throughout the world, working in the most diverse industries, when one thinks about entrepreneurial environments, one ecosystem stands out from the others: Silicon Valley. Silicon Valley is undoubtedly the most successful and high-profile startup ecosystem, being reputed as the global tech mecca (Neck *et al.*, 2004; Herrmann *et al.*, 2015). Since its transformation in the 1950s from an agricultural zone into the birthplace of the semiconductor industry, Silicon Valley has originated several companies who have pioneered a wide range of technology-based industries (Saxenian, 2001), having been a case of study ever since, with researchers and policy-makers from all over the world trying to understand how to replicate its success in their own regions (Neck *et al.*, 2004; Hospers, 2006). Despite all efforts, and while several attempts to emulate Silicon Valley have been undertaken (Isenberg, 2011a), almost every attempt has been unsuccessful (Neck *et al.*, 2004; Mason & Brown, 2014). However, an ecosystem does not need to become like Silicon Valley in order to be successful. In fact, there are several regions spread throughout the world, who managed to develop their ecosystems into successful environments for startups to thrive.

According to the Global Startup Ecosystem Ranking (Herrmann *et al.*, 2015), the startup ecosystem's top 20 is composed by the following: Silicon Valley (U.S.A.); New York (U.S.A.); Los Angeles (U.S.A); Boston (U.S.A.); Tel Aviv (Israel); London (U.K.); Chicago (U.S.A.); Seattle (U.S.A.); Berlin (Germany); Singapore (Republic of Singapore); Paris (France); Sao Paulo (Brazil); Moscow (Russia); Austin (U.S.A.); Bangalore (India); Sydney (Australia); Toronto (Canada); Vancouver (Canada); Amsterdam (Netherland); and Montreal (Canada).

Figure 3.3 – Top 20 Startup Ecosystems (adapted from: Herrmann et al., 2015)



As observed in Figure 3.3, where the startup ecosystem's top 20 ranking is depicted, North America leads with ten ecosystems, Europe contributes with six ecosystems, while Asia presents three ecosystem, and Latin America with only one ecosystem in the top 10. From this analysis it's possible to conclude that the predominant startup ecosystems are located mainly in North America and Europe, with the North Americans showing a higher entrepreneurial development than its European counterparts. This development is even more noticeable when analyzing the total exit volume in 2013 & 2014. As illustrated in Figure 3.4, Silicon Valley dominates the global scene with an astonishing 47.30% of the value of all startup exits in the top 20, while the North American ecosystems total 72% of the total exit volume, against the more modest 26.60% registered by the European ecosystems. However, by analyzing at the value volume evolution over the last three years, it is possible to claim that the global ecosystem landscape is maturing, with non-Silicon Valley ecosystems of the top 20 capturing 14% more of the exit value volume.

Looking at the relative growth rates of exit value based on a 2013-2014 two year moving average, depicted in Figure 3.5, one can see that while U.S.A.'s ecosystems registered a 46% growth in their exit values, its European counterparts showed a much more impressive growth, growing a 314% rate, whereas Latin America ecosystems grew 209%, Asia-Pacific grew 99%, and Canada showed no growth during the course of this time period. As for the exit value, it grew much faster in the top European ecosystems than in the top U.S.A ecosystems: 4.1x in Europe against 1.5x in the U.S.A., yet the exit values are still on average 82% higher in the U.S.A than in the European ecosystems.

Figure 3.4 – Total Exit Volume 2013 & 2014 (adapted from: Herrmann et al., 2015)

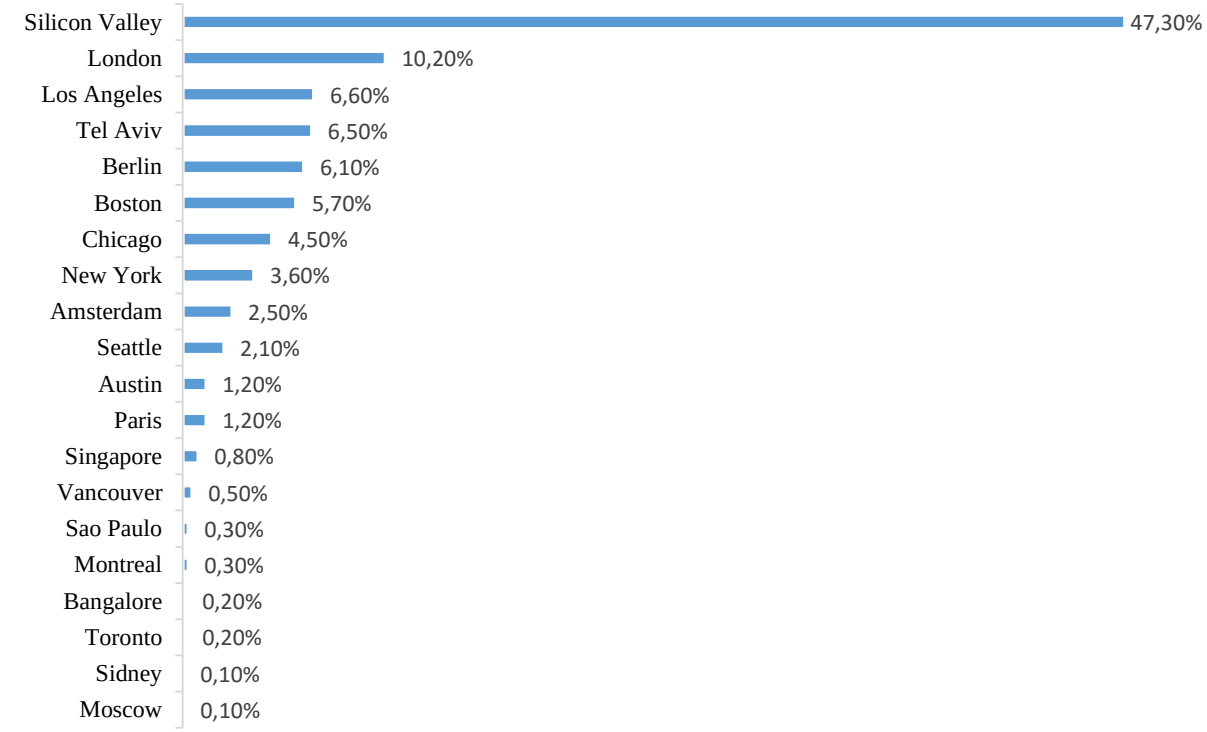
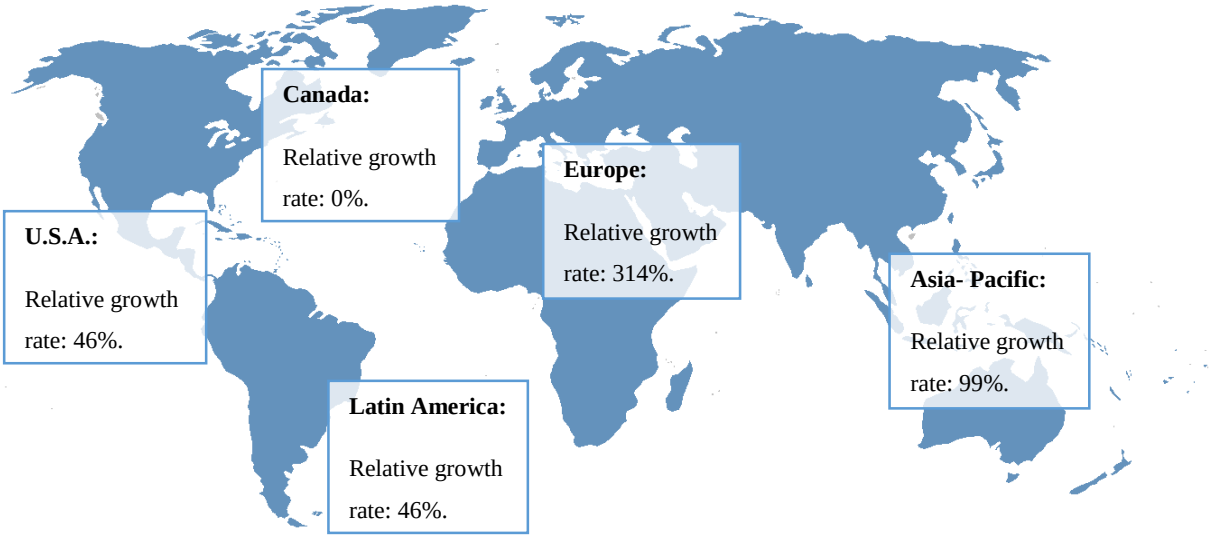


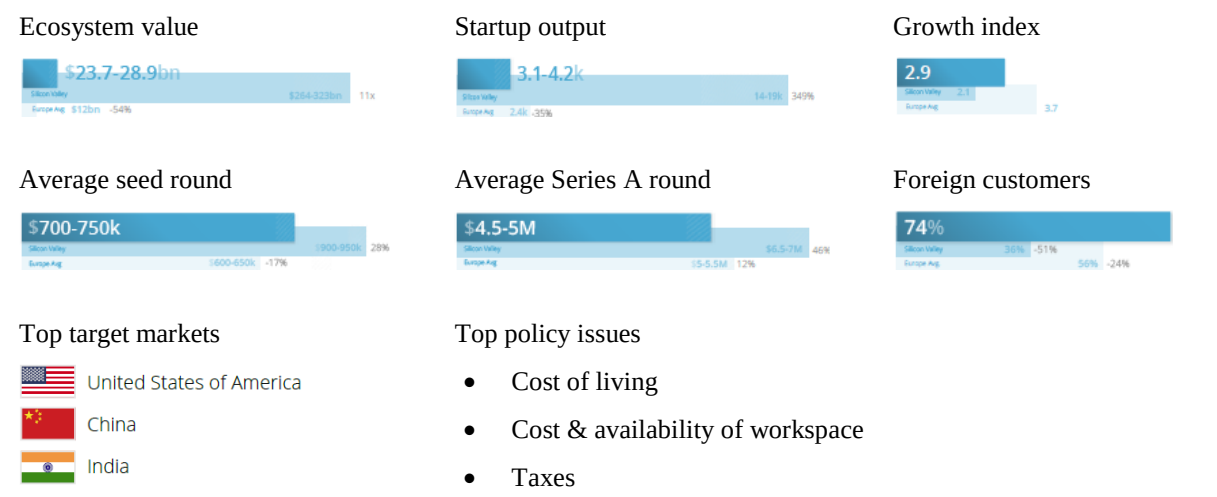
Figure 3.5 – Global relative growth rates of exit value (adapted from: Herrmann et al., 2015)



Taking a closer look at the European ecosystems in the startup ecosystem's top 10 ranking — Tel Aviv, London, and Berlin —, which will be discussed below, it comes as noteworthy to mention that Berlin was the ecosystem that grew the most, moving from 15th in 2013 to 9th in 2015, having become a rather important ecosystem in the global entrepreneurial landscape; Tel Aviv in the other hand has seen its rank drop in the last two years, having fallen from 2th to 5th; and finally London showed a slight improvement, moving one position in the ranking from 7th to 6th in 2015.

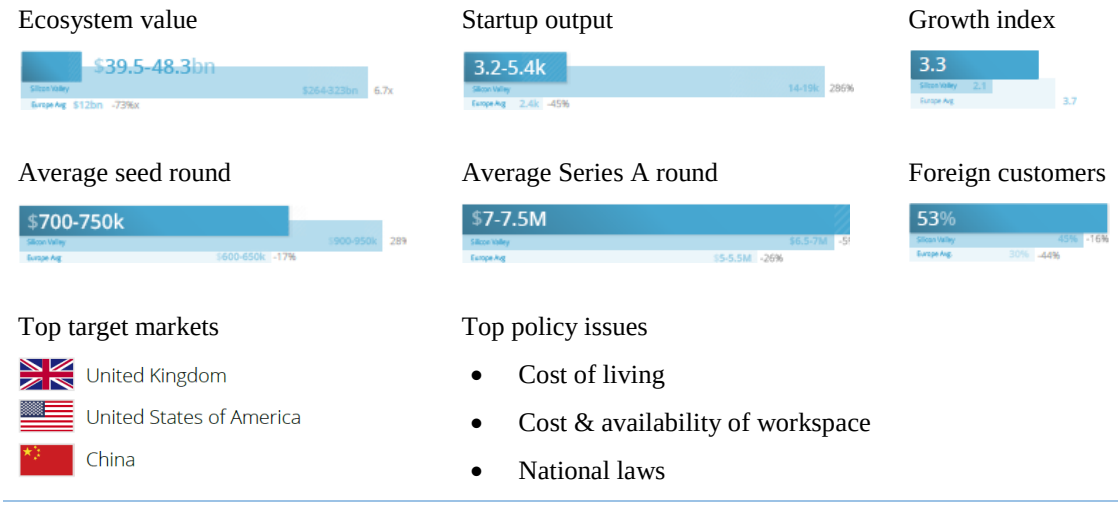
» ***Tel Aviv (Israel):*** This ecosystem, which dropped from 2th in 2013 to 5th in 2015, due in large part to improvements in the evaluation methodology which de-emphasized the metric of density of startups per capita, is a powerhouse in the global startup scene, being the second largest European ecosystem only behind London, as well as the third fastest growing ecosystem in the top 10, having the highest startup density in the world. Startups in Tel Aviv traditionally focused on enterprise IT, security, and networking technology, being often based on the technology developed by the Israeli army, however in recent years this ecosystem transitioned to far more diverse sectors, such as Ad-tech, e-Commerce, Big Data, SaaS, among others. While this ecosystem possesses some difficulties in attracting international talent, startups in Tel Aviv have had great success in reaching customers in the U.S.A., Europe, and Asia. Tel Aviv is expected to continue expanding, especially in looming sectors such as the Internet of Things, Big Data, and Bitcoin. More information on Tel Aviv's startup ecosystem is presented in Figure 3.6.

Figure 3.6 – Selected data on Tel Aviv's ecosystem (adapted from: Herrmann et al., 2015)



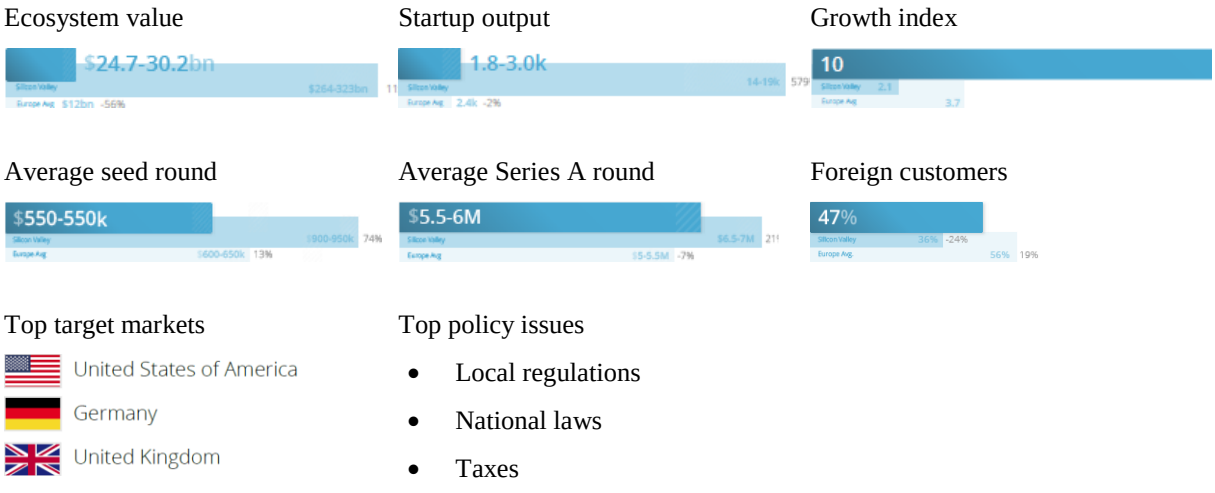
» ***London (U.K.):*** London, which moved one position in the startup ecosystem's top 20 ranking, from 7th in 2013 to 6th in 2015, is one of the most prominent ecosystems in the world, reporting the second fastest growth index in the top 10, and also being the fourth largest ecosystem in the world, and the biggest ecosystem in Europe, with this performance resulting from London's privileged location, being considered the cultural and business capital of Europe, but also from its solid funding landscape and its ambitious government initiatives. This ecosystem is also the most diverse in the world, with over 50% of foreign employees, although this value is explained by its sub-optimal hiring conditions, resulting from the costs of living, and from London's lack of entrepreneurial spirit. London specializes in various sectors, such as Media, Fashion, FinTech, and e-Commerce, and its main markets are U.K., U.S.A., and China. More information on London's startup ecosystem is presented in Figure 3.7.

Figure 3.7 – Selected data on London's ecosystem (adapted from: Herrmann et al., 2015)



» ***Berlin (Germany):*** Ranked 9th in 2015 from 15th in 2013, Berlin was the fastest growing ecosystem in this ranking, with its growth being justified by the explosion in VC investment, by the high profile IPOs valued in more than $6 billion of Rocket Internet and Zalando, and by the exponential growth in exit volume due to startups such as Sociomantic, Wunderlist, and Quandoo. This German ecosystem has as its main markets the U.S.A, U.K. and Germany, and traditionally it specialized in e-Commerce, Gaming, and Marketplaces, yet recently it has started to showing potential in other sectors such as SaaS, and Adtech. Though Berlin has been benefiting from a soaring inflow of international talent, mainly due to the low living cost and to the strong creative scene, its rigid regulatory investment environment, as well as its weak local exit market have been restraining this ecosystem's growth. More information on Berlin's startup ecosystem is presented in Figure 3.8.

Figure 3.8 – Selected data on Berlin's ecosystem (adapted from: Herrmann et al., 2015)



Concerning the remaining European ecosystems outside the top 10 ranking — Paris, Moscow and Amsterdam — Paris showed no variation since 2013, remaining in 11th, while Moscow improved its rank in one position, moving from 14th to 13th in 2015. As for Amsterdam, it has seen its efforts rewarded, debuting in this list in the 19th position. With regard to Lisbon, where this dissertation's research will be mainly conducted on, this entrepreneurial ecosystem is seen as a runner-up in the European entrepreneurship scene.

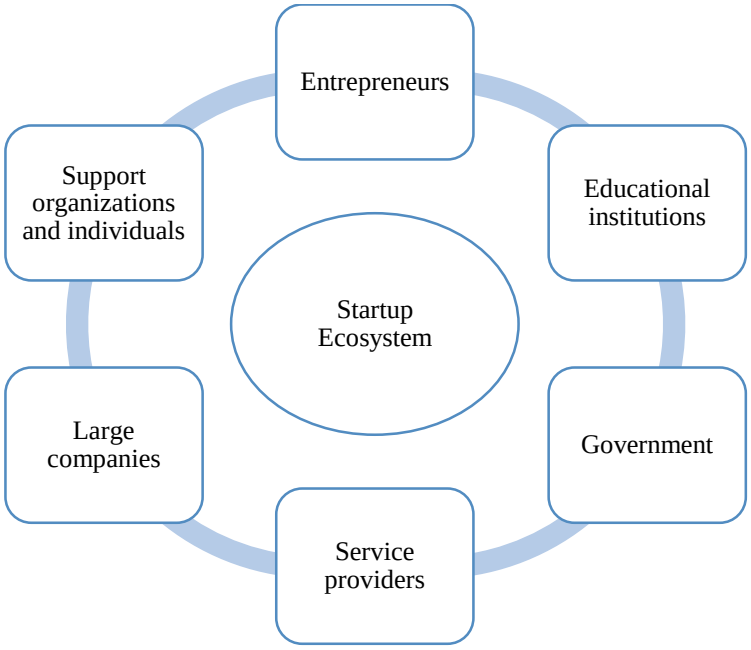
For the last few years Portugal's capital city, Lisbon, has been undertaking strategies to promote entrepreneurship and spread innovation among SMEs, to position the city as an Atlantic business hub and an Atlantic startup city, exploiting its geographical location as a gateway to the Americas, Africa and the EU. These efforts have being paying off for Lisbon, with the Portuguese city being awarded as the winner of the European Entrepreneurial Region for 2015, in addition to having witnessed the emerging of many promising startups lately, such as Uniplaces, Talkdesk, Unbabel, or Codacy, being nominated the host of Web Summit, one of the most important European technology events, for the years of 2016, 2017 and 2018, and being home of a soaring dynamic startup community, composed by startups in several sectors such as Software, SaaS, Fashion, e-Commerce, etc. (Spiegel, 2014; Commission of the Regions, 2014; Almeida, 2016).

3.3 Startup Ecosystem Actors

According to Mason & Brown (2014), a startup ecosystem can be described as a set of interconnected entrepreneurial actors, entrepreneurial organizations (e.g. firms, venture capitalists, business angels, banks), institutions (universities, public sector agencies, financial bodies), and entrepreneurial processes. These entities, which shall be called simply of ecosystem actors, have the main goal of providing assistance to entrepreneurs over the course of their development stages through the provision of added value holistic support in areas such as business advice, networking, mentoring, and finance (Miller & Bound, 2011; Roper & Hart, 2013). Hence, the interconnectivity between the several actors in the ecosystem is of the utmost importance, since the proper interaction among these entities may result in the emergence of the right conditions for a successful environment for startups to thrive and to boost the entrepreneurial performance of a region.

As depicted in Figure 3.9, startup ecosystems are composed by the following actors: Entrepreneurs; Support organizations and individuals; Government; Service providers; Large companies; and Educational institutions (Mota *et al.*, 2016).

Figure 3.9 – Startup ecosystem actors (adapted from: Mota et al., 2016)



» ***Entrepreneurs:*** People who identify an opportunity, and create an organization to exploit and pursue the opportunity. These persons undertake innovative activities and promote job creation and economic growth through the commercialization of the innovations (Bygrave & Hofer, 1991; Heirman & Clarysse, 2004; Johansson, 2010).

» ***Educational institutions:*** Institutions who possess the abilities to enable the initiation and promotion of the venture-creation process. These institutions, especially universities, are particularly important during the early development stages of startups, as they build capabilities and provide a diverse range resources, such as infrastructures, mentoring and support, that promote the development of young entrepreneurs and nascent startups. Universities are also a rich source of skilled people, possessing a large pool of diverse, talented people, as well as a source of innovative technological opportunities, with basic research being conducted in these institutions. However, despite being a source of high potential scientific discoveries, universities often possess weak capabilities for the development of commercial applications, thus explaining the reduced number of university-based spin-off firms. This actor's main contributions to the ecosystem are the scientific advancements that originate new businesses, and the skilled personnel that such institutions attract to the region (Rasmussen & Borch, 2010; Bathelt *et al.*, 2010; Mason & Brown, 2014).

» ***Government:*** Governments represent the political system that controls a region. Due to its inherent powers to create and enforce policies, governments can have a very influential role in the development of successful startup ecosystems. From a policy perspective, by implementing growth-oriented enterprise policies and incentives, governments can help to democratize the

entry of new entrepreneurs to the ecosystem. Such policy approach include fiscal policies (e.g. tax rates), public procurement policies, direct subsidy and insurance schemes, bureaucracy reduction, etc. Governments can also create and encourage entrepreneurship activity through other mechanisms, such as by the establishment of infrastructures and "innovation hubs" to attract early-stage startups, or by promoting network building and developing connections between the entrepreneurial actors. By supporting and financially fund such initiatives, governments can strengthen the entrepreneurial talent pool in those markets, and hence create a favorable environment for the creation and scale up of startups (Neck *et al.*, 2004; Isenberg, 2011a; Mason & Brown, 2014).

» ***Service Providers:*** Organizations that support startups on non-core activities that they are not prepared to deliver in-house. These entities, such as venture-friendly lawyers, accountants, business consultants, investment bankers, recruitment agencies, among others, are seen as important actors in the entrepreneurial scene, as they understand the needs of entrepreneurial businesses, and focus on assisting these ventures. These organizations are often willing to offer their support to startups at very affordable prices or even at no charge, either with the expectation that long-term business relationships emerge from such cooperation, or due to being paid by other entities, such as the government or large companies, who sponsor specific entrepreneurship programs, or even the entire ecosystem (Isenberg, 2011a; Mason & Brown, 2014; Mota *et al.*, 2016).

» ***Large Companies:*** Large companies play a major role in developing startup ecosystems, especially in peripheral regions, being able to impact regional ecosystems in several different ways. First and foremost, they are seen as "talent magnets" within the ecosystem, as they recruit large numbers skilled people from outside the region, thus strengthen the workforce talent pool in their regions. Large companies are also sources of new businesses, as typically some staff from those organizations come to feel motivated to leave their jobs in order to start their own ventures. This motivation is often justified by the technological base that large companies set in theirs regions that, by offering to entrepreneurs the opportunity to take advantage of their local environment to get insights about specific technologies, and increase awareness about emerging trends, reduces uncertainty on entrepreneurs, and hence stimulates the creation of companies within those areas. Large companies can also contribute to the ecosystem by supporting entrepreneurs with space and resources, or by directly sponsoring entrepreneurship programs, such as accelerator programs within their areas of expertise (Feldman *et al.*, 2005; Mason & Brown, 2014).

» ***Support organizations and individuals:*** Entities focused on developing, supporting and encouraging entrepreneurial activities. This is by far the most diverse actor, being comprised by

several different organizations and individuals, who support startups at different stages of development, with different goals and different needs. Given the large number of different entities encompassed by this actor, we will consider two different groups: Ecosystem builders; and Investor groups. These two groups will be discussed more in detail bellow.

3.3.1 Ecosystem Builders

Ecosystem builders are those entities whose main focus is about encouraging and supporting new-business developing, and hence about building a successful ecosystem. These organizations support entrepreneurial ventures with high-growth potential, whether technology based or non-technology based, by providing business support intervention (i.e. not just passive space or investment), and access to financial support by introduction to investors, pitching opportunity, prize/grant, or equity investment. This group includes the following startup programs: Incubators; Accelerators; Coworking spaces; Courses; and Competitions (Isabelle, 2013; Dee *et al.*, 2015).

» ***Incubators:*** Business incubators are programs designed to accelerate the creation and development of innovative businesses, typically focusing on technology based startups. According to Hackett & Dilts (2004), a business incubator is a shared office space facility that seeks to provide to its incubatees with a strategic, value-adding intervention system (i.e. business incubation) of monitoring and business assistance.

Table 3.1 – Business incubator objectives (adapted from: Allen & McCluskey, 1990)

	For-profit property development incubators	***Non-profit development corporation incubators***	***Academic incubators***	***For-profit seed capital incubators***
Primary Objective	- Real estate appreciation - Sell proprietary services to tenant	- Job creation - Positive statement of entrepreneurial potential	- Faculty-industry collaboration - Commercialize university research	- Capitalize investment opportunity
Secondary Objective	- Create opportunity for technology transfer - Create investment opportunity	- Generate sustainable income for organization - Diversify economic base - Complement existing programs - Utilize vacant facilities - Bolster tax base	- Strengthen service & instructional mission - Capitalize investment opportunity - Create good will between institution & community	- Product development

The primary goal of traditional business incubators is to promote economic development, by encouraging and supporting entrepreneurship and the creation of new business, in the expectation that those new ventures will later develop into self-sustaining, successful

organizations, that are able to generate innovation, employment opportunities and growth within the local community (CSES, 2002; Lesáková, 2012; Bruneel *et al.*, 2012). However, as claimed by Allen & McCluskey (1990), business incubators may possess several other different goals, depending on their organizational ideal type (e.g. for-profit property development incubators, non-profit development corporation incubators, academic incubators, for-profit seed capital incubators). Those objectives, categorized into primary and secondary, are below presented in Table 3.1.

This program emerged for the first time in 1959 in Batavia, New York, in the U.S.A., having become widespread throughout the 1970s and the 1980s. During this period, the so called business incubators of the first generation, primarily centered on job creation and real estate appreciation, by providing affordable office space, agglomerating carefully selected entrepreneurial companies under the same roof, and guiding them through their growth process. Later, throughout the 1990s, it was recognized the need for business incubators to develop their value proposition beyond resources and infrastructures, and to supplementing the office space with business counseling, skills enhancement, and networking services to access professional support and seed capital, hence leading to the second generation of business incubators. Finally, by the late 1990s a third generation of business incubators emerged. This third generation focused on new technology-based firms, and intended to stimulate the ICT industry, and provide a support framework, towards creating high growth-potential ventures (Lalkaka, 2001; Aerts *et al.*, 2007; Bruneel *et al.*, 2012). In Europe, one of the first business incubators, named British Steel Industry, was set up in the U.K. in 1975, with the purpose of creating jobs in the local steel industry. Like the British Steel Industry, many other incubators emerged in Europe seeking to promote a more diverse base for regional economies and to improve regional competitiveness. Examples of such initiatives include the University of Berlin's incubator, set in Germany in 1983, as well as the Sofia-Antipolis Technology Park's incubator, set in France in 1985 (Aernoudt, 2004), with these incubators following a model similar to the one used in the U.S.A., comprised by the offer of a set of basic services to the tenants companies, which included the provision of workspace, infrastructure, communication channels, and insights about external financing opportunities (Grimaldi & Grandi, 2005). While being widely acknowledged as key instruments in the promotion of entrepreneurship, employment and economic growth in Europe, existing about 900 business incubator in the EU (CSES, 2002), the number of newly founded incubators in Europe has diminished greatly since the 2000s, with only 7% of the present population of incubators being founded since the dawn of the new millennium (Aerts *et al.*, 2007). This decline may be explained by the criticism over the years to the incubator's model concerning its lack of exit policy (Bruneel *et al.*, 2012) and dependence on public funding to be

sustainable (Clarysse *et al.*, 2015), as well as by the weakened economy of Europe (Aerts *et al.*, 2007).

Although incubators' resources and services are rather important to entrepreneurs, their benefits to startups stretch far beyond those elements. According to Smilor's research work (Smilor, 1987), incubators are recognized for creating value to its incubatees in four broad dimensions: development of credibility; shortening of the entrepreneurial learning curve; quicker solution of problems; and access to an entrepreneurial network. Given how little credibility new ventures often possess, mainly due to its newness, incubator's role on validating and providing legitimacy to startups can prove to be incredibly valuable, particularly with regard to gaining access to entrepreneurial networks, as an incubator's association to a new venture can be seen as the proof of quality deemed necessary by investors to earn their attention. In addition to that, incubator's role concerning counseling and access to business services is also seen as quite relevant elements to the entrepreneurial education of new ventures' founders, contributing to shortening of their entrepreneurial learning curve, as well as to their skills' improvement, and consequent ability to solve problems.

Concerning business incubator's profile, these are typically meant for startup to later stage ventures, the workspace constitutes something essential to the program, the number of participants is usually around 50-150, and the selectivity of the participants is considered to be of average difficulty (Dee *et al.*, 2015). As for the most common services provided by incubators, these are mainly comprised by the following: help with business basics, networking activities, marketing assistance, help with accounting and financial management, access to bank loans, loan funds and guarantee programs, access to angel investors or venture capital, help with presentation skills links to higher education resources, links to strategic partners, help with comprehensive business training programs, advisory boards and mentors, and technology commercialization assistance (Lesáková, 2012).

» ***Accelerators:*** Similarly to incubators, accelerators are programs built to accelerate the creation and development of early-stage businesses. While the formal definition of accelerator programs remains somewhat discordant due to its similarity to incubators (Cohen & Hochberg, 2014), broadly speaking, accelerators were designed to assist innovative ventures throughout their lifecycle early-stages, using a lean startup approach. Unlike incubators, which primarily focus on providing physical resources or office support services, accelerators aim to offer a full partnership with its cohorts of ventures, by assisting them on building the company, define and build their initial products, identify high-potential customer segments, secure resources (e.g. capital and employees), guide through the interview and hiring process, and by lending its own management expertise (Fishback *et al.*, 2007; Cohen & Hochberg, 2014; Clarysse *et al.*, 2015).

Based on Miller & Bound (2011), Clarysse in its report for Nesta (Clarysse *et al.* 2015) defined accelerators as having the following characteristics:

- *Possible offer of upfront investment, usually in exchange for equity:*

  Accelerators usually invest on startups throughout the program. These investments, typically comprehended between £10k to £50k, aim to cover the co-founders' living expenses during the period of the accelerator program, and the short period after the program. In return for this investment, startups split equity with their investors, often ceding five to ten per cent of the company.

- *Time-limited support comprising programed events and intensive mentoring:*

  Given that the majority of the startups that go through accelerators are web-based, and that these have the ability to move rather rapidly through their development stages, accelerator programs usually resume their support to a time-limited period, comprehended to about three to six months, as this is believed to create a high pressure environment that will for force startups to drive rapid progress. This limited time frame also allows entrepreneurs to have a more intensive focus on the several events and mentoring comprised by the program.

- *An application process that is open to all, yet highly competitive:*

  Typically, accelerator programs are open to applicants from all over the world. Through online application processes, accelerators start by evaluating the team behind the startup, as well as the idea itself. If considered to be interesting, the applicants are invited to a short interview. Application processes are considered to be highly selective, with some accelerators having an applicant success ratio of less than one in one hundred, thus emphasizing the importance of possessing an experienced application jury to choose the most promising teams.

- *Cohorts or classes of startups rather than individual companies:*

  One distinguishing feature that separates accelerator programs from other early-stage programs is its focus on peer support and classes of startups rather than individual companies. This model is justified by the advantages that cohort working has for the startups, as by promoting peer support among the several teams, co-founders can help each other tackle any existing problems, and additionally receive early feedback on their ideas.

- *Mostly a focus on small teams, not individual founders:*

  Due to the amount of work comprised over the duration of the program, typically accelerators don't accept startups composed by single founders. While accelerators favor teams composed by more than one person, they aren't particularly keen towards teams with over four members, due to the greater investment need to cover the living costs of larger groups.

- *Periodic graduation with a Demo Day/Investor Day:*

  Coming to the last stage of the accelerator program, startups are faced with their final event, an Investor Day. During this day, startups have the opportunity to pitch for a group of investors, with the aim of presenting what has been developed throughout the program. This event provides to startups the chance to pitch for a high quality group of investors that under normal conditions would be difficult to reach, granting them additionally the possibility of getting funded in the process.

The first accelerator program was founded in 2005, when Y Combinator was launched in Cambridge, Massachusetts, in the U.S.A. This program invested in a small batch of promising startups – including one of Y Combinator's most prominent success cases, Reddit. Using a lean startup approach – a method for developing businesses and products that focus on minimizing the product development cycle – it worked intensively with the startups for three months to prepare them for pitching to an invite-only audience of venture capitalists. (Nesta, 2014). Following the success of this format, a notable proliferation of accelerator programs started all over the world, with Seed-DB (2016) having identified 235 accelerator programs spread throughout the world. While initially accelerator programs were rather generalist, accepting entrepreneurs from a wide range of industries, this proliferation also led to a diversification of programs, with several accelerator programs now aiming to focus on specific industry sectors (Cohen & Hochberg, 2014). In Europe, Seedcamp was the first accelerator program being founded, emerging in 2007 in London, U.K., since being followed by several other accelerator programs, such as The Difference Engine, Tetuan Valley, Startup Bootcamp, among others. Typically, European accelerators follow a similar model to the one established by Y Combinator, offering a small amount of investment in exchange for equity. They are often financed by private stakeholders (e.g. business angels, private investment funds), and the main industry areas where they look to invest are mobile applications, big data analytics, internet of things, and cloud services (Miller & Bound, 2011; Fundacity, 2014).

While the generalist characteristics of accelerator programs have already been discussed, depending on the accelerators' funding source, i.e. investors, corporates, or government, there may exist significant differences on the approach to the several program's components.

According to Clarysse *et al.* (2015), there are three main broad groups of accelerators, based on their strategic focus: the investor-led archetype; the matchmaker archetype; and the ecosystem archetype. The investor-led archetype has as funding source investors such as business angels, venture capital funds, or corporate venture capital, and their main goal is to look for investment opportunities. As for the matchmaker archetype, its main funding source are corporates, whose main goal is to provide a service to their own customers or stakeholders. Finally, the ecosystem archetypes has the government as a main stakeholder, having as a goal to stimulate startup activity and create an ecosystem. The main differences between those three groups are bellow presented in Table 3.2.

Table 3.2 – Summary of key elements from archetypes in accelerators (adapted from: Clarysse et al., 2015)

	Investor-led	***Matchmaker***	***Ecosystem***
Accelerator strategy	Key stakeholders are investors; goal is to look for investment opportunities.	Key stakeholders are corporates; goal is to provide a service for the customer base 'matching potential customers with startups (no profit orientation).	Key stakeholders are government agencies; goal is to stimulate startup activity and create an ecosystem.
Program package	Fixed program length; Mentors comprise of serial entrepreneurs and business angels; often sector specific.	Fixed program length; Internal experts from corporates are used as coaches and mentors.	Fixed program length; Mentors comprise serial entrepreneurs and business developers; most developed curriculum.
Screening Process and Criteria	Open application; Cohort– based system; favor venture teams in later stages with some proven track record.	Open application; cohort–based system; favor venture teams in later stages with some proven track record.	Open application; cohort–based system; favor venture teams in very early stages.
Funding Structure	Funding from private investors (business angels, venture capital funds and/or corporate venture capital); standard see investment and equity engagement.	Funding from corporates; seldom seed investment or equity engagement.	Funding from local, national and international schemes; experimenting with funding structure and revenue model (search for sustainability).

From a startup's perspective, there are several aspects in which accelerators can provide value to the entrepreneurs they support. According to Miller & Bound (2011), accelerator programs provide value to their participants in the following elements: funding; business and product advice; connections to future investment; validation; peer support group; and pressure and discipline. With regard to early stage funding, while it is not rated as the most important feature in accelerator programs, it is identified as being important, as it allows entrepreneurs to concentrate on their startups in a full-time regime without having to work on the side. As for business and product advice, the opportunity for startups to meet experts in their fields, and get

feedback about their product and company through mentoring is seen as one of the most invaluable contributions from accelerator programs, being very difficult to replicate outside such programs. Connections to future investment are also seen as quite valuable to startups, particularly for first-time founders, which often face difficulties to connect with potential investors and customers. Pressure and discipline can also be rather important to startups, as having the opportunity to develop their idea in an intense work environment often compels startups to thrive and achieve their goals. The startup's validation by the accelerator itself is considered to be a major benefit of these programs, particularly to first-time founders, as being acknowledge by a group of successful founders and investors provides the reassurance on the startup that investors and potential clients need. Finally, having the opportunity of providing and receiving meaningful support and feedback from other founders is rated as invaluable to many entrepreneurs, with peer support groups, such as alumni networks, being considered one of the biggest added value points of accelerator programs.

» ***Coworking spaces:*** Coworking spaces are workplaces conceived to promote inter-firm collaboration (Capdevila, 2014). According to Gandini (2015), coworking spaces are shared places used by different types of knowledge professionals, typically freelancers, working in various degrees of specialization within the knowledge industry. Reputed for being "serendipity accelerators", i.e. promoting unexpected discoveries entirely by chance (Moriset, 2013), coworking spaces are characterized by the co-location of economic actors, where independent professionals work share resources and are open to share knowledge with the community (Capdevila, 2014). These spaces are designed as office-renting facilities, where the tenant companies or individuals rent a desk and a Wi-Fi connection to the internet (Gandini, 2015), and pay in return membership fees for the access to the space. The payment of membership fees explain the tendency for coworking spaces to have as tenants ventures that already have revenue sources (Dee *et al.*, 2015). Coworking spaces are considered to offer optimal research contexts for several reasons, namely for their reduced physical scale, for the micro-organizations involved, for the intensity of the social interaction and also for the predisposition towards collaboration of all involved agents (Capdevila, 2014).

  With regard to the global number of coworking spaces, in 2014 were reported to exist around 5.800 coworking spaces worldwide, from which around 2.400 of these coworking spaces were located in Europe. These coworking spaces possess a global number of almost 300.000 members worldwide, of which around 100.000 members are located in Europe (Coworking Europe, 2015).

» ***Courses and competitions:*** Among the broad range of ecosystem builders within a startup ecosystem, there are several actors, such as universities and accelerators, who develop programs whose purpose mainly aims at providing entrepreneurial education to future entrepreneurs and at supporting entrepreneurs from their pre-startup stage to their early stages of development. Such programs can be classified into two major categories: entrepreneurship courses and competitions.

Entrepreneurship courses are time-limited programs (Dee *et al.*, 2015) usually run by business schools, designed to teach the theoretical basis of entrepreneurship (Nesta, 2014), and to provide students with a wide range of valuable skills, such as business-plan development, marketing, networking, creating "elevator pitches", attracting financing and connecting with local business leaders (U.S. Department of Commerce, 2013), and also to develop students' self-efficacy, confidence, achievement motivation and nonconformity (Florin *et al.*, 2007). Although the formal teaching of entrepreneurship only started to emerge in the 1970s, there has been a huge expansion of entrepreneurship courses worldwide, with over 1.000 schools with majors in entrepreneurship, an additional 1.000 with concentrations in entrepreneurship, and at least one course of entrepreneurship now taught at over 3.000 universities worldwide (Kuratko, 2016). Among the wide range of entrepreneurship courses, some of the most popular courses include introductory courses such as introduction of entrepreneurship and new venture creation, as well as courses about more specific topics of the business such as entrepreneurship strategy, technological entrepreneurship and finance for entrepreneurs (Sá *et al.*, 2014). While these courses provide entrepreneurs a theoretical foundation of entrepreneurship, the lack of a "hands-on" opportunity may limit the learning potential of such programs. Thus, these courses are typically integrated with entrepreneurship competitions, where entrepreneurs can put to practice what has been taught. With such competitions, the output is more focused on producing startups and competing in the market (Dee *et al.*, 2015).

Entrepreneurship competitions are time-limited programs, often promoted by other ecosystem actors such as universities, the government, or corporates, whose aim is to provide organizational efficiency, a sense of urgency as well as a feeling of camaraderie and peer-to-peer learning from being in a cohort (Dee *et al.*, 2015). Through these programs the contestants, typically in teams, present a venture idea before a panel of judges for the chance of winning awards and cash prizes (Sá *et al.*, 2014). According to Miller & Stacey (2014), the typical features of a competition include:

- Widespread publicity for the prize and its aims;
- An online application process;
- Shortlisting by the competition organizers;

- A pitch or face-to-face "final" where ventures meet a group of judges;
- Follow-up support and publicity for the winners.

These competitions are also characterized for possessing a structure which not only offers a chance to identify potential winners, but also to highlight trends illustrated by the contestants. Like entrepreneurship courses, typically competitions do not need to rely on startups for income, usually assuring their revenues from sponsorships, although sometimes a fee may be charged directly to individuals, especially in the case of courses (Dee *et al.*, 2015).

While the above presented ecosystem builders share the same goal of encouraging and supporting new-business developing, their profiles, characteristics, and the way they impact startups are greatly different. Ecosystem builders can be distinguished for characteristics such as the startup development stages they target, the resources they offer, the number and selectivity of participants, reliance on the startup ecosystem, etc. Table 3.3 details some of the main differences between ecosystem builders.

Table 3.3 – Overview of the ecosystem builders (adapted from: Dee et al., 2015)

	Growth driven ecosystem builder	***Fee driven ecosystem builder***	***Independent ecosystem builder***
Startup development stage	Early to later stage	Startup to later stage	Pre-startup to early stage
Type of ecosystem builder	- Accelerator	- Incubator - Coworking space	- Course - Competitions
Risk profile if startup quality reduces	High	Medium	Low
Workspace	Optional, benefits include closer links with portfolio	Essential, but threshold size not apparent	Optional
Number of participants	Low (e.g. 6-12)	Medium (e.g. 50-150)	Medium-high (e.g. 50 to thousands)
Selectivity of participants	High	Medium	Low
Performance measures	Valuations; funds raised; time to exit	Area of workspace; number of tenants; capacity ratios; turnover of tenants	Number of participants; number of new ventures established; hours of teaching; winners and prizes
Reliance on startup ecosystem	Access to startups with high-growth potential; Access to finance for the program to plug the gap before returns can be secured	Access to affordable or subsidized space; Access to enough startups to meet capacity or memberships	Fees from individuals rather than startups

3.3.2 Investor Groups

Investors are comprised by the individuals or organizations who invest in high-growth potential startups, with the expectation that they earn a high rate of return from their investment. These investments may

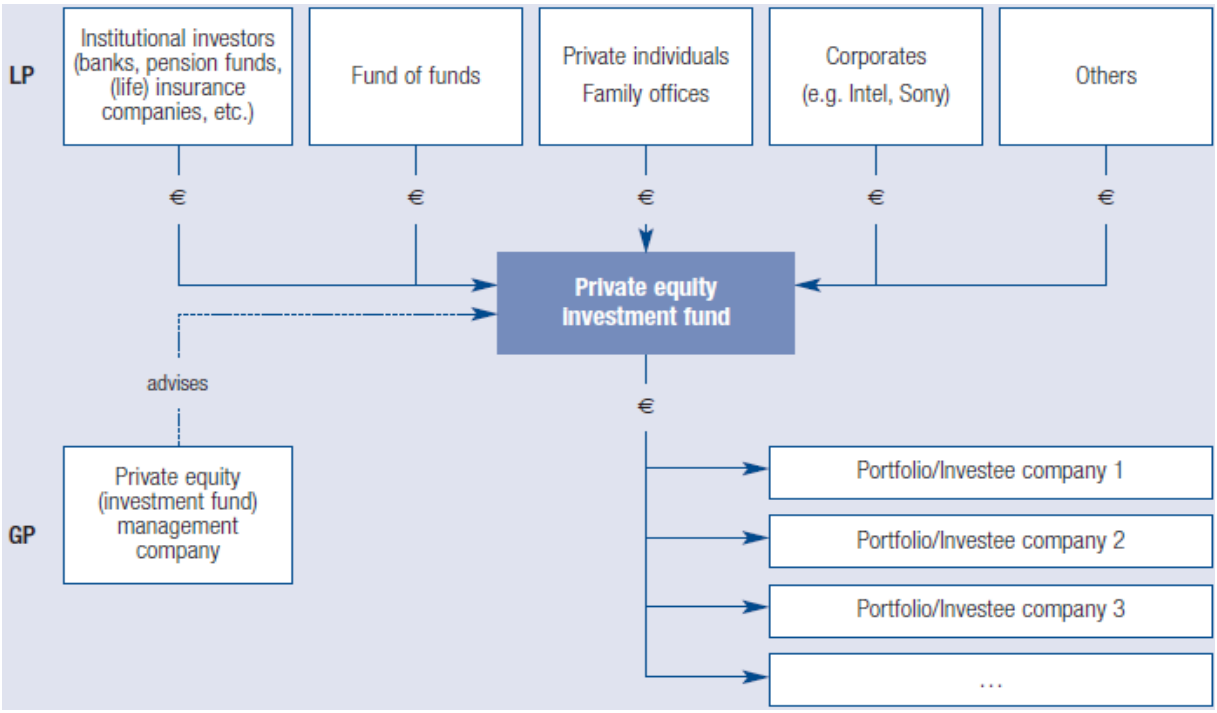
occur throughout the different stages in a startup's lifecycle, and they are seen as an essential source for the development of innovative businesses. The entities encompassed by this group are the following: Venture capitalists; and Business angels (Davila *et al.*, 2003; Wiltbank, 2009).

» ***Venture Capitalists:*** Venture capitalists are a source of funding to startup companies, being particularly focused on early to later stage businesses (Wilson, 2011). According to Gompers and Lerner (2001), venture capitalist are an important intermediary in financial markets, that typically focus on providing funding to small and young firms. While these investments are considered to be extremely risky, as they are plagued with high uncertainty and information asymmetry, the potentially high returns on investment lead these firms to purchase equity or equity-linked stakes at such ventures. Venture capital firms dedicate significant amounts of resources on understanding new technologies and markets, and on finding investment opportunities within those sectors (Davila *et al.*, 2003). Their screening and selection processes are considered to be intensive and often lengthy, where variables such as market size, strategy, technology, customer adoption and competition are exhaustively analyzed (Kaplan & Lerner, 2010). Following the investment consummation, venture capitalists look to proactively support the development of their portfolio companies, particularly throughout their early stages of growth, by coaching them and providing financial resources and expertise, access to contacts and help in the recruitment of senior management (Davila *et al.*, 2003; Wilson, 2011). Typically venture capitalists also undertake an active board role in their portfolio companies (Preston, 2011), with venture capitalists exerting control in their companies if the results are not according to the investor's expectation (Kaplan & Lerner, 2010). Venture capitalists' contribution to the development of their companies is reported to be benefic, with venture-backed companies showing faster growth rates (Davila *et al.*, 2003), increased sales, employment, investment, R&D expenditure and exports (EVCA, 2002).

  With regard to the structure of the venture model, depicted in Figure 3.10, venture capital firms, also denominated of General Partners, establish investment funds and invite institutions and individuals with particular expertise or significant wealth, known as Limited Partners, to subscribe to them. These investment funds are set for a determined period of time (on average of 10 years), and are applied in equity stakes at high-potential companies compliant with the defined investment strategy (EVCA, 2007). As stated by Zider (1998), venture money is not long-term money, as venture capital firms aim to grow their investments fast, so that they reach a sufficient size and credibility to be sold and earn a high rate of return on their investments (Davila *et al.*, 2003), or to be further invested in public-equity markets and receive additional funding (Zider, 1998). For the services provided to the LPs, venture capital firms typically receive management fees of 1% to 2,5% of the capital raised to cover the operating costs, being

additionally entitled to 20% of the profits if the startups achieve successful exits (EVCA, 2007; Marcus *et al.*, 2013).

Figure 3.10 – Structure of a venture capital fund (EVCA, 2007)



Regarding the venture capital activity in Europe, according to EVCA statistics about fundraising, investments and divestments (2015), the venture capital investments in 2014 were of €3.6 billion, having increased 6% from 2013. These investments comprehended a total of 3.200 venture-backed companies, where startup stage investments represented over 50% of the venture capital activity and 60% of the number of companies, followed by later stage investments, which displayed around 44% of the total amount of investment, and 26% of the number of companies, and by seed stage investments which accounted a mere 3% of the total venture capital activity but 14% of the number of companies. From the 3.200 venture-backed companies, the ventures in life sciences (31%), communications (21%) and computer & consumer electronics (20%), attracted over 70% of the capital. Concerning the investments by region, three regions stand out from the rest, with U.K & Ireland, France & Benelux, and DACH registering each a total invested volume of €0.9 billion.

With regard to company exits, venture capital divestments totaled the amount of €1.9 billion in 2014, which represented a 16% decrease in comparison to 2013. Over 1.000 companies were divested in 2014, where the majority of the exits were by trade sale (45%), followed by write-off (18%) and sale to another private equity firm (11%). From the divested companies, life sciences (32%), computer & consumer electronics (23%) and communications (18%) were the most divested sectors. The statistics about the venture capital activity is presented in Table 3.4.

Table 3.4 – Break down of venture capital activity in Europe (adapted from: EVCA, 2015)

	2012		*2013*		*2014*	
Seed stage investment	€0.1 Billion	3%	€0.1 Billion	3%	€0.1 Billion	3%
Startup stage investment	€1.8 Billion	56%	€1.8 Billion	53%	€1.9 Billion	53%
Late stage investment	€1.3 Billion	41%	€1.5 Billion	44%	€1.6 Billion	44%
Total investment	€3.2 Billion		€3.4 Billion		€3.6 Billion	
Total divestment	€1.9 Billion		€2.2 Billion		€1.9 Billion	

» ***Business angels:*** Business angels are a type of investor reputed for often being the first source of significant outside funding of startup companies (Wiltbank, 2009). Although there exists extensive research and literature about business angels, a uniform, definitive definition of angel investors is yet to be found (Avdeitchikova, 2008; Preston, 2011). For the purpose of this study, we will adopt Mason & Harrison's definition, according to whom business angels are individuals, acting alone or in formal or informal groups, who invest their own money in unquoted businesses in which there exists no family relationships in the hope of financial profit and who, after making the investment, actively involves in the company, in active roles such as mentor, adviser, or member of the board (Mason & Harrison, 2010).

Like venture capitalists, business angels invest in startups with the aim of earning a financial return on their investments. However, angel investors distinguish from other types of investors for seeking to invest in early stage companies, where although they face higher risks of failure, they have the potential to achieve highly profitable returns on their money (Preston, 2011). Angel investments also contrast from other types of investment on several other aspects, such as: their investments usually comprise relatively small investments, typically up to £250.000 (Mason & Harrison, 2010); angel investors adequate better to the needs of SME owners, as they have lower rejection rates, longer exit horizons, and target profits similar to the ones from venture capitalists, even though angel investments involve much more risk; and finally, they typically invest in their local economies (Riding, 2008). In addition to providing financial support to new ventures, business angels are also acknowledged for being a source of "smart money" to early stage startups, investing not only money, but also time, and operational and strategic guidance (Aernoudt, 1999; Mason & Harrison, 2010). According to research (Wilson, 2011; Preston, 2011), this input of time in their investments, as well as their longing to be actively involved, relates to angel investor's desire to "give back" to other entrepreneurs. As most business angels have entrepreneurial and managerial experience, and had successful ventures of their own which they sold under advantageous conditions (Aernoudt, 1999; Wilson, 2011), angel investing is seen as both an effective mean for former entrepreneurs to remain

engaged to the challenge of succeeding in a new venture, without the typical time trade-off of running a business, as well as an opportunity for angel investors to support young entrepreneurs prosper in their community (Preston, 2011). Business angels' close involvement with their investments explains why they typically opt to invest in sectors they understand, usually coinciding to their former ventures as entrepreneurs (Aernoudt, 1999), enabling them to benefit from their previous developed network of potential customers, vendors, and other resources, including additional financial sources (Preston, 2011). Angel investors typically tend to invest in a portfolio of companies, instead of only one or two (Wilson, 2011), and their investments are often regarded as signalers of high quality ventures (Chahine *et al.*, 2007).

As stated by Mason & Harrison (2010), business angels can act alone, or in formal or informal groups. According to Wilson's research (2011), four types of organizations are outlined: angel syndicates; angel networks; angel associations; and early-stage funds. These organizations are bellow detailed in Table 3.5. Although all these organizations are present across the world, it is possible to observe that depending on the region, business angels possess specificities with regard to the means used to make investments. For example, while angel investors in the U.S.A mostly invest either through individual investment or through angel syndicates or more formalized groups, their counterparts from Europe and from many other countries, particularly those with smaller numbers of business angels, typically prefer to gather into business angel networks, in order to facilitate the matching between entrepreneurs and angel investors.

Table 3.5 – Types of angel organizations

Type:	*Definition*
Angel syndicate	"The gathering of several business angels into an informal consortium for the purpose of creating a critical mass of funds above what each business angel could - or would be prepared to - invest. This term also applies to the pooling of competencies in order to offer more managerial skills than any individual business angel could display". (EBAN, 2009)
Angel network	"An organization whose aim is to facilitate the matching of entrepreneurs (looking for venture capital) with business angels. BANs tend to remain neutral and generally refrain from formally evaluating business plans or angels. BANs make a market place for matching services". (EBAN, 2009)
Angel association	"(…) trade bodies to support the development of the angel capital market within the country and to provide a collective voice for angel investors to policy makers and others. These organizations can play an important role in raising awareness about the industry, sharing best practices, developing local angel groups/networks, providing networking opportunities and collecting data. The role of a national angel association is to provide support to the angel industry as a trade body, which means they themselves neither invest nor play a match making role". (Wilson, 2011)
Early-stage funds	"Early stage venture capital and seed funds are those who invest in the equity gap (€500.000 to €3 million), i.e. making a maximum of €3 million investment per company in young innovative SMEs across Europe". (EBAN, 2009)

Concerning the European business angel scene, according to EBAN's statistics compendium (2014), the total angel investment in Europe was of €5.5 billion in 2013, having increased 8,7%

from 2012, thus remaining the main source of capital to European startups. With regard to the investor's community, it has increased its number to 271.000 investors, which closed a total of 33.430 deals in 2013. Within the visible market, i.e. the angel activity undertaken by investors in business angel networks and which either have a relation with EBAN or that reported through a federation, the United Kingdom is the leading European angel market with €84.4 million of investment, followed by Spain with €57.6 million of investment, Russia with €41.8 million, and France with €41.1 million. Considering the entire European angel investment market, the global investment increased 8,7% in 2013, to an all-time high value of €5.543 million, with the market also showing progress with respect to the number of investments, number of business angels, and to the number of jobs created. This information is detailed in Table 3.6.

Table 3.6 – Break down of angel investment in Europe (adapted from: EBAN, 2014)

	2011	***2012***	***2013***
Visible Market	€427M	€509M	€554M
Non-visible market	€4.317M	€4.590M	€4.989M
Total investment	€4.744M	€5.099M	€5.543M
# Investments	26.158	29.130	33.430
# Jobs created	154.597	178.813	184.170
# Business angels	241.444	261.430	271.000

With regard to the main sectors of investments, those are comprised by ICT (32%), followed by biotech & life sciences (10%), mobile (10%), and manufacturing (10%). Evidence also shows that most angel activity takes place within the country of the investor (96%), and that the majority of the investments (87%) target early stage startups.

Although business angels and venture capitalists are involved in similar businesses and share the same purpose of earning a financial return on their investments, these two entities present two vastly different approaches into their investor activity. According to Preston (2011), these differences are comprised not only by their priorities and deal structure, but also by their preferred stage of investment and by the investors' importance to entrepreneurs. Table 3.7 provides a simple overview to the main differences between venture capitalist and business angels.

Table 3.7 – Overview of the investor groups (adapted from: Wilson, 2011)

Characteristics	***Business angels***	***Venture capitalists***
Background	Former entrepreneurs	Finance, consulting, some from industry
Investment approach	Investing own money	Managing a fund and/or investing other people's money
Investment stage	Seed and early stage	Range of seed, early stage and later stage but increasingly later stage

Table 3.7 – Overview of the investor groups (adapted from: Wilson, 2011) [Continuation]

Characteristics	*Business angels*	*Venture capitalists*
Deal flow	Through social networks and/or angel groups /networks	Through social networks as well as proactive outreach
Due diligence	Conducted by angel investors based on their own experience	Conducted by staff in VC firm sometimes with the assistance of outside firms (law firms, etc.)
Geographic proximity of investments	Most investments are local (within a few hours' drive)	Investment nationally and increasingly internationally with local partners
Post investment role	Active, hands-on	Board seat, strategic
Return on investment and motivations for investments	Important but not the main reason for angel investing	Critical. The VC fund must provide decent returns to existing investors to enable them to raise a new fund (and therefore stay in the business)

3.3.3 Relationship between Investor Groups and Ecosystem Builders

An entrepreneurial ecosystem is comprised by a set of interconnected entrepreneurial actors, entrepreneurial organizations, institutions and entrepreneurial processes (Mason & Brown, 2014). From the connections between the diverse elements within an entrepreneurial community results a facilitation on the exchange of resources and information, which assumes an important role in the purpose of making startups thrive and of boosting the entrepreneurial performance of a region.

In theory, the relationship between ecosystem actors assumes greater relevance in the specific case of investor groups and ecosystem builders, as they play complementary parts in the role of supporting new ventures throughout their development (Callegati *et al.*, 2005). As acknowledged by Klonowski (2010), ecosystem builders and investor groups have many common characteristics with regard to their activity. Firstly, they share a common interest in successfully growing entrepreneurial ventures, with both actors being characterized for providing hands-on assistance to the young firms. Secondly, ecosystem builders and investors groups share similar application processes, with both processes being multistage, even though the one used by investor groups is regarded as being more comprehensive and exhaustive. And thirdly, ecosystem builders and investor groups seek the same goal of achieving measurable business success by the end of their collaboration with an entrepreneurial venture, where ecosystem builders aim to successfully graduate their tenant companies into viable, long-term businesses, whilst investor groups measure their success based on their internal rate of return.

In addition to the characteristics shared by both actors, some authors (Callegati *et al.*, 2005; Klonowski, 2010; Miller & Bound, 2011; Wilson, 2011) have emphasized that the relationship between both parties can be positive and mutually beneficial. With regard to investor groups, the main reasons pointed out as

the rationale behind this relationship center around three elements: locating new technologies; monitor startup's development; and exposure to early-stage ventures.

1. *Locating new technologies* – The opportunity to get a first sight at new technologies is perceived as an important way for investors to map new trends in startups (Miller & Bound, 2011);

2. *Monitor startup's development* – By working closely with a large cluster of early-stage firms for a significant period of time, ecosystem builders have a clearer perspective about where should investor concentrate their time a resources (Klonowski, 2010; Miller & Bound, 2011);

3. *Exposure to early-stage ventures* – Especially for venture capital investors, ecosystem builders offer investor groups a valuable chance of exposure to early-stage ventures (Klonowski, 2010)

Concerning ecosystem builders' rationale to nurture a relationship with investor groups, three main reasons are highlighted: network and business-oriented experience; access to funding; and business model sustainability.

1. *Network and business-oriented experience* – Investor groups' contribution with the hands-on, business-oriented experience and external networking activity that some ecosystem builders lack, can be a major factor with regard to whether a tenant company turns out successful or not (Callegati *et al.*, 2005);

2. *Access to funding* – Being a near-ubiquitous feature of ecosystem builders, establishing good relationships with investor groups in order to assure access to funding to tenant companies is regarded as crucial (Dee *et al.*, 2015);

3. *Business model sustainability* – Depending on the ecosystem builder's added value, investor groups might financially sponsor specific programs, and thus secure enough revenue to assure business sustainability (Dee *et al.*, 2015).

However, in spite of the apparent solid basis of understanding for both ecosystem actors to develop and maintain a fruitful relationship, that does not seem to be the case as empirical data shows that, especially in immature markets, ecosystem builders' collaboration with investor groups is not always working efficiently (Gullander & Napier, 2003).

While several factors can explain this troublesome relationship, such as the general intrinsic mistrust of stakeholders when it comes to early-stage investments or the lack of reciprocal information sharing between ecosystem builders and investor groups, the main issue pointed out by investor groups, particularly venture capitalists, relates to their reduced interest in nurturing such relationship due to their lack of concern towards pursuing companies in their early stages of development (Callegati *et al.*, 2005). This reduced interest in startups can be explained by investors' perceived risk on such investments (Klonowski, 2010). Other reasons mentioned by investor groups with regard to their lack of interest in

collaborating more with ecosystem builders relates to their limited knowledge of ecosystem builders' activities and perception of low value on their interventions, startups' reluctance towards investors' financing and the scarce number of sources of capital (Callegati *et al.*, 2005; Klonowski, 2010). Albeit investor groups show reduced interest in collaborating with ecosystem builders, the opposite cannot be said, with ecosystem builders showing commitment towards accessing capital sources. Yet, despite their best efforts towards collaborating with investor groups, that has been proving to be challenging, mainly due to the struggle on the follow-up activities with investors, which are difficult because investment decisions take long time to realize for investors (Callegati *et al.*, 2005).

This mismatch between ecosystem builders and investor groups emphasizes the need to be created knowledge and awareness on both actors, with particular focus on investor groups, as evidence indicates that this actor contributes greatly to the absence of a greater collaboration between these two entities. This will help both parties understand better the factors that fustigate this relationship and how to address them, so that on the long-term they can strengthen their collaboration, and thereby contribute to the emergence of higher quality startups and a better allocation of risk capital in the most promising ventures.

Chapter 4

Methodology

Throughout the following section the methodology used to conduct this study will be briefly outlined. In this chapter we will start by providing an overview to the research design, followed by a discussion about the research questions that this study will address, a description of the data collection methods, and finally by the characterization of the sample selection.

4.1 Research design

This dissertation aims to study the interconnectivity between ecosystem builders and investor groups. In order to reach the objective of understanding the intricacies of the relationship between these two actors, firstly a suitable methodology should be outlined. The methodology will assume an important role in the outcome of the study, as it will describe and justify the set of methods to be used throughout the research, data collection and results analysis of the dissertation. To accomplish the development of an appropriate methodology to the subject of this research, an action plan comprised by three stages was defined:

1. Literature Review;
2. Interview with Ecosystem Actors;
3. Questionnaire Development.

With regard to the first stage of the action plan, the literature review, following the definition of the topic to be analyzed we sought to acquire knowledge on the scope of study and establish a solid theoretical foundation for the upcoming stages of the research. In this process a descriptive review about the concepts related to startups, startup ecosystems and ecosystem actors is provided. Concerning to the specific topic of ecosystem actors, a more detailed analysis of the actors central to the subject of study is provided, with ecosystem builders and investor groups being the focus of this study.

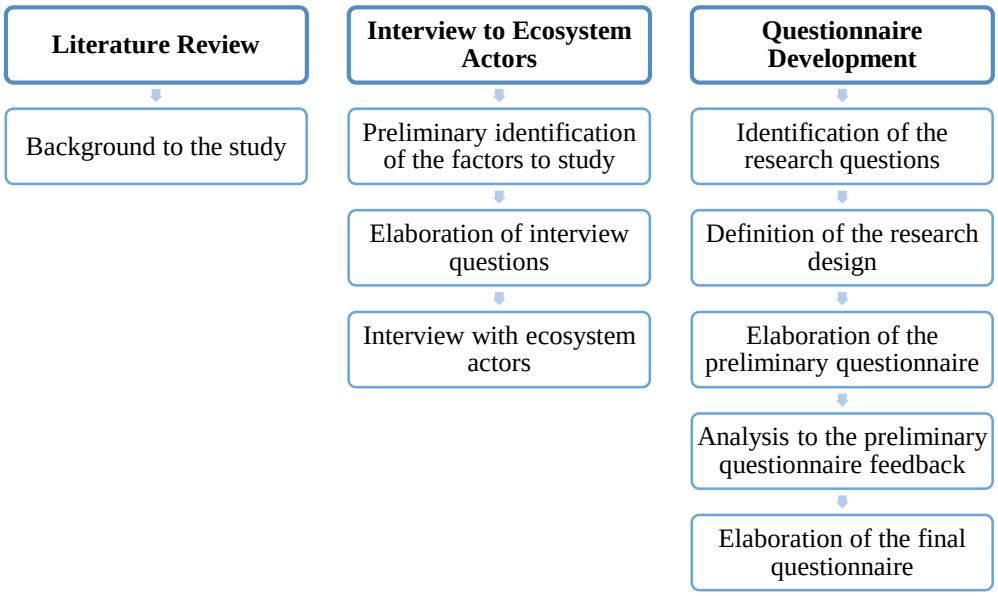
After the initial theoretical analysis to the scope of the study, we intended to identify the aspects which have the greatest impact in the outcome of the relationship between ecosystem actors and investor

groups. As such, based on the theoretical foundation previously established, we outlined an initial set of factors relevant to be analyzed in the empirical study of this research work (see Appendix 1). Having summarized the most relevant factors to be further analyzed according to the scope of the study, we aimed to validate our initial remarks with the ecosystem actors under study in this dissertation: ecosystem builders and investor groups. In that sense, we proceeded to the conduction of a face to face interview with representatives from both an ecosystem builder and an investor group, who were willing to discuss the topic and share their ideas. This interview was conducted in a semi-structured way, where we anticipated some factors which could be of interest to be studied, and allowed the interviewees to give their feedback on our hypothesis as well as the freedom to propose their own ideas. By using this approach we were able to collect some thoughts that probably otherwise wouldn't have been considered, which impacted directly the direction of the study.

Following the identification of the most pertinent aspects to be analyzed in the relationship between ecosystem builders and investor groups, and consequently of the research questions for the study, we proceeded to the development of a questionnaire. This process was comprehended by a first substage, where a preliminary questionnaire (see Appendix 2) was developed and provided to two investors who agreed to provide their feedback on the questionnaire, and a second substage, where based on the analysis to the questionnaire's feedback some final adjustments were made and placed in the form of a final questionnaire (see Appendix 3).

Figure 4.1 depicts the diverse stages that took place throughout the research process.

Figure 4.1 – Conceptual model of the research design



4.2 Research questions

The increasing importance of entrepreneurship to the global economies makes imperative to understand how to foster the development of startup ecosystems and creation of successful startups. With the aim of studying the specific case of the interconnectivity between ecosystem builders and investor groups, and based on our findings from the conducted literature study and interview, we identified two main research questions to which we aim to answer:

1. **Which aspects of the ecosystem builders' contribution towards startups are valued most valued by investor groups?**

   Following the investigation on what seemed to be the most evident problems in the connection between ecosystem builders and investor groups, one of the highlighted points in the interview to the representatives of both actors relates to the value of ecosystem builders' contribution to the development of startups. An apparent slight mismatch between the aspects which ecosystem builders favor on the provision of support and the aspects where investor groups believe startups would benefit from receiving support was identified. Thereby, we consider to be important to analyze which aspects investor groups value the most on ecosystem builders' contribution to their startups, so that a clear understand about where can ecosystem builders' support to startups be improved is found.

2. **Which factors should ecosystem builders address in order to promote an enhanced relationship with investor groups?**

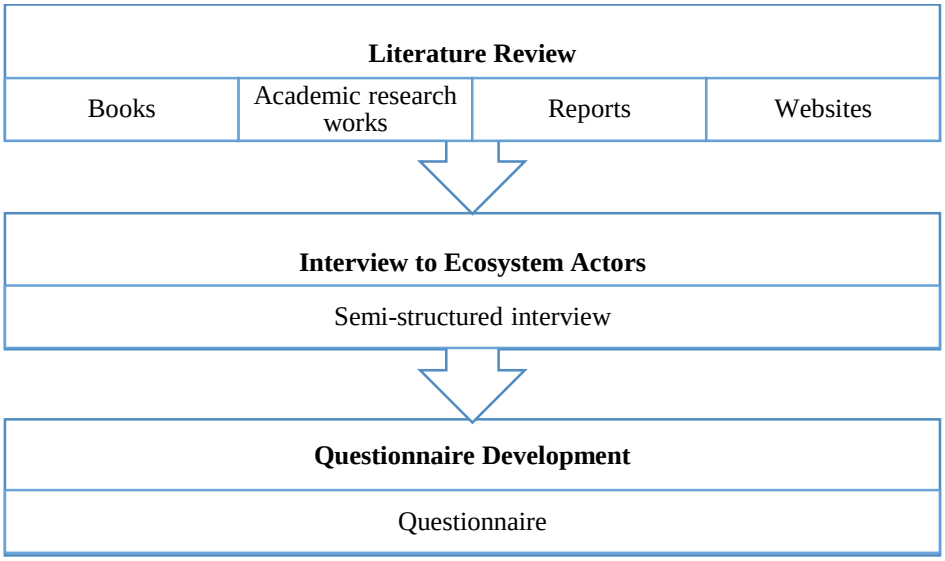
   Based on the literature study conducted earlier in this research, evidence showed that there were some issues concerning the information sharing (Callegati *et al.*, 2005) and the overall cooperation between both actors (Gullander & Napier, 2003). Later on throughout the interview, while discussing that topic, both interviewees agreed that it would be rather relevant to study, as clearly the cooperation and communication between ecosystem builders and investor groups could be improved. In that sense, we aim to address such liability in their relationship by understanding what is currently being done regarding the cooperation and information sharing between both parties, and by assessing investor groups' opinion on what measures could be taken to improve their relationship.

These research questions will be answered with resort to a questionnaire which will be used to collect empirical data and thus to draw conclusions. From the answers to the research questions some recommendations on how to improve the European entrepreneurship ecosystems will be provided on the last chapter of the dissertation.

4.3 Data collection methods

With the aim of collecting empirical data for the research work, several sources were used throughout the course of the dissertation. Being the research methodology of this study comprised by three main stages, different data collection methods were used for each of these stages. The diverse methods used to conduct this study are summarized in Figure 4.2.

Figure 4.2 – Research data collection methods



In a first stage, comprehended by the literature review, our aim was to acquire a solid theoretical foundation on startups, startup ecosystems and ecosystem actors. This data collection process comprised the in-depth use of several sources, such as books, academic research works, reports from organizations focused on entrepreneurship and also, at a more reduced scale, websites. These sources were mostly collected through the databases of B-on and Google Scholar, but also from blogs and other websites. Considering the large amount of theoretical information on the field of entrepreneurship, naturally we were confronted with the challenge of filtering the reliable information from all of the information available. In that sense, we were particularly careful in the collection of data, having selected information exclusively from reputed authors and institutions that gave us some assurance on the quality of their studies. While several sources contributed to the development of this research work, a special remark should be made about the valuable contribution that the reports from Nesta and from the European Commission had in the overall direction of this study.

Following the development of the theoretical foundation of the research, we proceeded to determine the most relevant factors to study according to the scope of the dissertation. In this stage we conducted an interview with one venture capitalist and one representative from an ecosystem builder organization. The interview was conducted presentially, in a semi-structured way, in which we have identified 15

topics to explore throughout the interview, having discussed them individually about their relevance in an unconstrained talk, where not only we were able to discuss freely about each topic, but also to discuss other ideas. We chose to conduct the interview through a semi-structured approach as our aim was precisely to let the interviewees talk freely about their ideas, while following a structure pre-defined by us based on our remarks from the theoretical part of the research.

Finally, after having acquired knowledge through the interview about the most relevant factors to be investigated further, we have decided to address the empirical study by conducting an online questionnaire in order to collect quantitative data to answer the research questions. We chose this method to collect data as it enabled us to evaluate and quantify investor groups' perspectives and experience in a structured way, while facilitating the access to the potential respondents when in comparison to other quantitative methods such as interviews, or paper questionnaires.

The questionnaire used on our study was fully conducted in English, and consisted of 23 questions divided into three main sections. The first section, aimed to analyze the investor profile of the respondent, was composed by 9 questions. These questions were used to understand certain aspects related to the investor's profile such as their preferred sectors to invest, most used sources to search for startups and funding stages where they typically invest. The second section was composed for 8 questions, and its objective was of collecting data about the investors' perception of ecosystem builders. The questions comprised in this section focused on assessing the respondent's perspectives and past experience on topics such as the importance of ecosystem builders to startups, their role in helping investors finding better investment opportunities and ecosystem builder's focus on the respondent's priority investment sectors. Finally, the third section aimed to measure the cooperation between ecosystem builders and investor groups, being encompassed by 6 questions. In this section not only we analyzed the respondent's cooperation with ecosystem builders, but we also aimed to collect their opinion about how to improve such cooperation through two open-ended questions on that topic.

When designing the questions used in the questionnaire we were careful not to design questions that might led to confusion or misinterpretation by the respondent, either due to non-comprehensive language or by inappropriate answer format. With that concern in mind, we created a preliminary questionnaire, which we sent to two investors who volunteered to complete it and provide feedback on how to improve it. Based on the feedback received from the respondents, we took their advice into consideration and developed a second questionnaire, where the points highlighted on the feedback to the first questionnaire were analyzed and addressed.

4.4 Sample selection

The main ecosystem actors under study in this research work are ecosystem builders and investor groups. However, due to limitations of the dissertation, we decided to focus on studying solely the perception of investor groups concerning this topic. Hence, the data collection of this work was gathered from a sample composed by two investor groups: business angels and venture capitalists.

Since this research was partly developed in collaboration with Beta-i, an organization based in Portugal focused in entrepreneurship and innovation, and our network of contacts was somewhat geographically limited to Portugal, the core of our sample was composed by Portuguese respondents. However, with the aim of providing conclusive recommendations that might valid not only to Portugal but to the overall European region, we also included in our sample some respondents from two of the most important countries in the European entrepreneurship landscape, U.K. and Germany. Although the conclusions from the results collected in these two countries will be rather limited, as the number of respondents from each country was insufficient to present valid conclusions on their regional ecosystems, these will be interesting to compare with the results assessed in Portugal mainly to understand how much they deviate from one another.

During the data selection we faced some difficulties with regard to the selection of a sample, as overcoming the limitation in numbers of the Portuguese investor landscape as well as the specificity of this sector, proved to be challenging. However, we feel that we were able to gather a representative sample of the Portuguese investor landscape, as using our network within the ecosystem builders' scene enabled us to reach the majority of the most relevant investor groups in Portugal.

Chapter 5

Results

The following chapter will present the results of the empirical study. First, the characterization of the sample of respondents will be provided, where the dimension and profile of the sample will be analyzed. Afterwards, the overall results from the questionnaire will be presented, and finally the individual results by country and by investor group type will be presented.

5.1 Sample Characterization

The questionnaire was published online, through Google Forms, from 8 of January 2016 to 8 of February 2016, having being divulged by email to investor groups carefully selected in Portugal, U.K. and Germany. The respondents who have participated in this study are presented in Table 5.1. From the sample of respondents, it should be noticed that two investor groups preferred not be identified.

Table 5.1 – Research participants

Portugal	
Best Horizon	Beta Capital
BrainTrust	Busy Angels
CPSCR	Critical Ventures
DNA Cascais	Eggnest
ES Ventures	IST TagusPark
NAVES SCR	Novabase Capital
RED angels	Rising Ventures
Shillling Capital Partners	

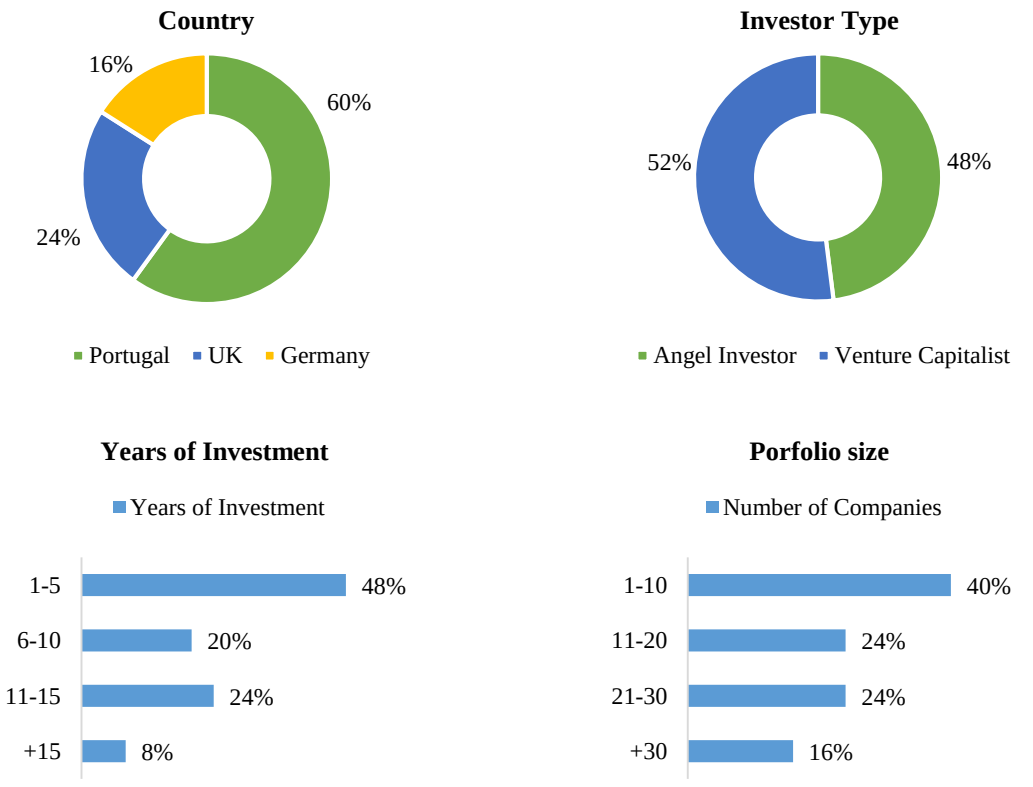
U.K.	
Coral Reef	FINTECH Circle
Ignite	Hoxton Ventures
Longwall Venture Partners	Startup Funding Club

Table 5.1 – Research participants (Continuation)

Germany	
IBB Beteiligungsgesellschaft	Rotonda Business Angels

From the selected investor groups, a total of 25 investors have responded to the questionnaire, from which 13 were venture capitalists and 12 were business angels. Portugal, with 15 respondents, was the main source of data from this study, with U.K. and Germany contributing each with 6 and 4 responses respectively. In average, the respondents to the questionnaire invested in startups for 8 years and possessed a startup portfolio comprised by approximately 21 companies. Further information about the respondent's profile is detailed in Figure 5.1.

Figure 5.1 – Respondents' profile



With regard to the respondents' investor profile, their main areas of investment focused on technology sectors, such as Software, Mobile, Enterprise software, e-Commerce and Healthcare IT and services, and usually they invest almost exclusively in early stage and seed stage companies. The respondents typically use startup events, incubators, accelerators and angel networks as their major sources of startups, with startup events being considered the source of their most valuable investments. More details about the respondents' investor profile are presented bellow in Figure 5.2 and Table 5.2.

Figure 5.2 – Investors' current sectors of investment

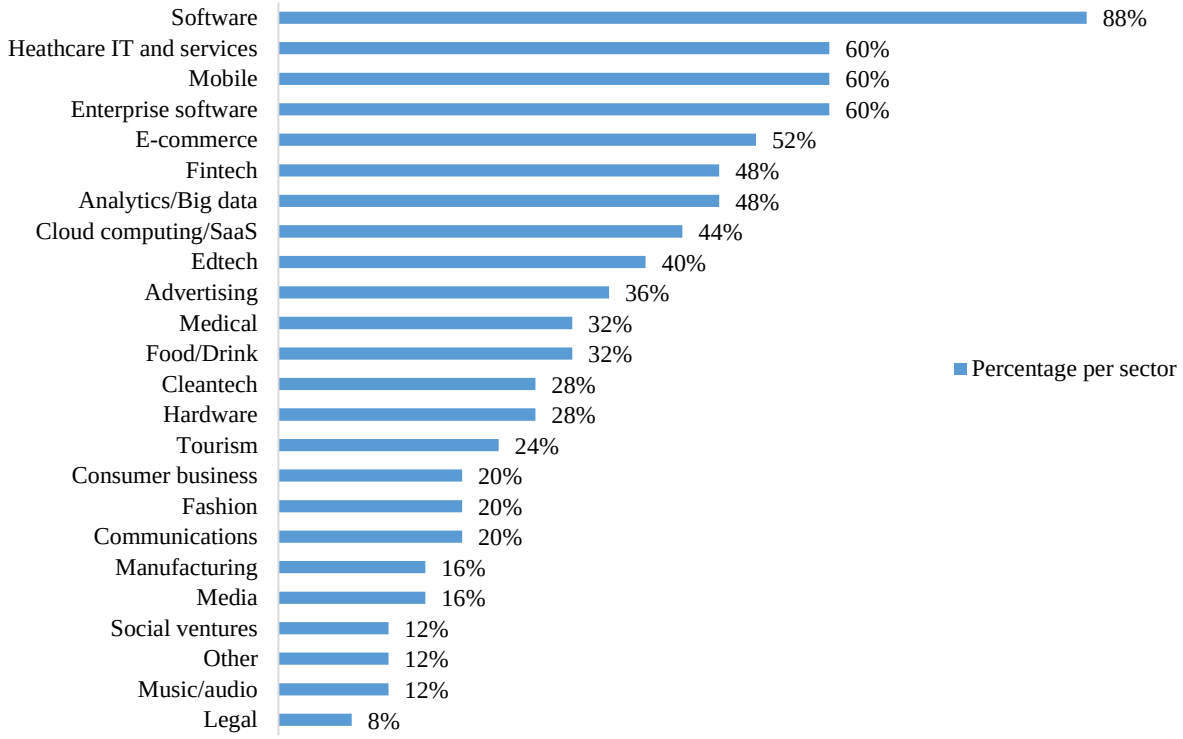


Table 5.2 – Investors' startup sources

	Variable	Average score (1-7)
Startup sources	Startup Events	5,1
	Incubators	4,8
	Accelerators	4,6
	Angel Networks	4,6
	Universities	4,2
	Social network platforms	2,8
	Crowdfunding websites	1,8
Startup sources by value	Startup Events	5,2
	Angel Networks	4,8
	Incubators	4,7
	Accelerators	4,6
	Universities	4,6
	Social network platforms	2,5
	Crowdfunding websites	1,5

5.2 Questionnaire results

On the following paragraphs the questionnaire results will be presented and discussed, where based on the collected data we aim to assess on investor groups' opinions and perspectives concerning the several subjects deemed to be relevant for the scope of the research.

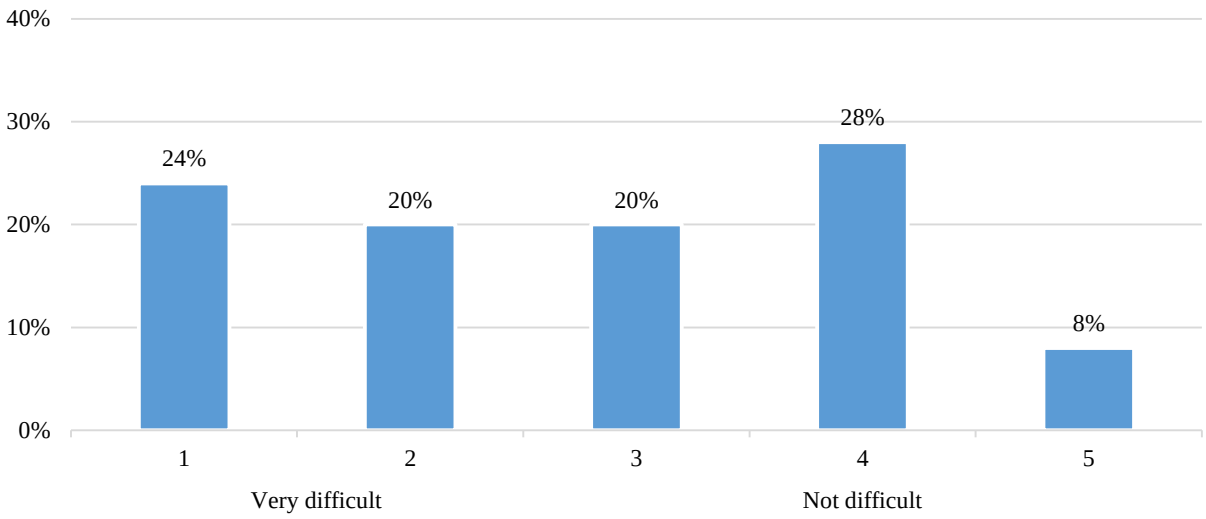
Three main subjects will be evaluated through the course of this section: Investment opportunities; Ecosystem builders' added value to startups; and Cooperation between ecosystem builders and investor groups.

5.2.1 Investment opportunities

The first subject under study in this questionnaire relates to ecosystem builders' role on helping investor groups finding good investment opportunities and on promoting the emergence of startups within investor groups' priority sectors of investment.

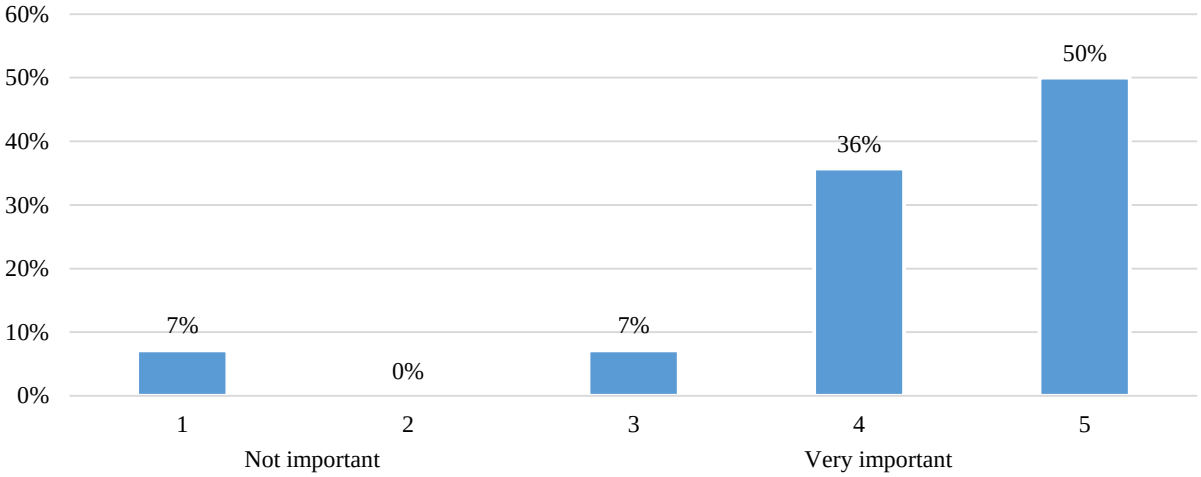
Figure 5.3 illustrates investor groups' perception about the difficulty to find good investment opportunities.

Figure 5.3 – Investors' perception on the difficulty to find good investment opportunities



With regard to the presented data it's possible to state that the respondents' opinion about the difficulty to find good investment opportunities is rather well distributed, with almost the same number of respondents rating it as either being difficult or not difficult, thus emphasizing the heterogeneity of the overall investor landscape with regard to this topic.

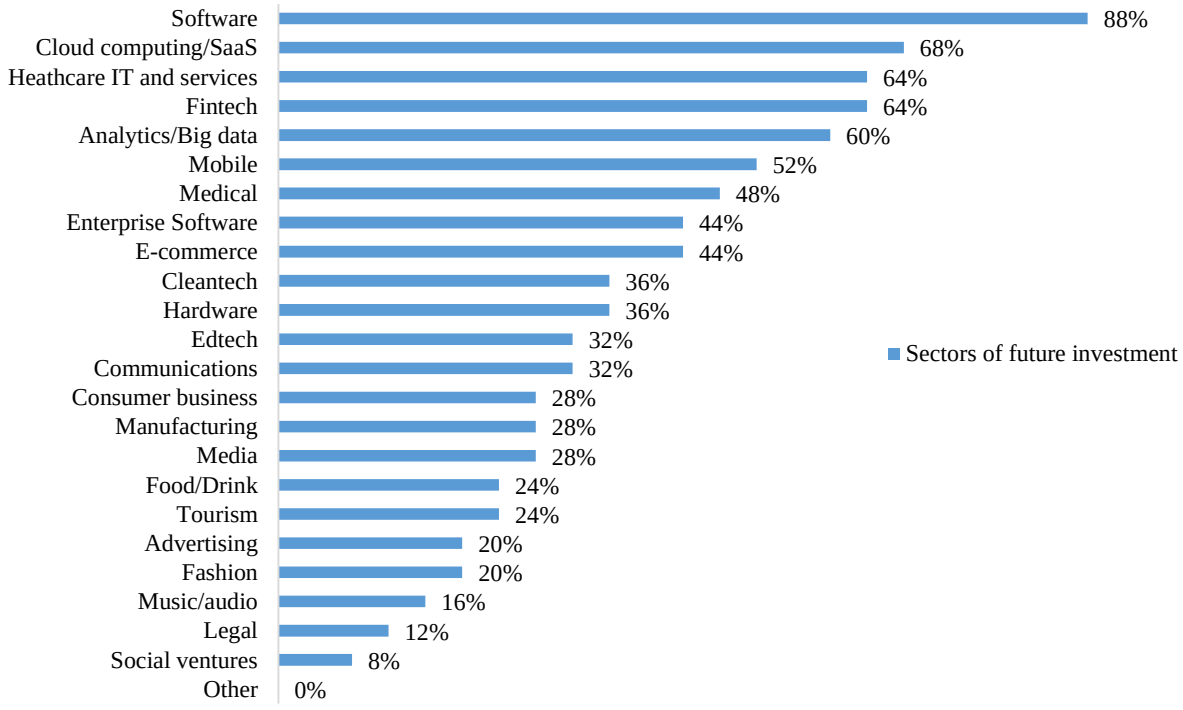
Figure 5.4 – EBs' role on finding good investment opportunities



Concerning to the ecosystem builders' role on helping investor groups finding good investment results, the results depicted in Figure 5.4 show that the majority of the respondents recognize ecosystem builders' importance, with 86% of the respondents rating them as important or very important, and merely 7% rating ecosystem builders as being not important.

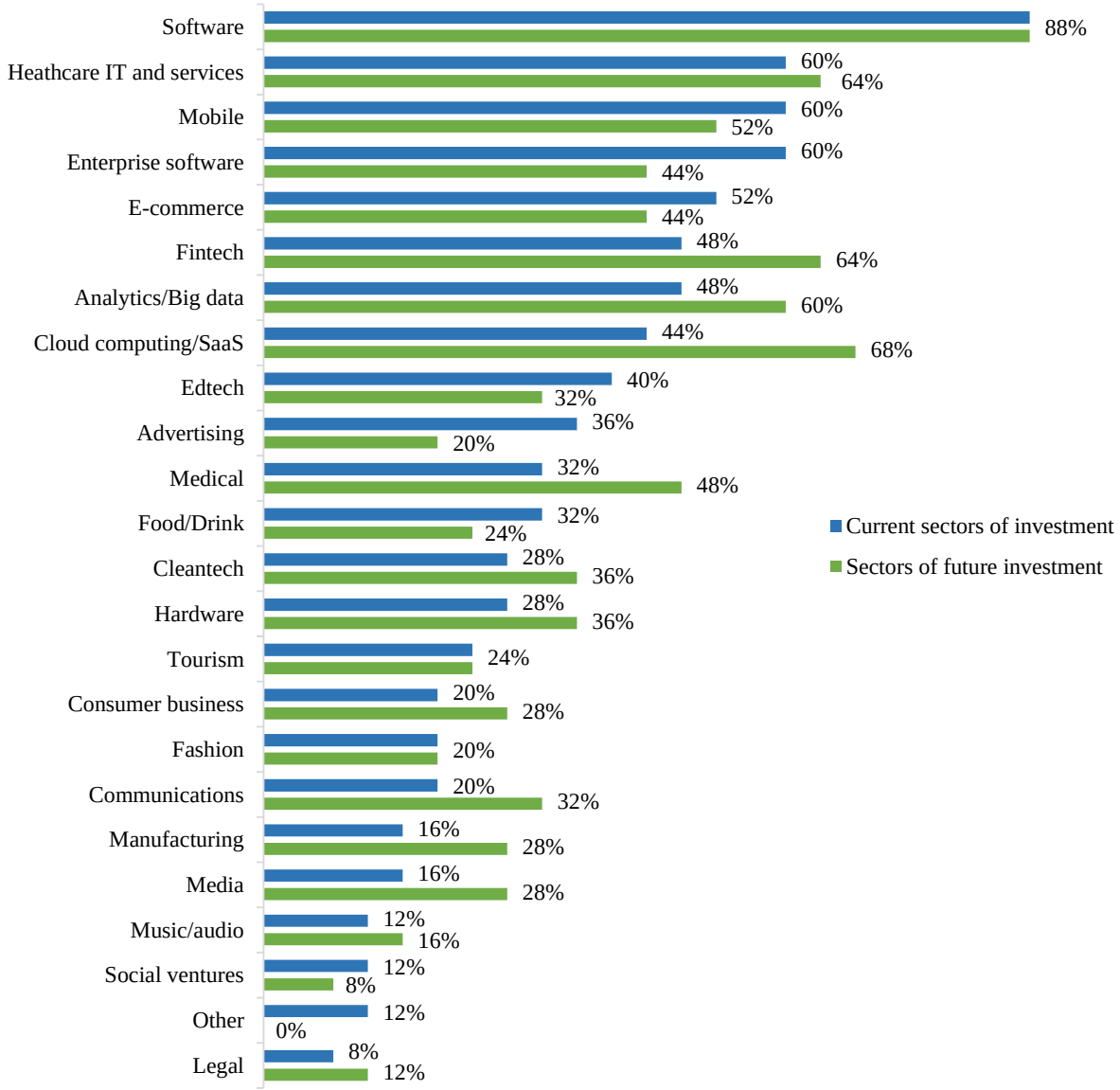
Having analyzed the respondents' perception concerning to the ecosystem builders' role on helping them finding good investment opportunities, it's interesting to investigate which sectors investor groups consider their priority sectors for future investment and how they perceive ecosystem builders efforts on promoting the emergence of startups in those sectors.

Figure 5.5 – IGs' sectors of future investment



Analyzing Figure 5.5, where investor groups' sectors of future investment are presented, it's possible to state that, similarly to what can be seen with regard to their current sectors of investment, the respondents aim to invest particularly on technology sectors. From these, Software was the most highlighted sector, with 88% of the respondents stating their intention to invest in it, followed by Cloud computing/SaaS, Healthcare IT and services, Fintech and Analytics/Big data.

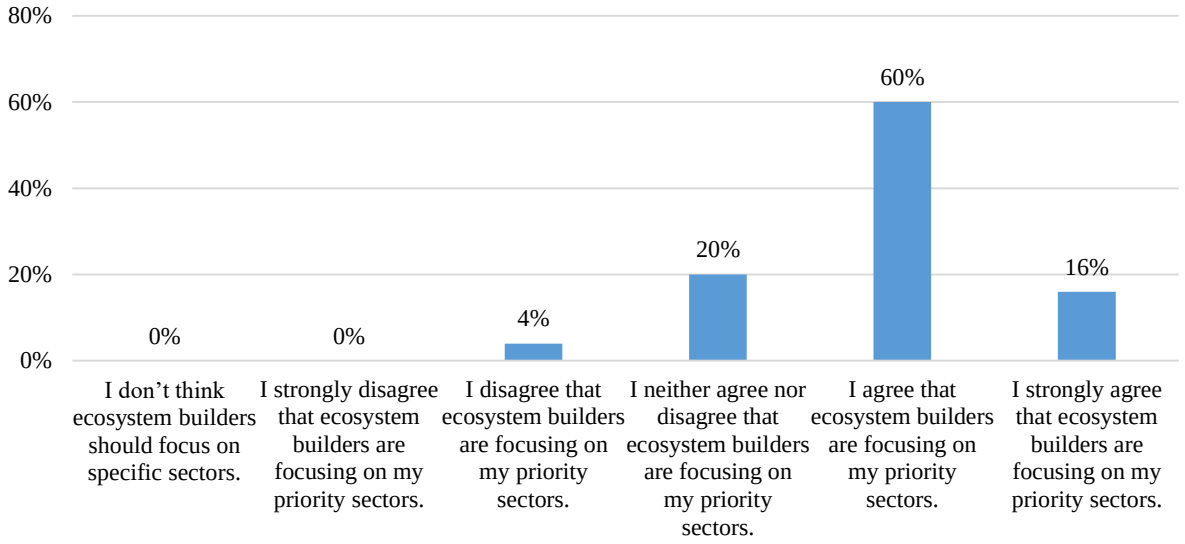
Figure 5.6 – Comparison between IGs' current and future sectors of investment



Comparing investor groups' current areas of investment and their sectors for future investment, depicted in Figure 5.6, we can see that the Cloud computing/SaaS sector presented the greatest growth in interest among all sectors under study in this dissertation, growing 24% in the respondents' intentions of investment, moving from 44% to 68%. Other sectors that reported an increase in interest by investor groups with regard to their intentions of future investment were Healthcare IT and services, Fintech, Analytics/Big data, Medical, Cleantech, Hardware, Consumer business, Communications, Manufacturing, Media, Music/audio and Legal. On the opposite way, Enterprise Software was the sector

which registered the largest loss of interest, moving from 60% to 44% in the intentions of future investment, with Mobile, E-commerce, Edtech, Advertising and Food/Drink sectors following a similar trend.

Figure 5.7 – EBs' focus on IGs' priority sectors



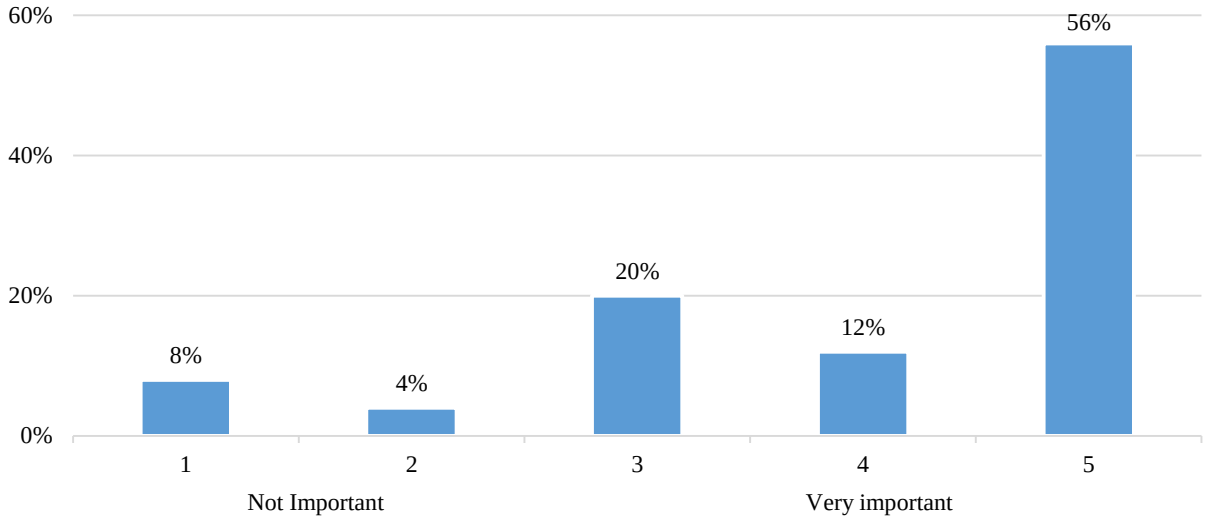
Regarding to the ecosystem builders focus on the investor groups' priority sectors of investment, illustrated in Figure 5.7, the results are frankly positive, with 76% of the respondents agreeing that they are indeed focusing on their priority sectors of investments, and only 4% disagreeing that ecosystem builders are focusing on their priority sectors.

The results above presented reveal that ecosystem builders are in tune with investor groups with regard to the investors' needs, who largely qualified ecosystem builders' efforts on helping them finding good investment opportunities and on promoting the emergence of startups within their priority sectors of investment, as being widely positive.

5.2.2 Ecosystem builders' added value to startups

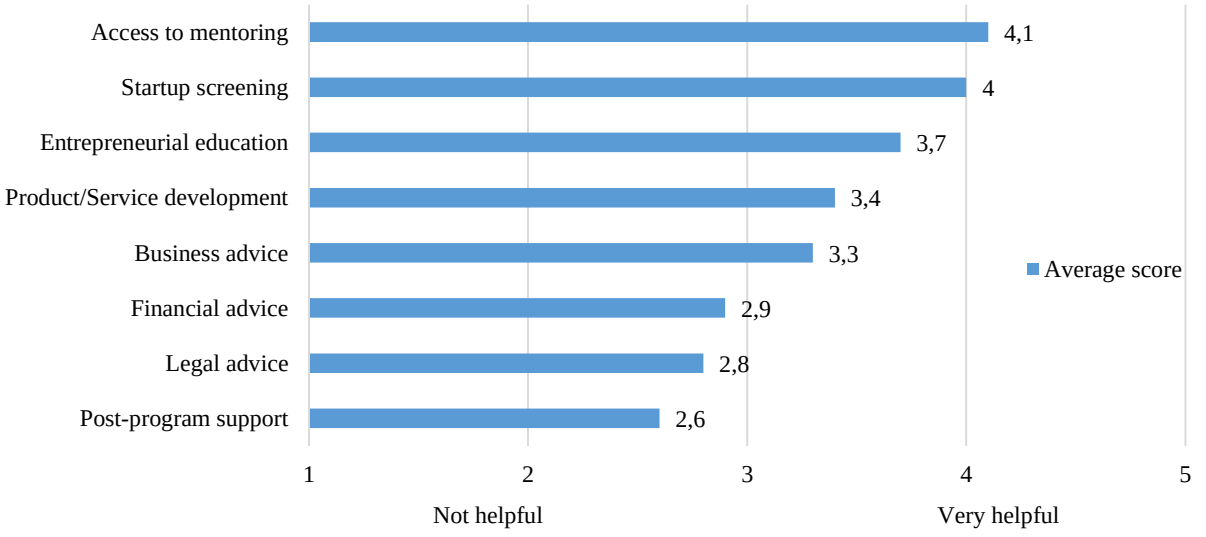
The second subject which we aimed to study through this questionnaire related to the added value generated to startups by ecosystem builders. Figure 5.8 presents the respondents' perception regarding to the ecosystem builders' role in the creation of successful startups.

Figure 5.8 – EBs' role in the creation of successful startups



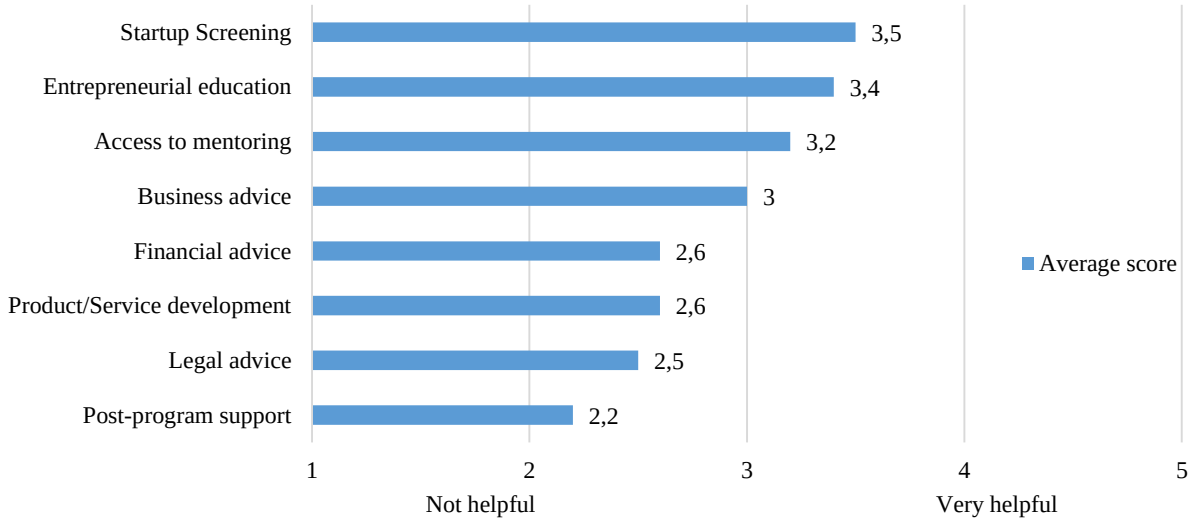
By analyzing Figure 5.8 it's possible to conclude that investor groups perceive ecosystem builders as being influential in the creation of successful of startups, with 68% of the respondents qualifying them as being important, and only 12% rating them as being not important.

Figure 5.9 – Accelerator programs' added value elements



With regard to the elements where accelerator programs generate the value to startups, as illustrated in Figure 5.9, Access to mentoring was rated as the element where accelerator programs add the most value to startups, with Startup screening and Entrepreneurial education also being highlighted by the respondents. On the opposite end, Post-program support, Legal advice and Financial advice are perceived by investor groups as the elements where these programs add the least value to startups.

Figure 5.10 – Incubators' added value elements



Concerning to incubators' added value elements to startups, above depicted in Figure 5.10, the respondents rated Startup screening as the most valuable element that incubators offer to its incubatees, followed by Entrepreneurial education and Access to mentoring. As for the elements where these entities generate the least value to startups, Post-program support and Legal advice were pointed out as the elements where incubators have helped the least their incubatees.

Figure 5.11 – Comparison between accelerator programs and incubators' added value elements

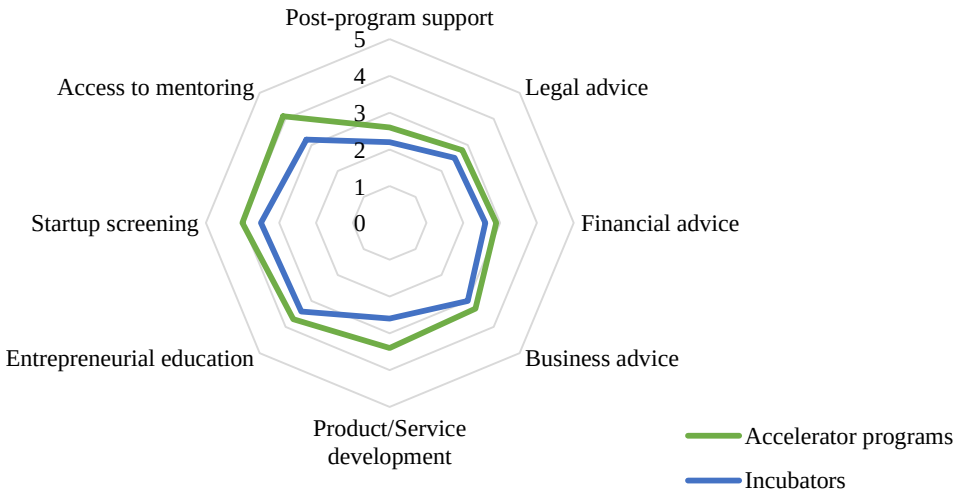
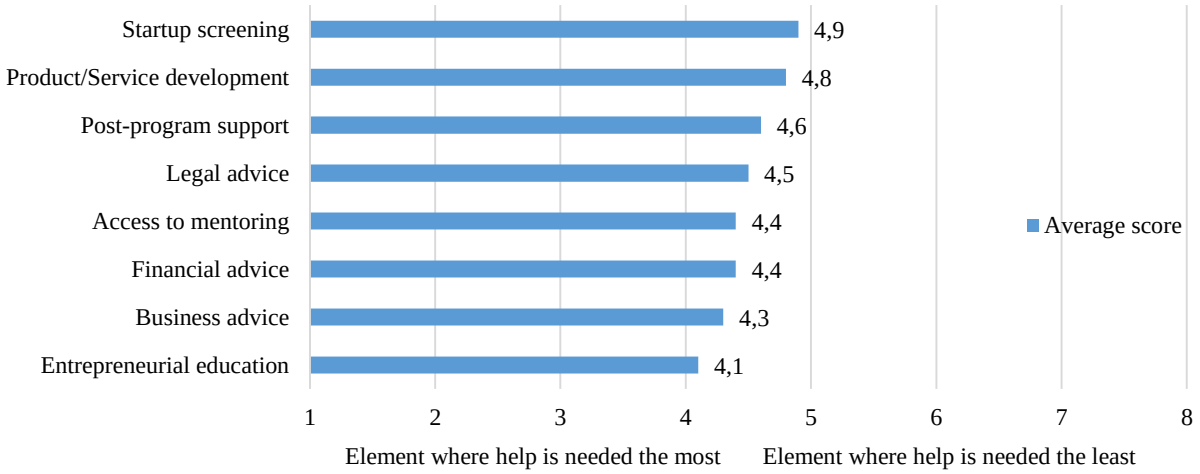


Figure 5.11 presents a comparison between the perceived added value elements of accelerator programs and incubators. By analyzing this comparison we can state that, although the perceived elements where both accelerator programs and incubators add the most and the least value to startups don't differ much from one another, the average scores from the accelerator programs' added value elements are noticeably higher than the ones from incubators. Hence it's possible to conclude that investor groups perceive accelerator programs as being more valuable to startups than incubators.

Figure 5.12 – EBs' elements to be improved



With regard to the ecosystem builders' added value elements that investor groups perceive as being important to improve, illustrated in Figure 5.12, Entrepreneurial education was highlighted as the element where help is needed the most, followed by Business advice. As for the elements where improvement is needed the least, investor groups rated Startup screening and Product/Service development as the elements where they believe ecosystem builders should focus the least on improving.

By analyzing the collected data about the added value provided by ecosystem builders to startups we were able to understand that, although the overall perception of investor groups concerning ecosystem builders' role on this topic is positive, there still exists space for improvement with regard to the way these ecosystem actors generate value to startups.

5.2.3 Cooperation between ecosystem builders and investor groups

The final subject under study in this questionnaire related to the cooperation between ecosystem builders and investor groups.

Figure 5.13 and Figure 5.14 present the results to our study about the investor groups' support to ecosystem builders.

Figure 5.13 – IGs' support to EBs

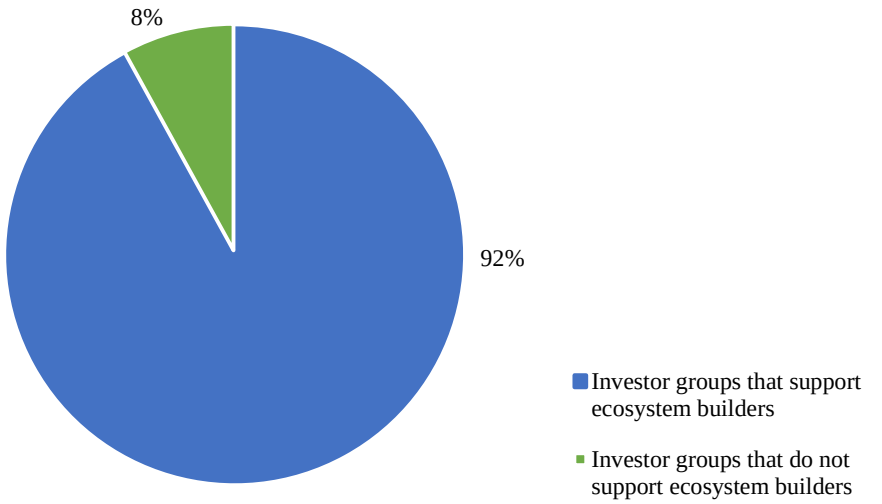
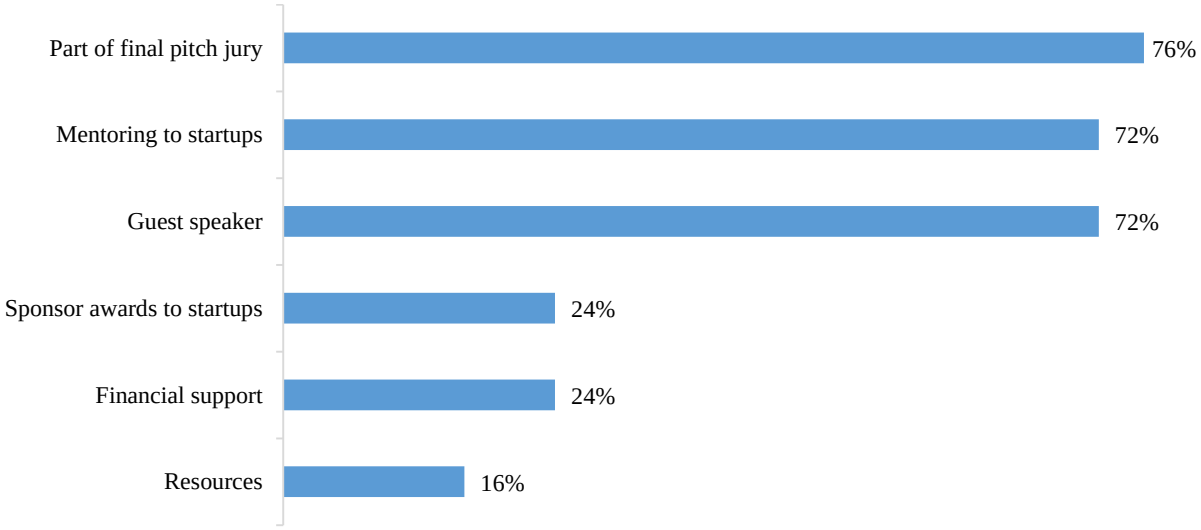


Figure 5.14 – Type of support provided to EBs



Based on the collected data about the support provided by investor groups to ecosystem builders, we can see that 92% of the respondents claimed that they support ecosystem builders. From these, the most common forms of support are the participation in final pitch juries, mentoring startups and guest speaking to entrepreneurs. While some investor groups also support ecosystem builders through other means, namely by providing resources, financial support and sponsoring awards to startups, only a reduced fraction of these provide such types of support. From these results we can conclude that investor groups support ecosystem builders mainly by passing on knowledge and experience to startups, while material goods aren't as highly favored as a mean of support.

Figure 5.15 – Information share between IGs and EBs

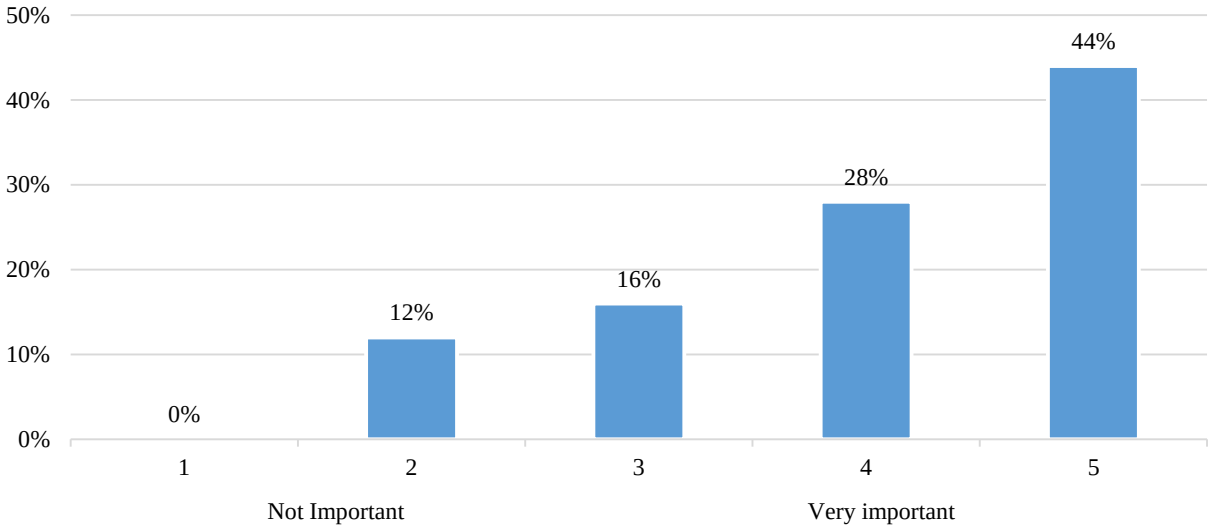
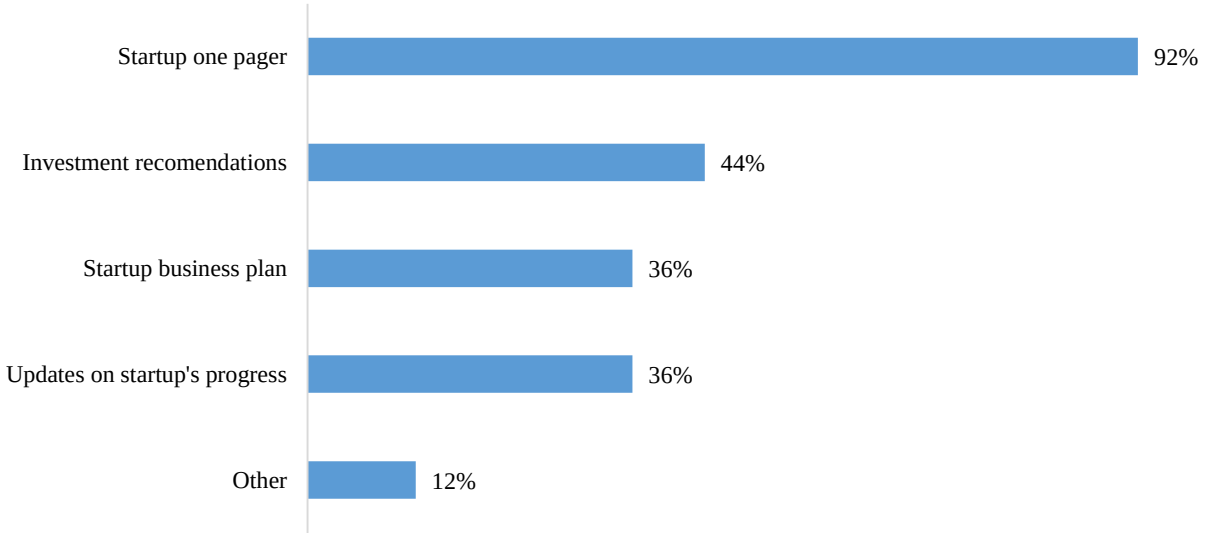


Figure 5.16 – Types of information shared by EBs



With regard to our study to the information sharing between investor groups and ecosystem builders, depicted in Figure 5.15 and Figure 5.16, it's possible to state that investor groups see information share as an important component in the cooperation between these two actors, with 72% of the respondents rating it as important and only 12% considering it not important. As for the different types of information shared through such cooperation, the collected data shows that startup one pagers are by far the most shared information by ecosystem builders, with 92% of the respondents indicating to receive such information. Investment recommendations was highlighted the second most shared type of information, followed by startup business plans, updates on startups development and others, all of which with less than half of the respondents reporting such share of information.

Table 5.3 – Suggestions to improve cooperation between IGs and EBs

– Promote more entrepreneurship events
– Prioritize national investors in favor of foreign investors
– Promote a closer cooperative work between ecosystem builders and investor groups more often
– Include investors earlier in the programs, and at a deeper level throughout every stage of the programs
– Focus on sharing more relevant information to the investors about promising prospects of investment
– Improve the communication levels between ecosystem builders and investor groups, and between the ecosystem builders themselves
– Better address the needs of investors, with particular focus on startup scouting and post-program support to startups until they reach proper investment readiness levels
– Work together with investors to better understand the critical factors behind the investors' most successful startups, and focus on improving education and mentoring in those areas

Table 5.3 presents the summary of the assessment to the investor groups' perspectives about how to improve their cooperation with ecosystem builders. By observing these results we conclude that investor groups' suggestions focus on several areas, namely on improving the communication levels between both actors, collaborating earlier and at a deeper level, promoting a closer involvement more often, organizing more entrepreneurship events, understanding the critical factors behind successful startups in order to improve education and mentoring in those areas, and on better addressing investors' needs.

Table 5.4 – Suggestions to improve information sharing between IGs and EBs

– Create a common platform to share information specifically with investors
– Share information with investors more proactively and on a more regular basis
– Filter the information shared with investors, so that it better fits each investor's profile
– Promote meetings between investors and startups that might match the investor's criteria
– Share more information with investors concerning the development of their startups, and provide their insights on future prospects of investment

Concerning to our study on how to improve information sharing between investor groups and ecosystem builders, summarized in Table 5.4, the results mainly pointed out to the necessity of creating a common platform to share information with investors, of sharing information more proactively and in a more regular basis, of sorting the shared information by investor profile, of promoting more meetings between investors and startups, and of providing updates about the progress of startups and about future prospects of investment.

5.3 Results by sample group

Having presented the overall results from our questionnaire, we'll now present the individual results by sample group. Based on the sample characterization previously presented, over the course of this subchapter the results from the different investor groups (i.e. venture capitalists & business angels) and from the different countries (i.e. Portugal & Germany-U.K.) will be illustrated.

5.3.1 Venture capitalists' results

Figure 5.17 – IGs' perception on the difficulty to find good investment opportunities (VCs' results)

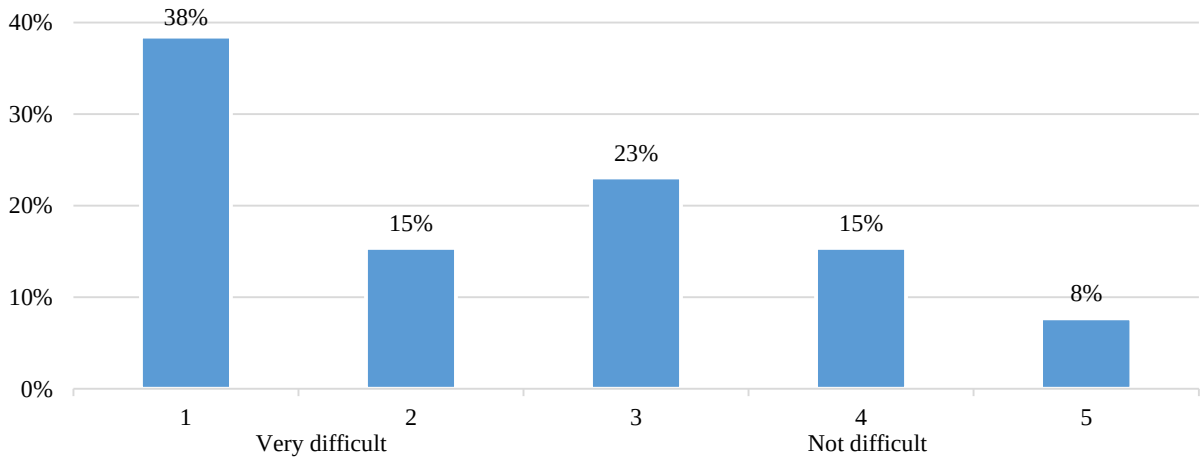
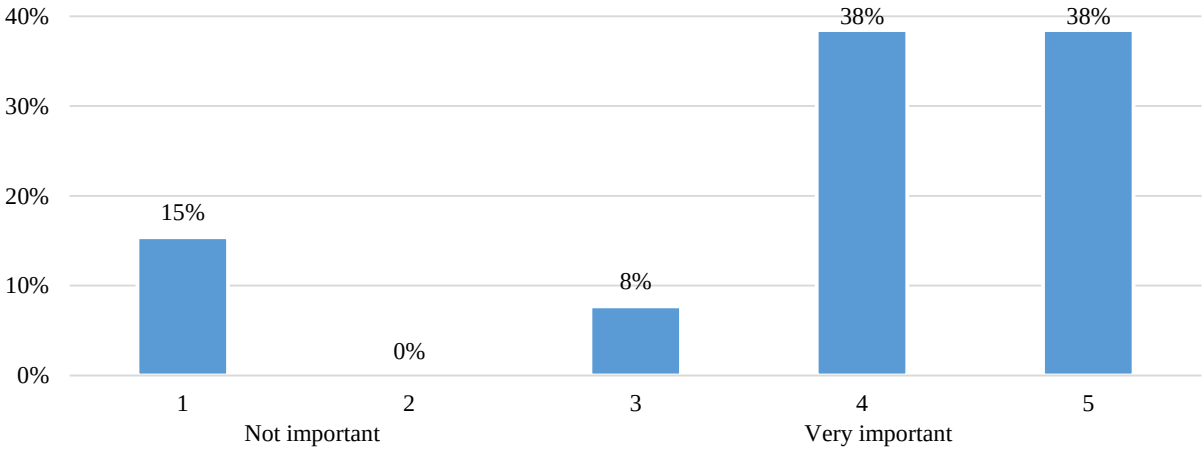


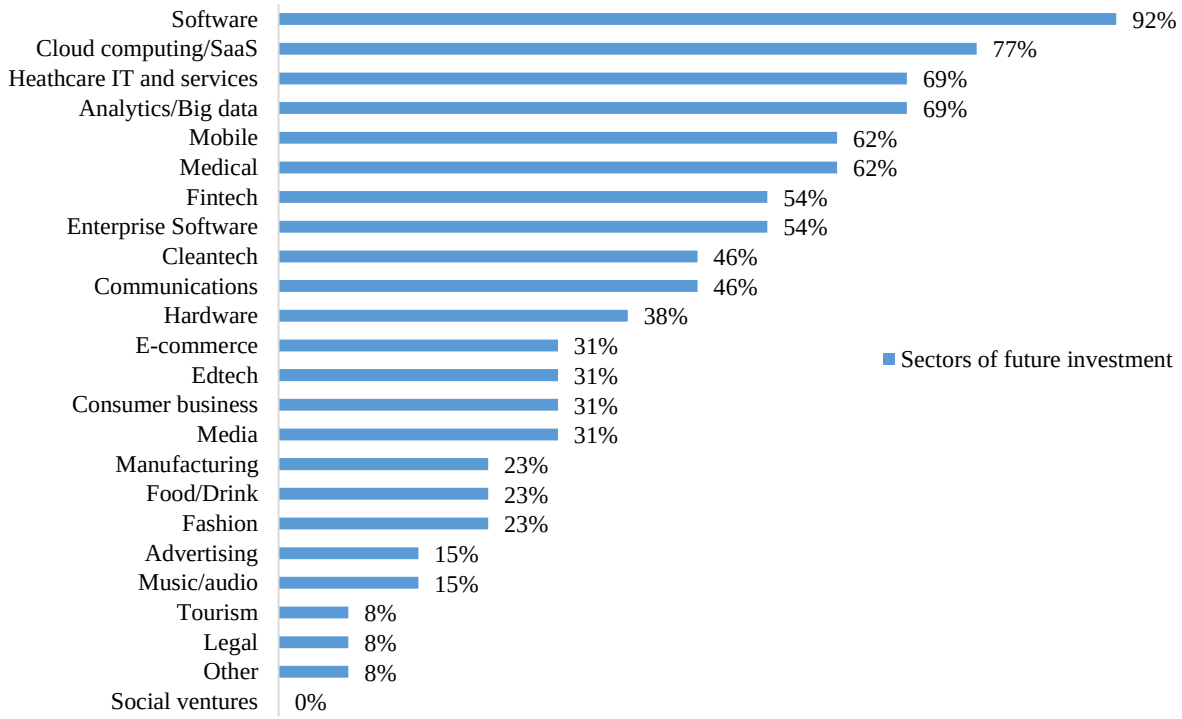
Figure 5.17 presents venture capitalists' perception concerning to the difficulty to find good investment opportunities. Analyzing the presented data, the results depicted in Figure 5.17 show that the majority of the respondents rate the search for good investment opportunities as being difficult, with 53% of the respondents rating it as difficult, and merely 23% rating this activity as being not difficult.

Figure 5.18 – EBs' role on finding good investment opportunities (VCs' results)



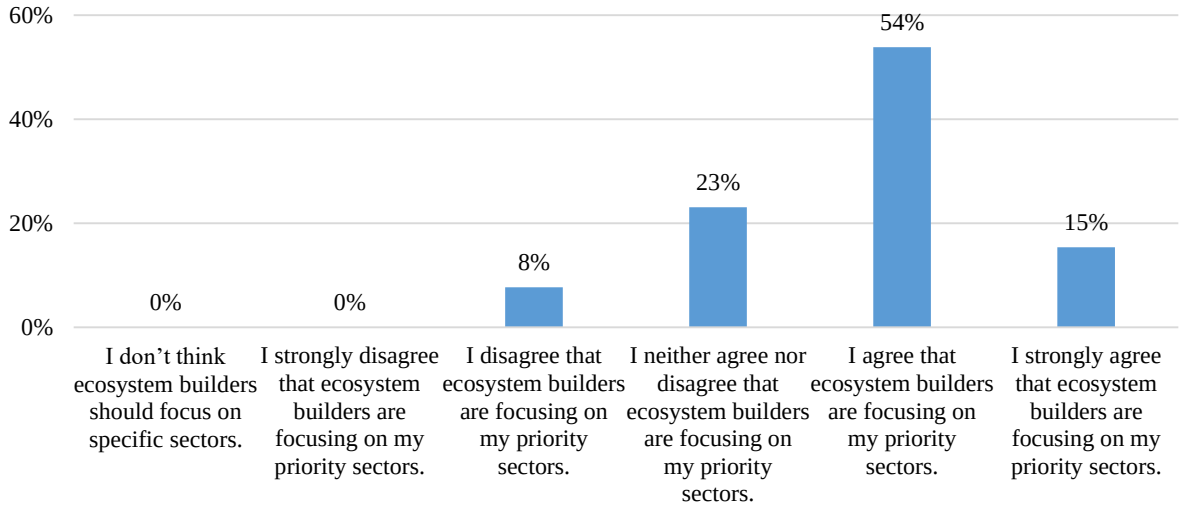
With regard to ecosystem builders' role on helping investor groups finding good investment opportunities, illustrated in Figure 5.18, the presented data shows that venture capitalists perceive ecosystem builders as being extremely important, with 76% of the respondents rating them as important, against only 15% of the respondents who perceive such role as not being important.

Figure 5.19 – IGs' sectors of future investment (VCs' results)



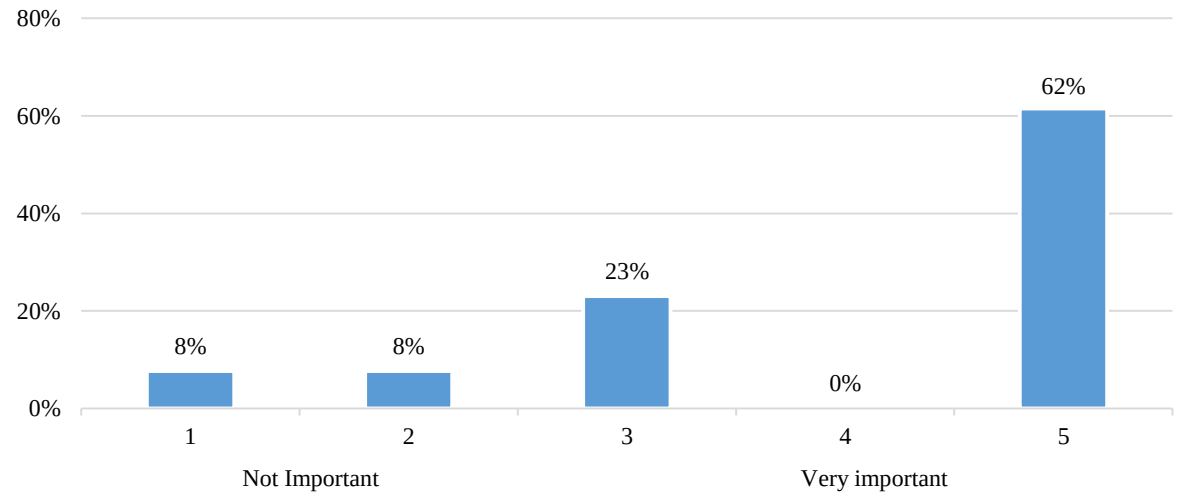
Regarding venture capitalists' sectors of future investment, illustrated in Figure 5.19, the results show that the respondents mainly aim at technology sectors, with Software being the most highlighted sector, with 92% of the respondents claiming their intention to invest in this sector, being followed by Cloud computing/SaaS, Healthcare IT and services, and Analytics/Big data.

Figure 5.20 – EBs' focus on IGs' priority sectors (VCs' results)



Analyzing Figure 5.20, where the ecosystem builders' focus on the investor groups' priority sectors of investment is evaluated, we can state that the majority of the inquired venture capitalists believe that their priority sectors are indeed being addressed, with 69% of the respondents agreeing that their priority sectors of investments are being address, against only 4% of the inquired venture capitalists who disagree that ecosystem builders are focusing on their priority sectors.

Figure 5.21 – EBs' role in the creation of successful startups (VCs' results)



With regard to venture capitalists' perception about the role of ecosystem builders in the creation of successful startups, illustrated in Figure 5.21, most respondents rated these entities' role as being important, with 62% of the respondents sharing such perception. On the opposite end, only 16% of the inquired venture capitalists perceived ecosystem builders' role as being not important.

Figure 5.22 – Accelerator programs' added value elements (VCs' results)

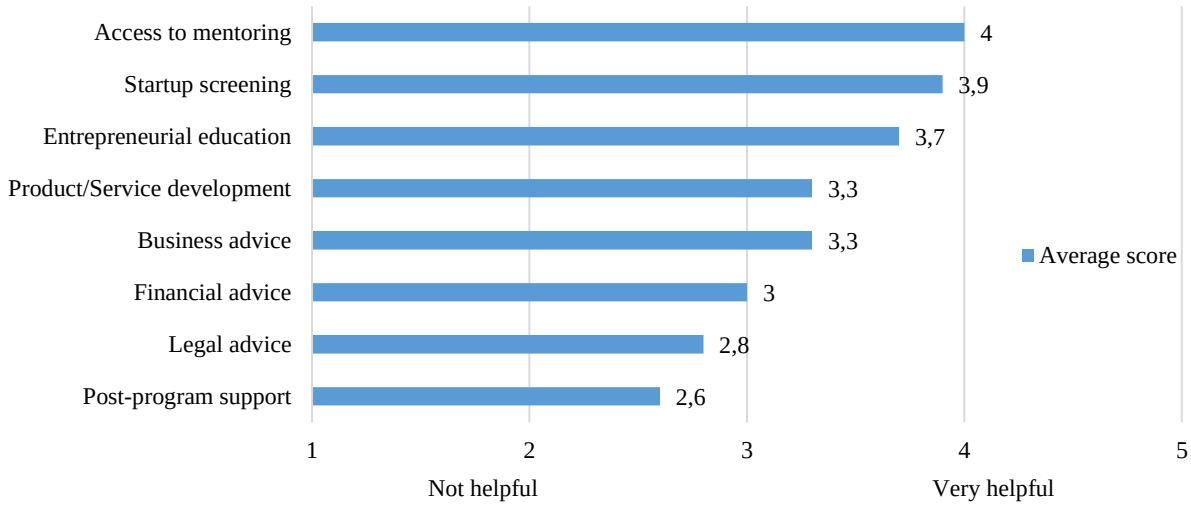
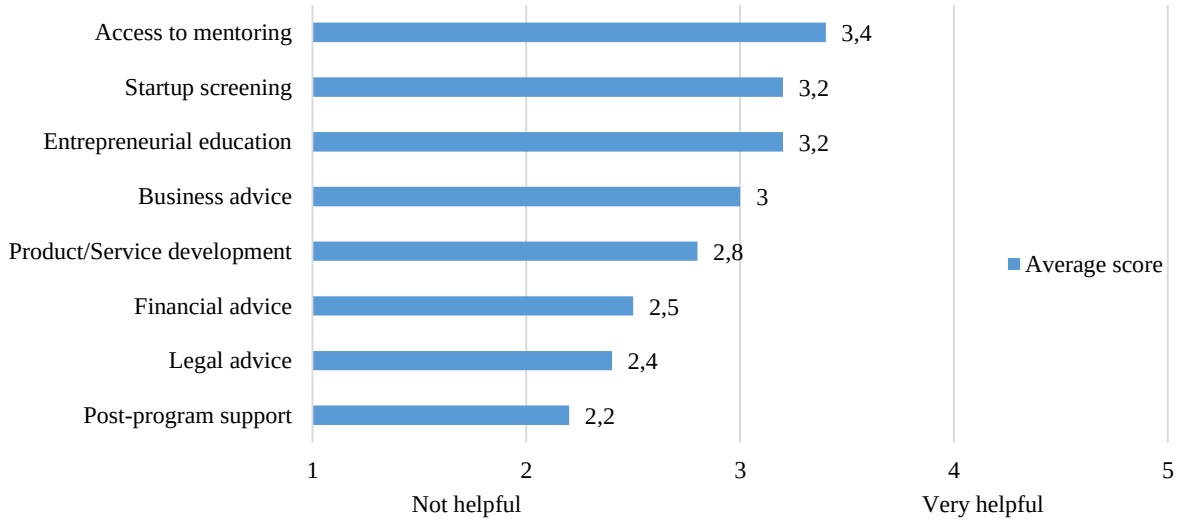


Figure 5.22 presents the respondents' perception concerning to the elements where accelerator programs generate the value to startups. By analyzing the results we can see that Access to mentoring was rated as the element where accelerator programs add the most value to startups, with Startup screening and Entrepreneurial education also being highlighted by the respondents. On the opposite end, Post-program

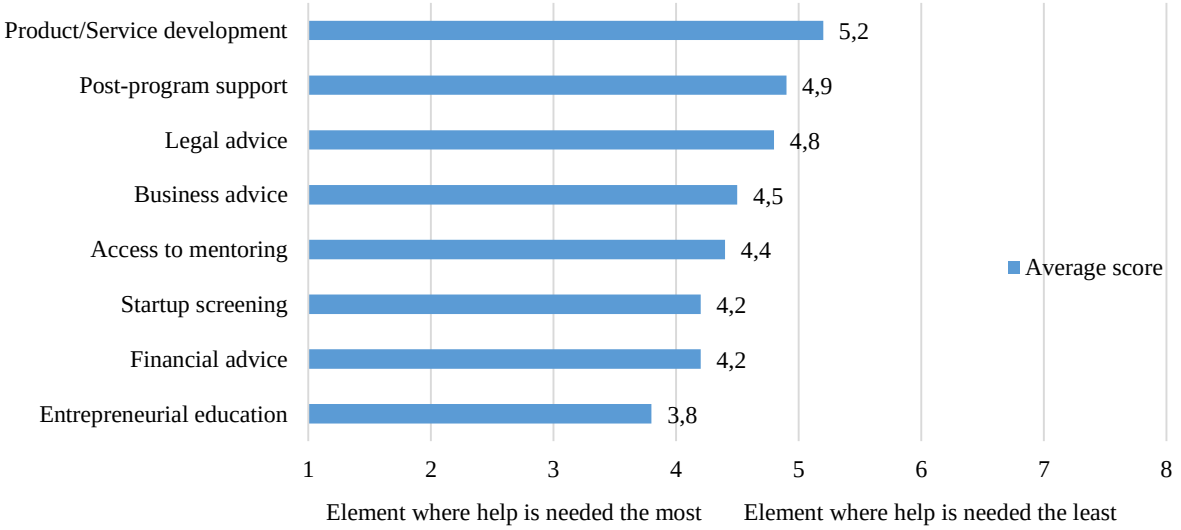
support, Legal advice and Financial advice are perceived by venture capitalists as the elements where these programs add the least value to startups.

Figure 5.23 – Incubators' added value elements (VCs' results)



Concerning to incubators' added value elements to startups, above depicted in Figure 5.23, the inquired venture capitalists rated Access to mentoring as the most valuable element on incubators' intervention to startups, followed by Startup screening and Entrepreneurial education. As for the elements where these entities generate the least value to startups, Post-program support, Legal advice and Financial advice were pointed out as the elements where incubators have helped the least their incubatees.

Figure 5.24 – EBs' elements to be improved (VC's results)



Regarding to the ecosystem builders' added value elements that venture capitalists perceive as being important to improve, illustrated in Figure 5.24, Entrepreneurial education was outlined as the element where help is needed the most, followed by Financial advice and Startups screening. As for the elements where improvement is needed the least, the respondents rated Product/Service development, Post-

program support and Legal advice as the elements where they believe ecosystem builders should focus the least on improving.

Figure 5.25 – IGs' support to EBs (VC's results)

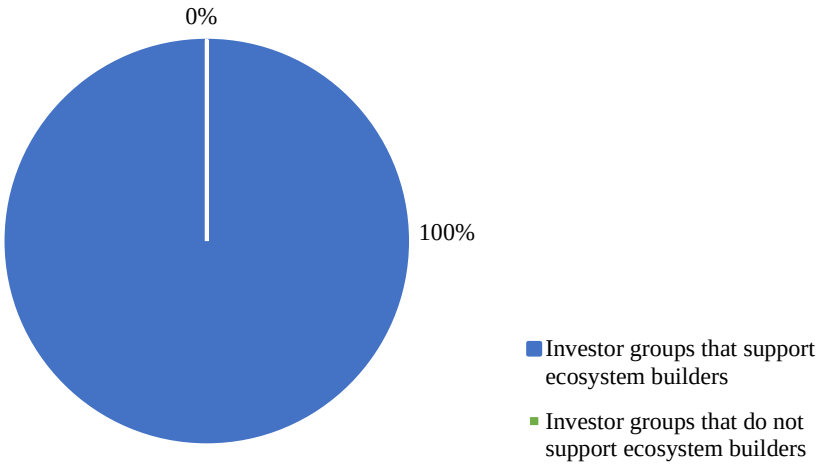
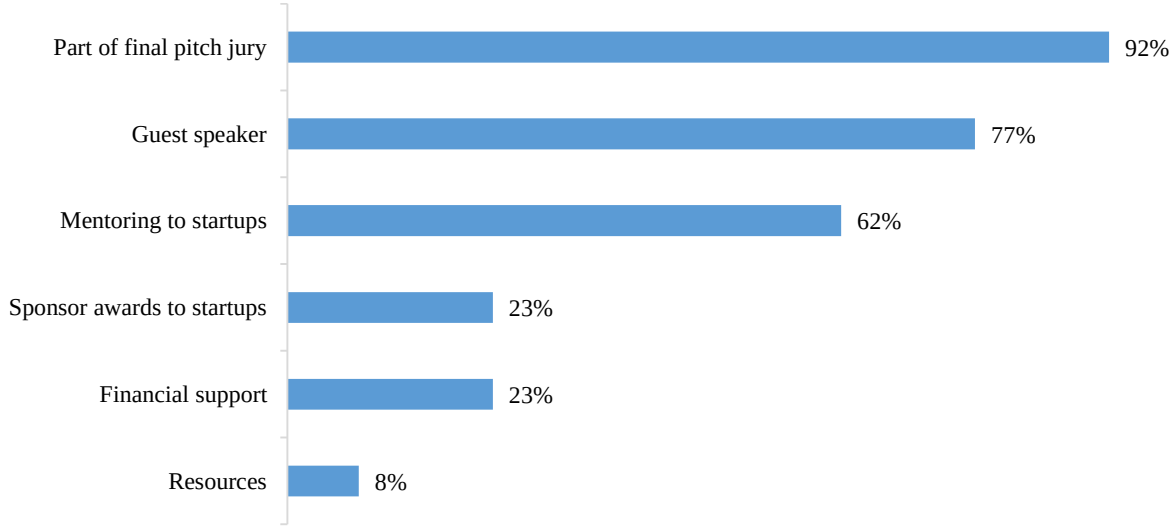


Figure 5.26 – Type of support provided to EBs (VCs' results)



Based on the collected data presented in Figure 5.25 and Figure 5.26, where the assessment on venture capitalists' support to ecosystem builders is depicted, we can see that 100% of the respondents claimed that they support ecosystem builders. From these, the most common forms of support are the participation in final pitch juries, guest speaking and mentoring to startups. Although some venture capitalists also support ecosystem builders through other means, namely by providing resources, financial support and sponsoring awards to startups, only a small fraction of these provide such types of support, with most venturing capitalists mainly contributing to ecosystem builders by passing on knowledge and experience to startups.

Figure 5.27 – Information share between IGs and EBs (VCs' results)

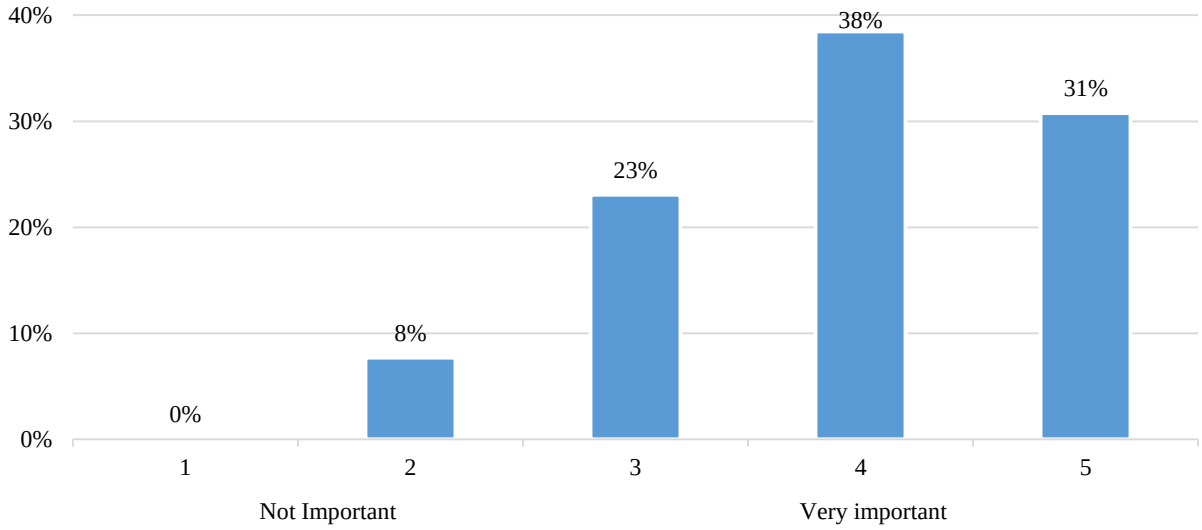
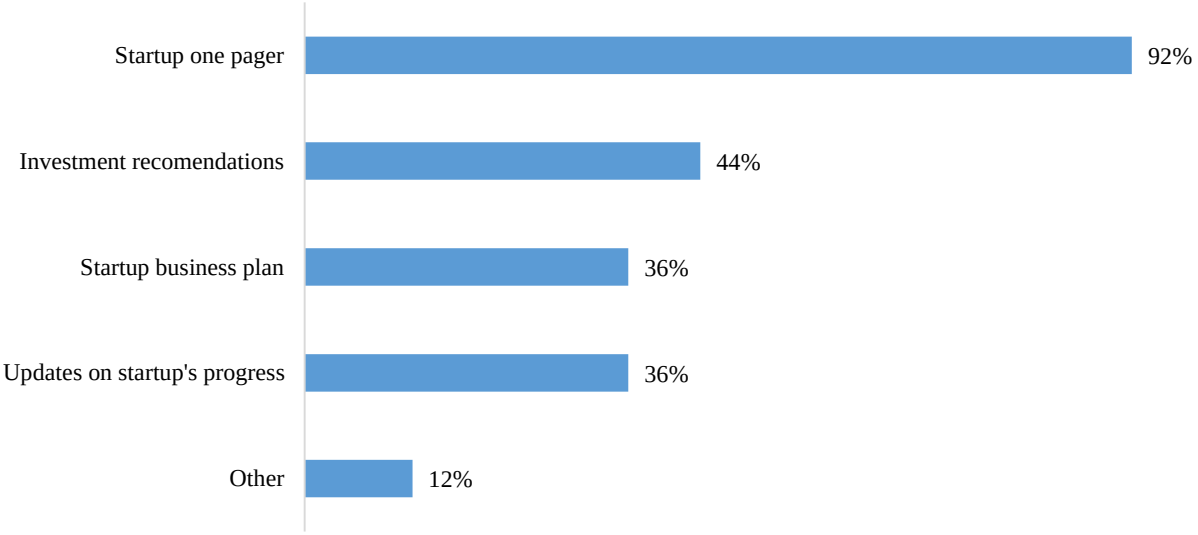


Figure 5.28 – Types of information shared by EBs (VCs' results)



With regard to the assessment on the information sharing between venture capitalists and ecosystem builders, depicted in Figure 5.27 and Figure 5.28, it is possible to state that the inquired venture capitalists perceive information share as an important component on the cooperation between these two actors, with 69% of the respondents rating it as important and only 8% considering it not important. As for the different types of information shared through such cooperation, the collected data shows that startup one pagers are by far the most shared information by venture capitalists, with 92% of the respondents indicating to receive such information, followed by investment recommendations, startup business plans, updates on startups development and others, all of which with less than half of the respondents reporting such share of information.

Table 5.5 presents the summary of our assessment of investor groups' perspectives on how to improve their cooperation with ecosystem builders

Table 5.5 – Suggestions to improve cooperation between IGs and EBs (VCs' results)

– Promote a closer cooperative work between ecosystem builders and investor groups more often
– Improve the communication levels between ecosystem builders and investor groups, and between the ecosystem builders themselves
– Work together with investors to better understand the critical factors behind the investors' most successful startups, and focus on improving education and mentoring in those areas

By observing these results we conclude that venture capitalists' suggestions focus mainly on improving the communication levels between both actors, promoting a closer involvement more often and on understanding the critical factors behind successful startups in order to improve education and mentoring in those areas.

Table 5.6 – Suggestions to improve information sharing between IGs and EBs (VCs' results)

– Create a common platform to share information specifically with investors
– Share information with investors more proactively and on a more regular basis
– Filter the information shared with investors, so that it better fits each investor's profile
– Promote meetings between investors and startups that might match the investor's criteria
– Share more information with investors concerning the development of their startups, and provide their insights on future prospects of investment

Concerning our study on how to improve information sharing between venture capitalists and ecosystem builders, summarized in Table 5.6, the results mainly pointed out to the necessity of creating a common platform to share information with investors, to share information more proactively and in a more regular basis, to sort the shared information by investor profile, to promote more meetings between investors and startups, and finally to provide updates on the progress of startups and on future prospects of investment.

5.3.2 *Business angels' results*

Figure 5.29 – Investors' perception on the difficulty to find good investment opportunities (BAs' results)

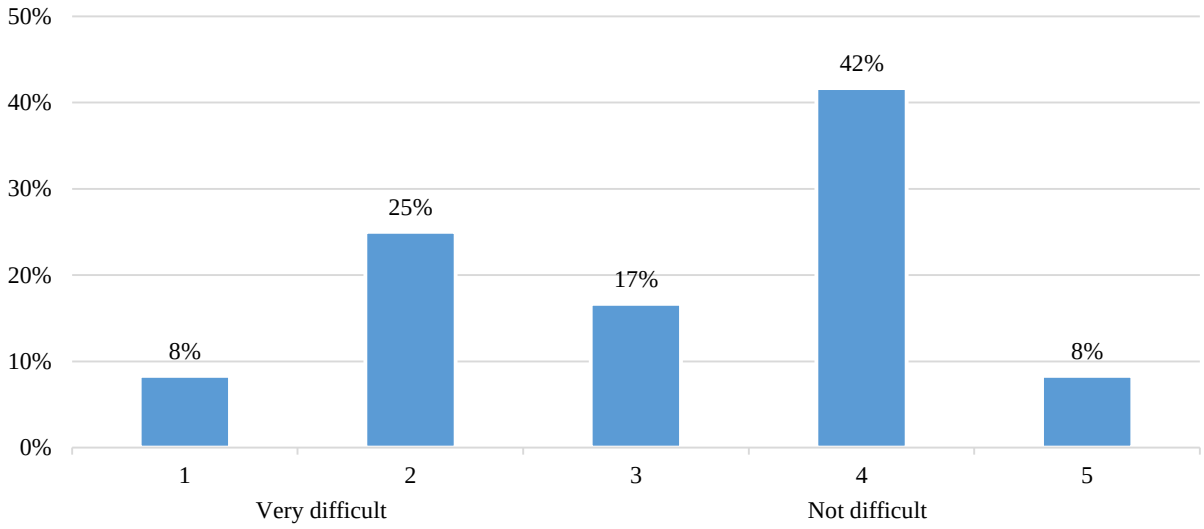
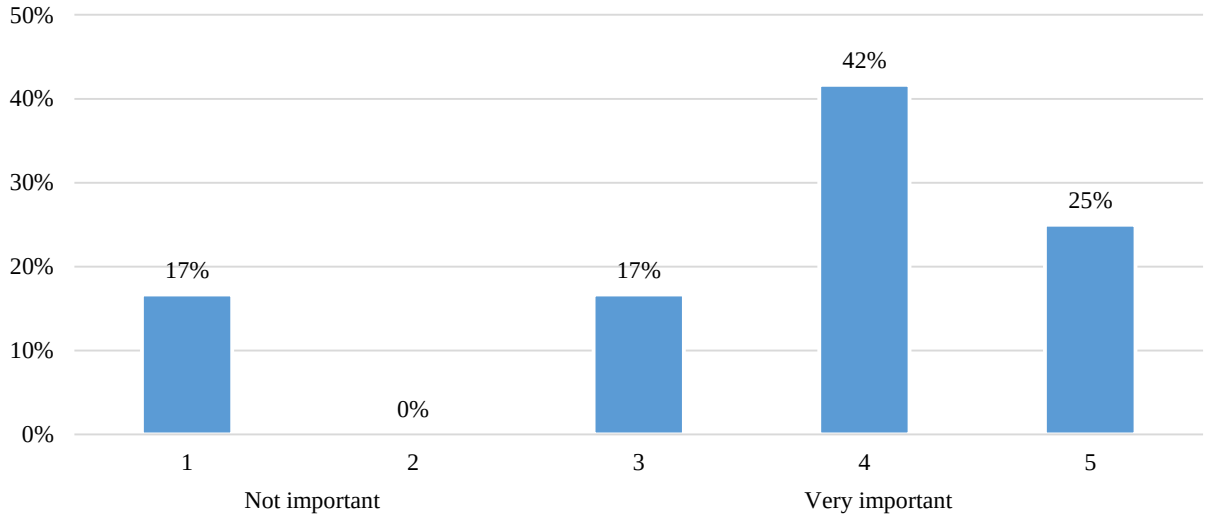


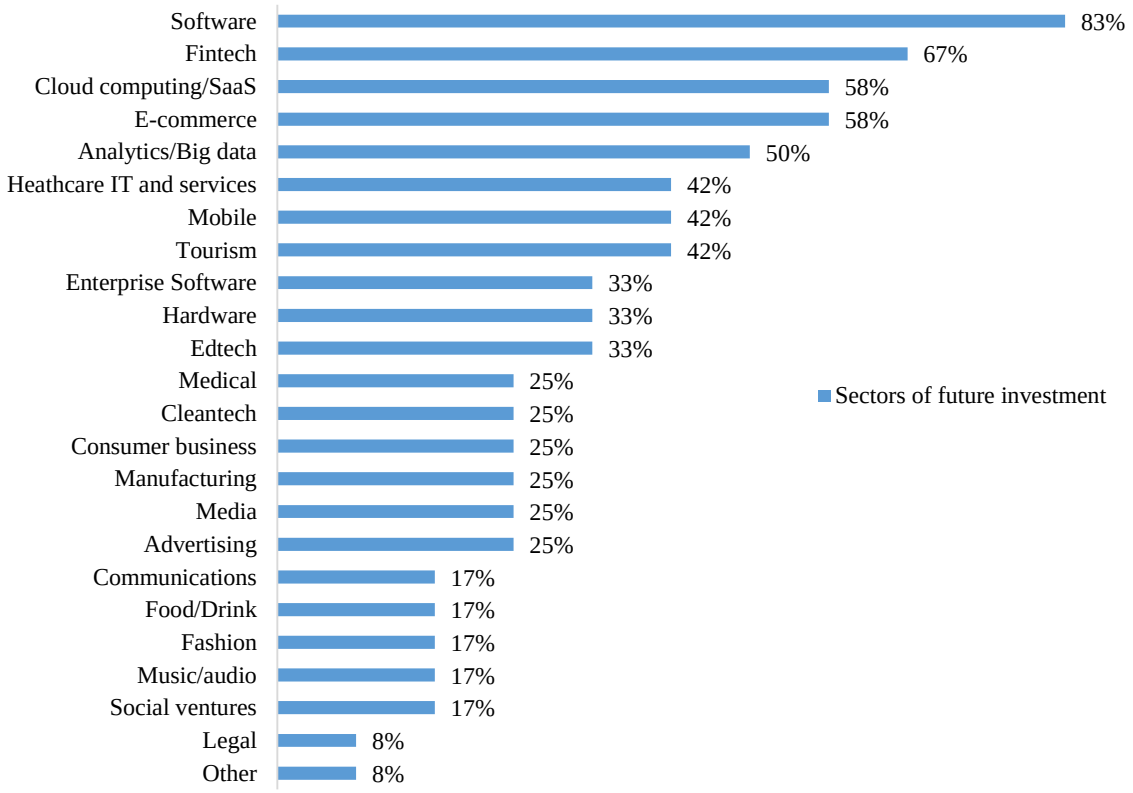
Figure 5.29 presents business angels' perception on the difficulty to find good investment opportunities. By analyzing the presented data we can state that although the respondents' opinion is relatively distributed and balanced, the results show a certain upward in the perception of not being difficult to find good investment opportunities, with 50% of the inquired business angels rating it as not being difficult, against 33% who consider it as being difficult.

Figure 5.30 – EBs' role on finding good investment opportunities (BAs' results)



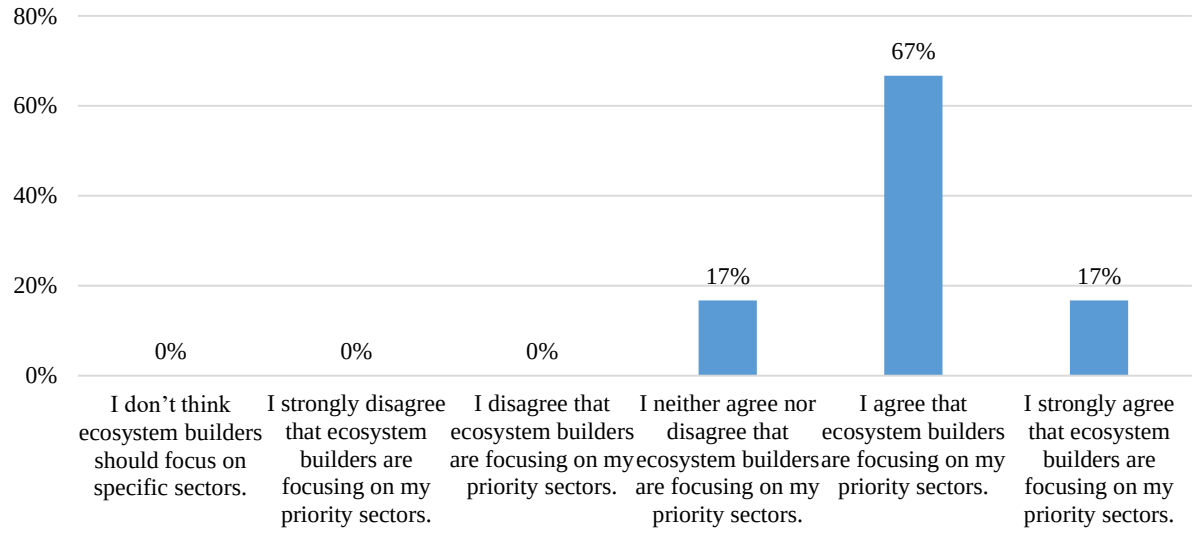
Concerning to ecosystem builders' role on helping investor groups finding good investment results, the results depicted in Figure 5.30 show that the majority of the inquired business angels recognize ecosystem builders' importance, with 67% of the respondents rating them as important or very important, against 17% who rate ecosystem builders as being not important.

Figure 5.31 – IGs' sectors of future investment (BAs' results)



With regard to the business angels' sectors of future investment, depicted in Figure 5.31, the results show that the respondents' primarily aim to invest on technology sectors, with Software being the most highlighted sector, with 83% of the respondents stating their intention to invest in it, followed by Fintech, Cloud computing/SaaS, E-commerce and Analytics/Big data.

Figure 5.32 – EBs' focus on IGs' priority sectors (BAs' results)



Regarding to the ecosystem builders focus on the business angels' priority sectors of investment, illustrated in Figure 5.32, the results are rather elucidative with 84% of the respondents agreeing or

strongly agreeing that they are indeed focusing on their priority sectors of investments, and none of the inquired business angels disagreeing that ecosystem builders are focusing on their priority sectors.

Figure 5.33 – EBs' role in the creation of successful startups (BAs' results)

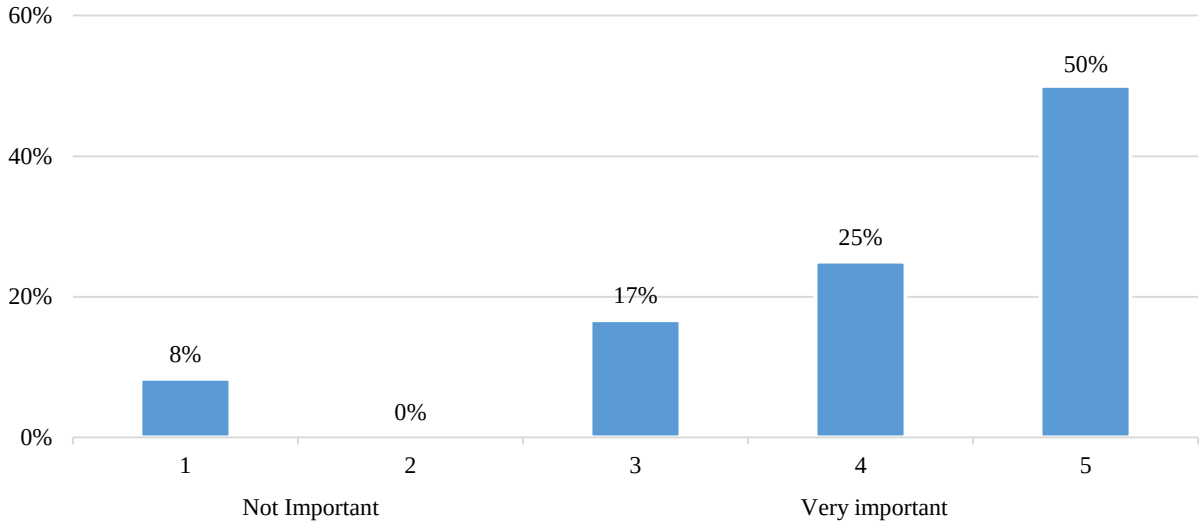
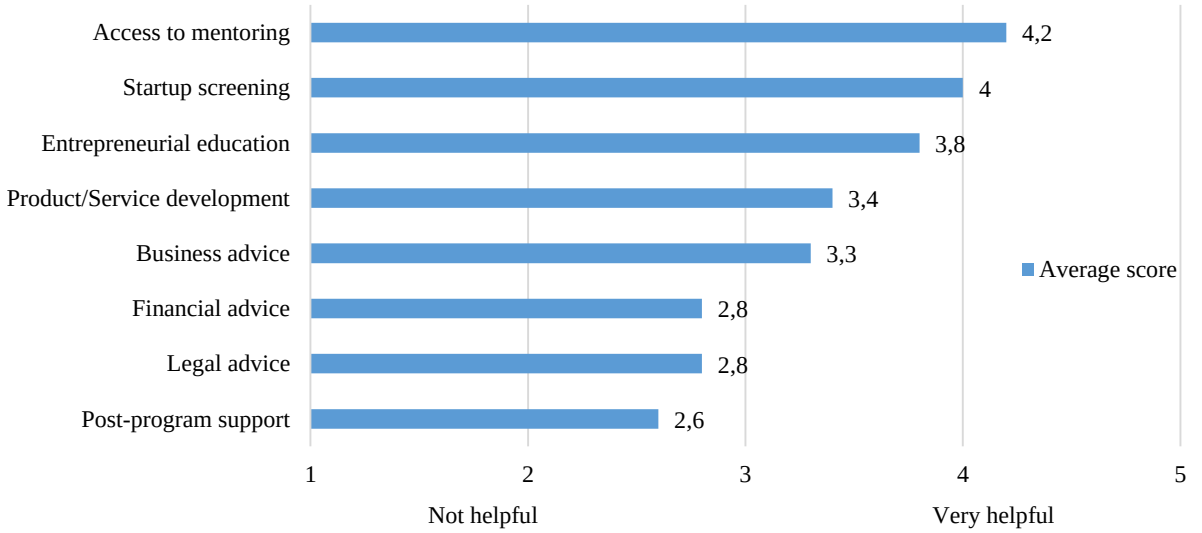


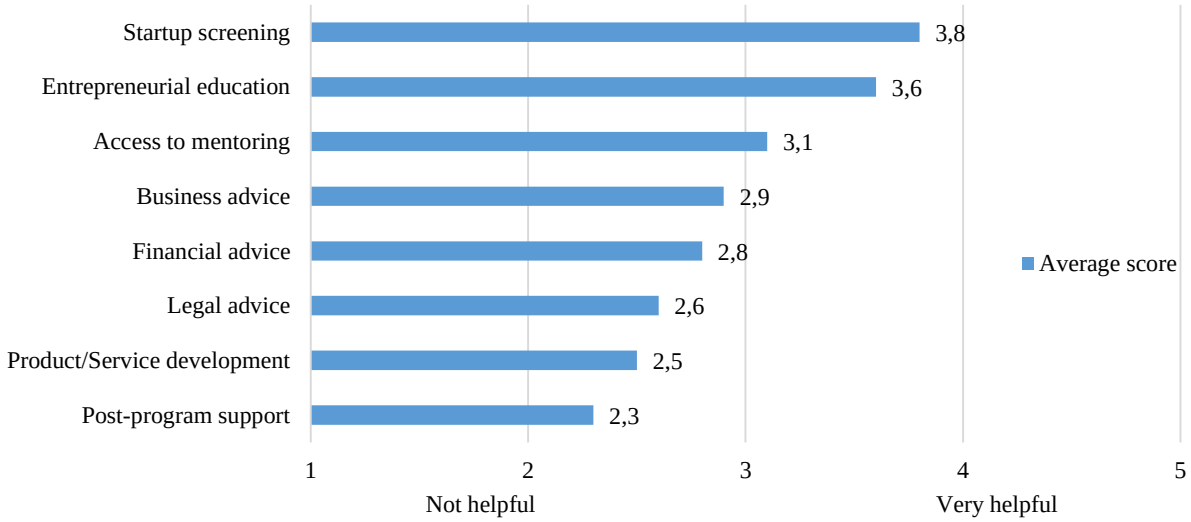
Figure 5.33 presents the respondents perception on the ecosystem builders' role in the creation of successful startups. Looking at Figure 5.33 it's possible to conclude that the majority of the inquired business angels perceive ecosystem builders as being influential in the creation of successful of startups, with 75% of the respondents qualifying them as being important, and only 8% rating them as being not important.

Figure 5.34 – Accelerator programs' added value elements (BAs' results)



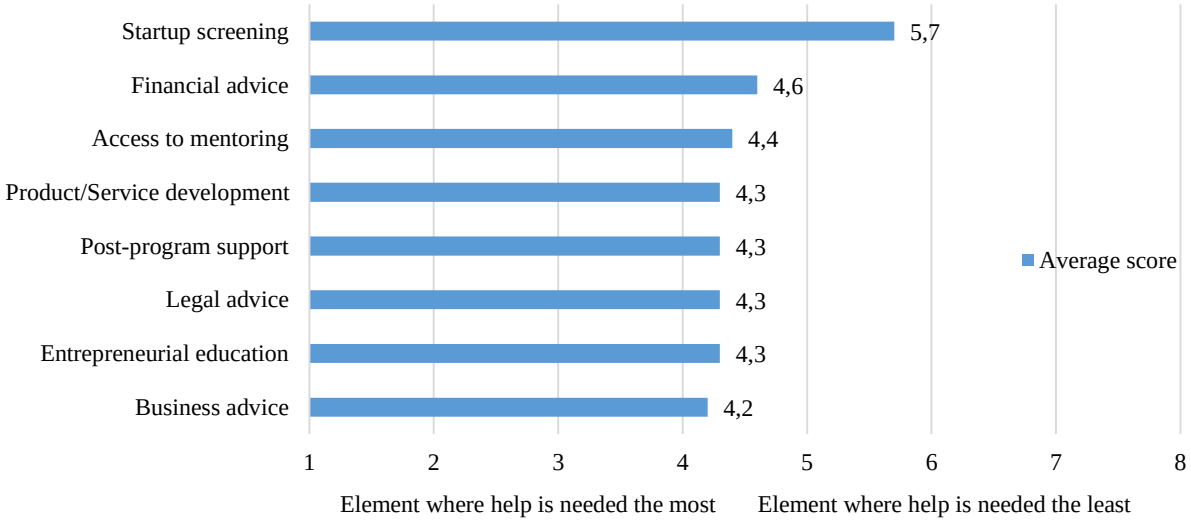
Concerning to the elements where accelerator programs generate the value to startups, as illustrated in Figure 5.34, Access to mentoring was rated by the inquired business angels as the element where accelerator programs add the most value to startups, followed by Startup screening and Entrepreneurial education. On the opposite end, Post-program support, Legal advice and Financial advice are perceived by investor groups as the elements where these programs add the least value to startups.

Figure 5.35 – Incubators' added value elements (BAs' results)



With regard to incubators' added value elements to startups, depicted in Figure 5.35, the inquired business angels rated Startup screening as the most valuable element that incubators offer to its incubatees, followed by Entrepreneurial education and Access to mentoring. As for the elements where these entities generate the least value to startups, Post-program support and Legal advice were pointed out as the elements where incubators have helped the least their incubatees.

Figure 5.36 – EBs' elements to be improved (BAs' results)



Analyzing Figure 5.36, where the results on the assessment to ecosystem builders' added value elements that business angels perceive as being important to improve are shown, we can see that Business advice was highlighted as the element where help is needed the most, followed closely by several other elements, namely Entrepreneurial education, Legal advice, Post-program support and Product/Service Development. However, it should be noted that while the previously mentioned elements were the ones with lowest scores, their average scores are fairly high, hence we can conclude that business angels do not perceive a great urgency in seeing any element being improved. As for the elements where

improvement is needed the least, business angels essentially highlighted Startup screening as the element where they believe ecosystem builders should focus the least on improving.

Figure 5.37 – IGs' support to EBs (BAs' results)

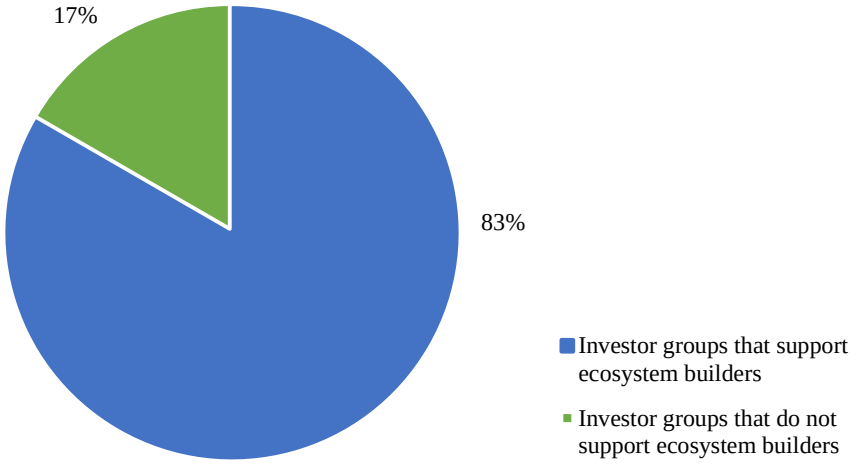


Figure 5.38 – Type of support provided to EBs (BAs' results)

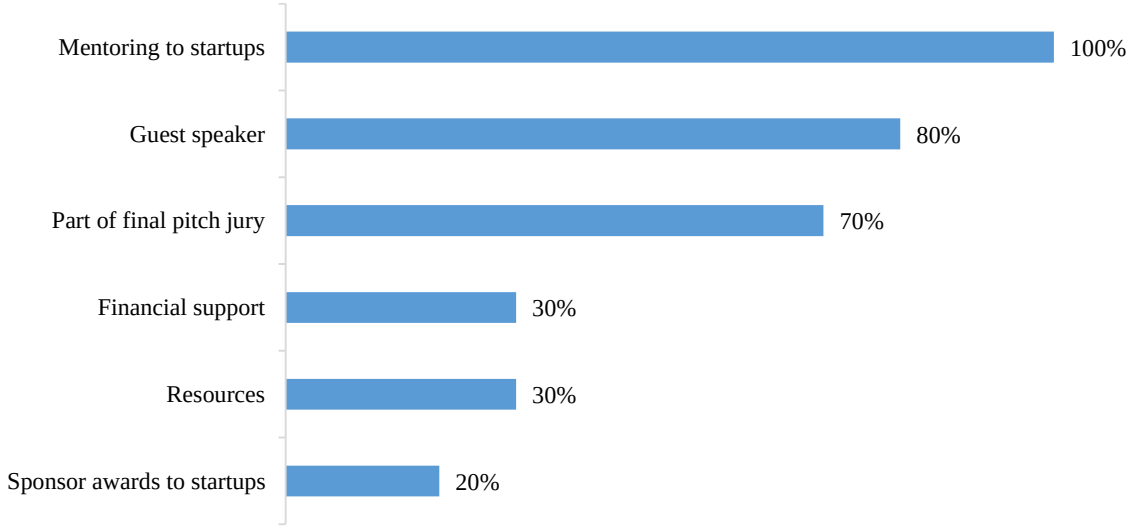


Figure 5.37 and Figure 5.38 present the assessment on business angels' support to ecosystem builders. Based on the collected data, we can see that 83% of the respondents claimed that they support ecosystem builders. From these, the most common forms of support are providing mentoring startups, guest speaking to entrepreneurs and participating in final pitch juries. With regard to other forms of support, the results show that while some business angels also contribute to ecosystem builders with material goods, such as resources and capital, they favor the provision of knowledge and experience to startups.

Figure 5.39 – Information share between IGs and EBs (BAs' results)

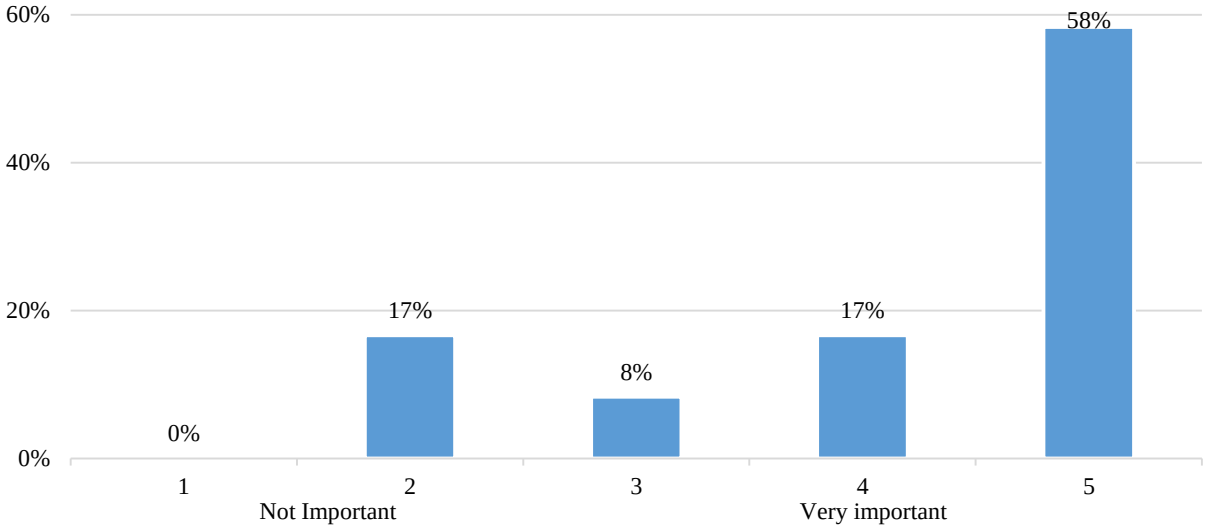
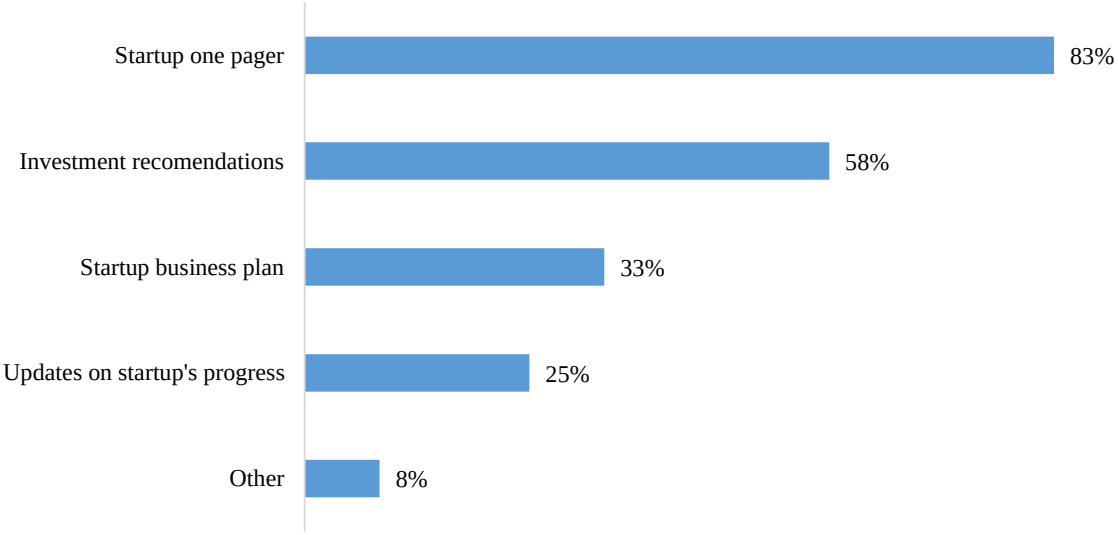


Figure 5.40 – Types of information shared by EBs (BAs' results)



Finally, with regard to our assessment on the information sharing between business angels and ecosystem builders, depicted in Figure 5.39 and Figure 5.40, the results show that business angels see information share as an important component on the cooperation between these two actors, with 75% of the respondents rating it as important and only 17% considering it not important. As for the different types of information shared through such cooperation by ecosystem builders, the collected data shows that startup one pagers are the most shared information, with 83% of the respondents indicating to receive such information. Investment recommendations was highlighted the second most shared type of information, followed by startup business plans, updates on startups development and others.

Table 5.7 – Suggestions to improve cooperation between IGs and EBs (BAs' results)

– Prioritize national investors in favor of foreign investors
– Be more passive when it comes to negotiate deals with investors
– Promote a closer cooperative work between ecosystem builders and investor groups more often
– Include investors earlier in the programs, and at a deeper level throughout every stage of the programs

Table 5.7 presents the summary of our assessment of business angels' perspectives on how to improve their cooperation with ecosystem builders. By observing these results we conclude that business angels' suggestions focus on mainly on collaborating earlier and at a deeper level, promoting a closer involvement more often, organizing more entrepreneurship events and on prioritizing national entrepreneurs in favor of foreign investors.

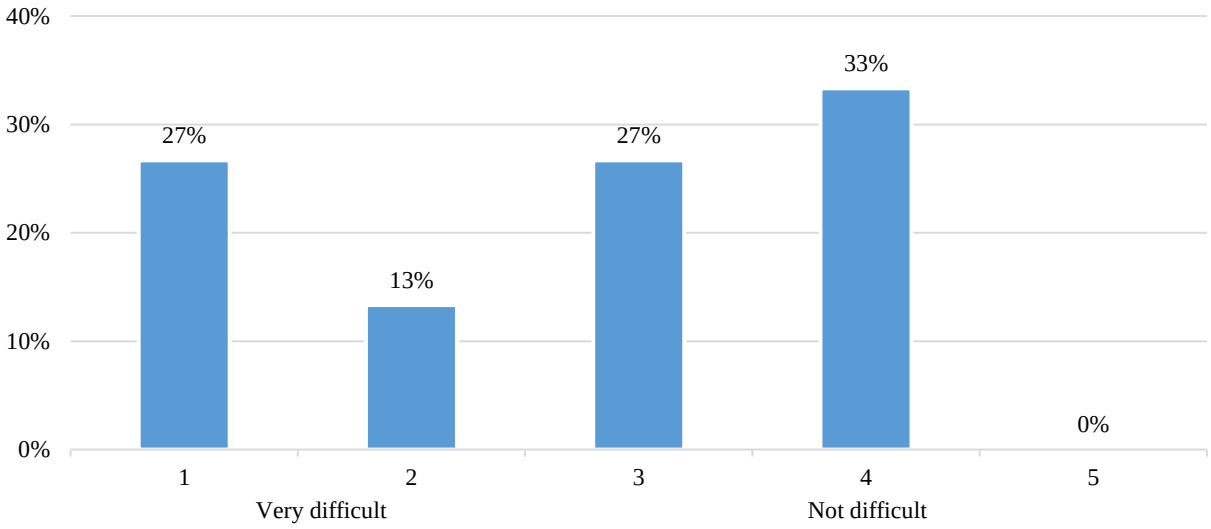
Table 5.8 – Suggestions to improve information sharing between IGs and EBs (BAs' results)

– Create a common platform to share information specifically with investors
– Share information with investors more proactively and on a more regular basis
– Filter the information shared with investors, so that it better fits each investor's profile
– Promote meetings between investors and startups that might match the investor's criteria
– Share more information with investors concerning the development of their startups, and provide their insights on future prospects of investment

Concerning our study on how to improve information sharing between business angels and ecosystem builders, summarized in Table 5.8, the results mainly pointed out to the necessity of creating a common platform to share information with investors, to share information more proactively and in a more regular basis, to sort the shared information by investor profile, to promote more meetings between investors and startups, and finally to provide updates on the progress of startups and on future prospects of investment.

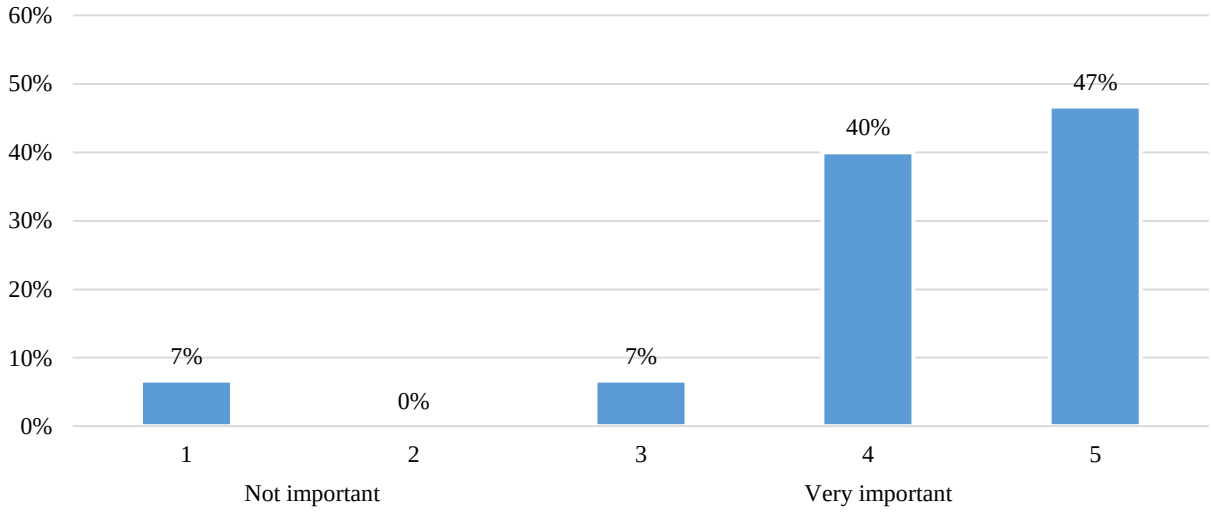
5.3.3 *Portugal's results*

Figure 5.41 – Investors' perception on the difficulty to find good investment opportunities (PT's results)



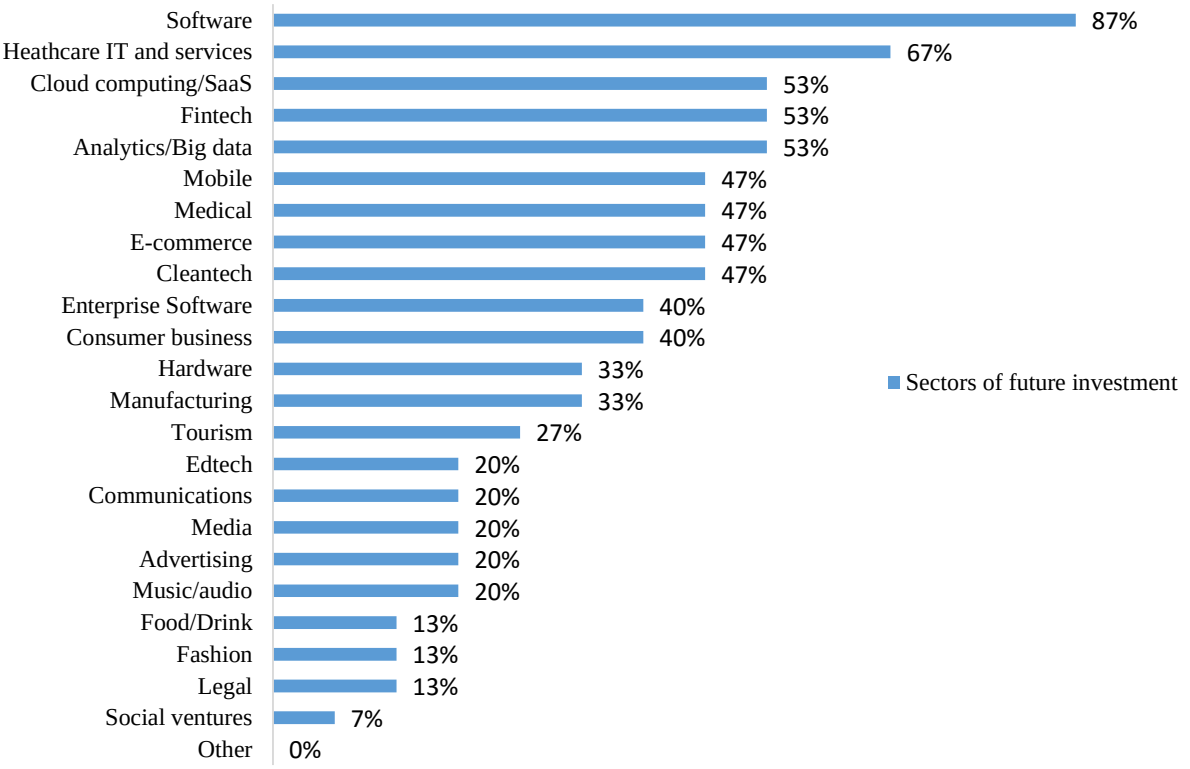
Analyzing Figure 5.41, where investor groups' perception on the difficulty to find good investment opportunities is presented, we can state that while the respondents' opinion on this topic is almost evenly distributed, the results show that a slightly larger percentage of the inquired investor groups perceive it as being difficult, with 40% of the respondents sharing such perspective, against 33% who share an opposite opinion.

Figure 5.42 – EBs' role on finding good investment opportunities (PT's results)



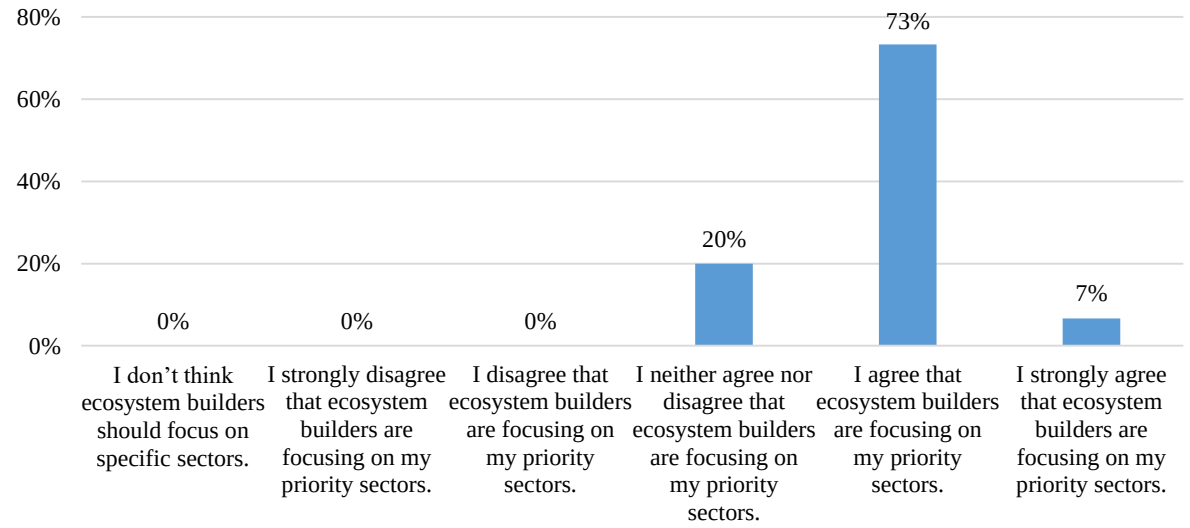
Observing Figure 5.42 we can see investor groups' perception on ecosystem builders' role on finding good investment opportunities. With regard to the presented data it is possible to state that the great majority of Portugal's respondents perceive ecosystem builders as being important, with 87% of the inquired investors sharing such opinion, against 7% who do not perceive value in their intervention.

Figure 5.43 – IGs' sectors of future investment (PT's results)



Concerning to investor groups' sectors of future investment, depicted in Figure 5.43, the collected data show that the majority of the respondents mainly aim at technology sectors. Software was the most referred sector concerning to the intention of future investment, with 87% of the respondents stating their intention to invest in it, being followed by Healthcare IT and services, Cloud computing/SaaS, Fintech and Analytics/Big data.

Figure 5.44 – EBs' focus on IGs' priority sectors (PT's results)



Regarding to the ecosystem builders focus on the investor groups' priority sectors of investment, illustrated in Figure 5.44, the results are very positive, with 80% of the respondents agreeing or strongly

agreeing that they are indeed focusing on their priority sectors of investments, and no respondents disagreeing that ecosystem builders are focusing on their priority sectors.

Figure 5.45 – EBs' role in the creation of successful startups (PT's results)

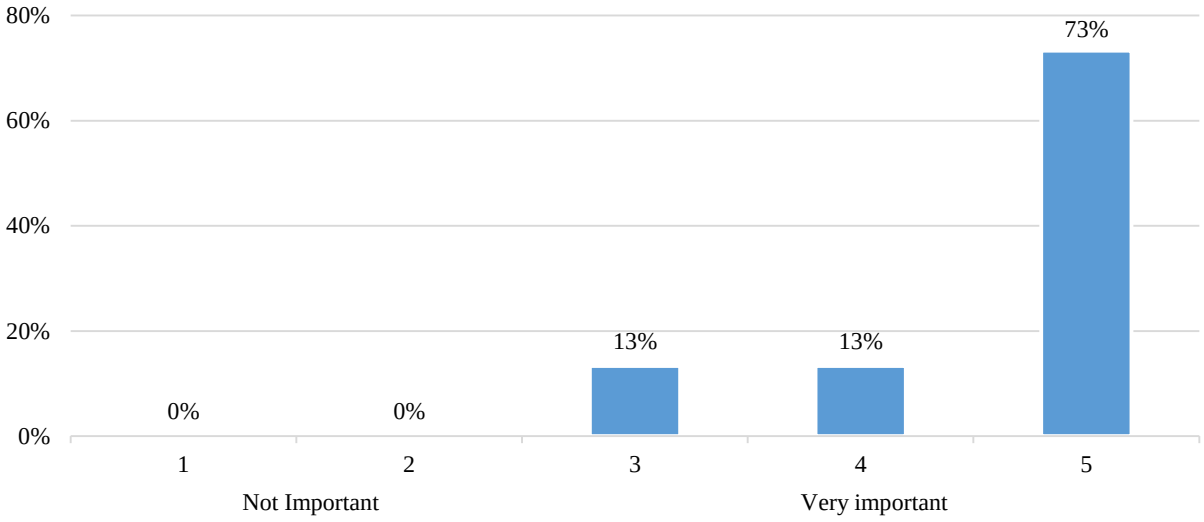
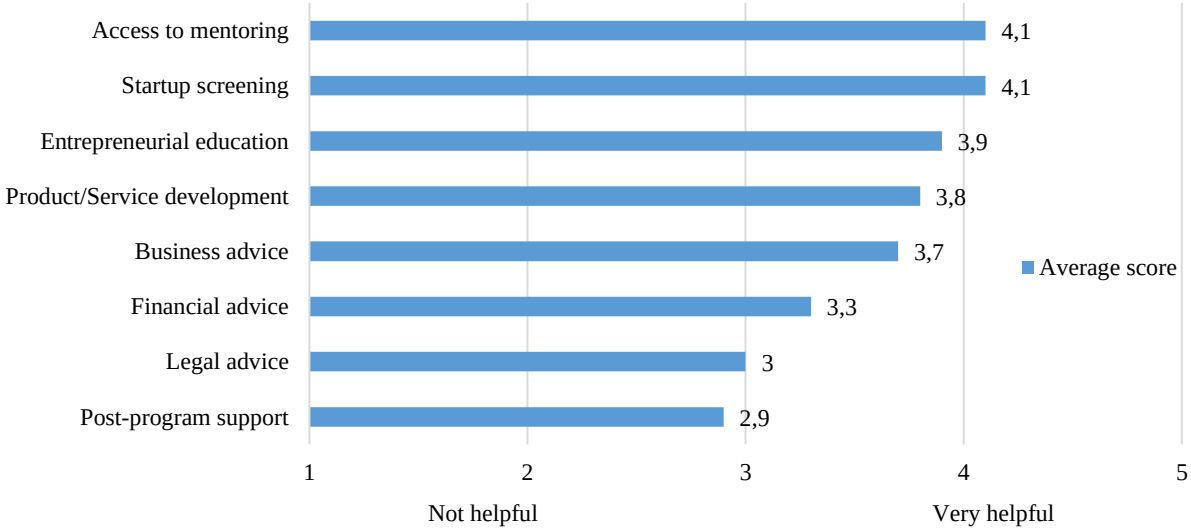


Figure 5.45 presents the respondents' perception on the ecosystem builders' role in the creation of successful startups. Looking at Figure 5.45 we can conclude that Portugal's investor groups perceive ecosystem builders as being frankly influential in the creation of successful of startups, with 86% of the respondents qualifying them as being important or very important, and none rating them as being not important.

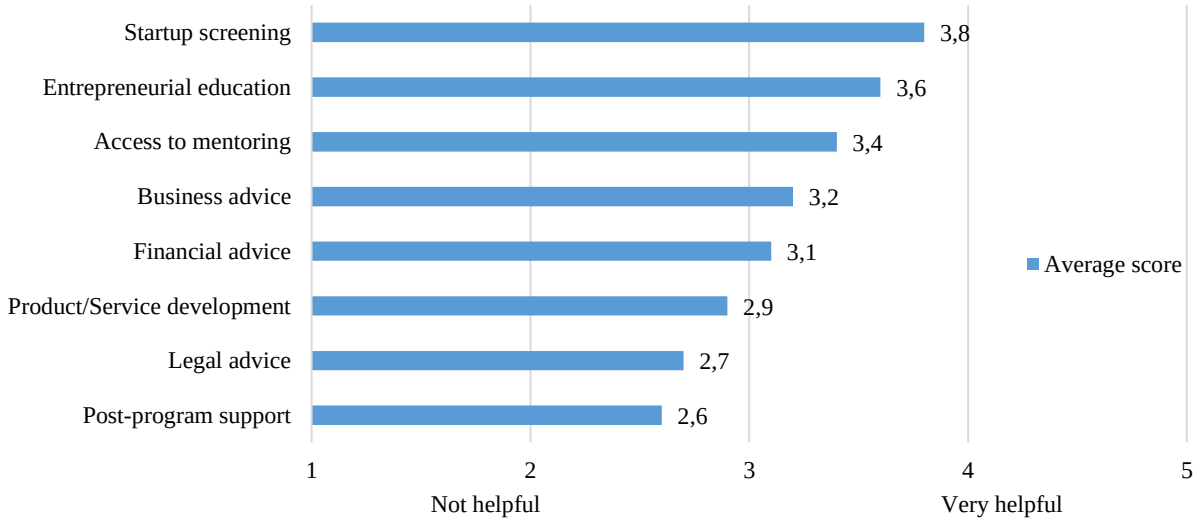
Figure 5.46 – Accelerator programs' added value elements (PT's results)



With regard to the elements where accelerator programs generate the value to startups, as illustrated in Figure 5.46, Access to mentoring and Startup screening were rated as the elements where accelerator programs add the most value to startups, with Entrepreneurial education also being highlighted by the respondents. On the opposite end, Post-program support, Legal advice and Financial advice are

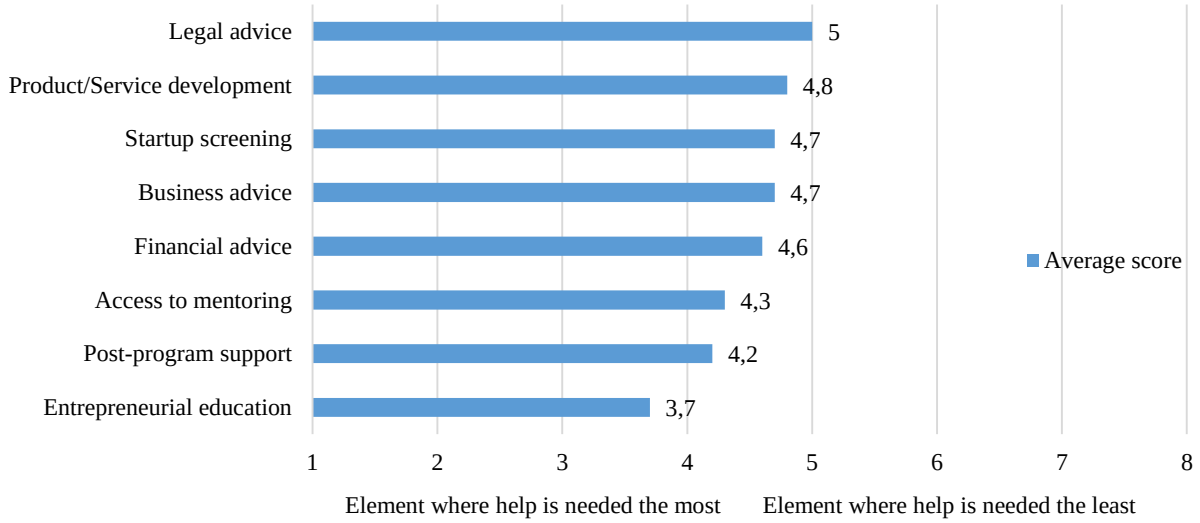
perceived by Portugal's investor groups as the elements where these programs add the least value to startups.

Figure 5.47 – Incubators' added value elements (PT's results)



Concerning to incubators' added value elements to startups, above depicted in Figure 5.47, the respondents rated Startup screening as the most valuable element that incubators offer to its incubatees, followed by Entrepreneurial education and Access to mentoring. As for the elements where these entities generate the least value to startups, Post-program support and Legal advice were pointed out as the elements where incubators have helped the least their incubatees.

Figure 5.48 – EBs' elements to be improved (PT's results)



With regard to the ecosystem builders' added value elements that Portugal's investor groups perceive as being important to improve, illustrated in Figure 5.48, Entrepreneurial education was highlighted as the element where help is needed the most, followed by Post-program support and Access to mentoring. As for the elements where improvement is needed the least, investor groups rated Legal advice and

Product/Service development as the elements where they believe ecosystem builders should focus the least on improving.

Figure 5.49 – IGs' support to EBs (PT's results)

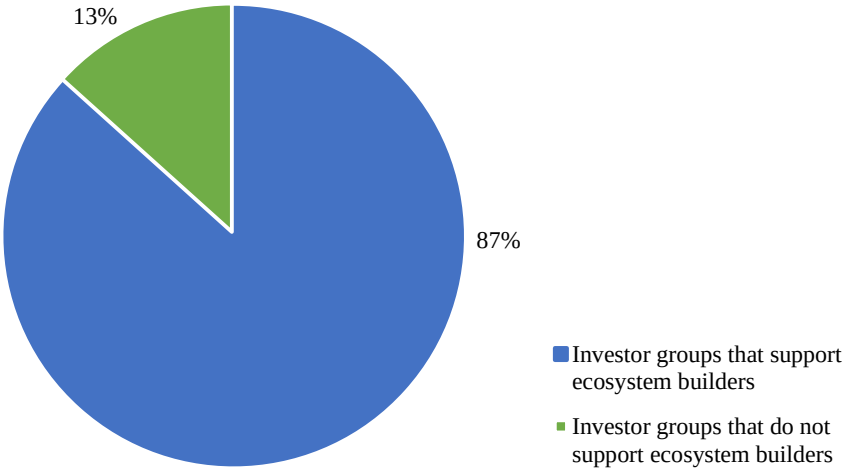


Figure 5.50 – Type of support provided to EBs (PT's results)

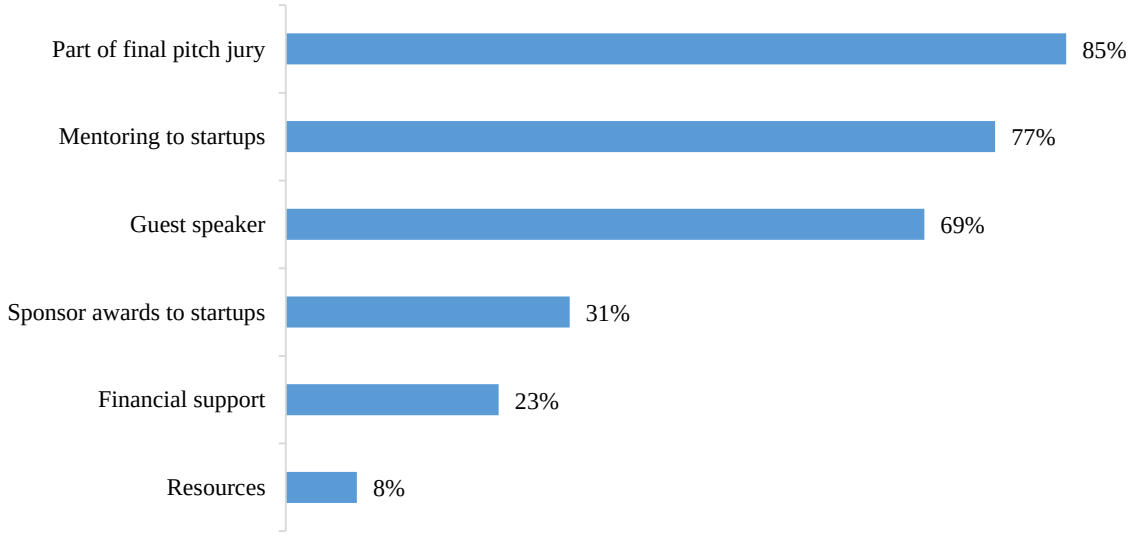


Figure 5.49 and Figure 5.50 present the assessment on investor groups' support to ecosystem builders. Based on the collected data regarding the support provided by Portugal's investor groups to ecosystem builders, we can see that 87% of the respondents claimed that they support ecosystem builders. From these, the most common forms of support are the participation in final pitch juries, mentoring startups and guest speaking to entrepreneurs.

Figure 5.51 – Information share between IGs and EBs (PT's results)

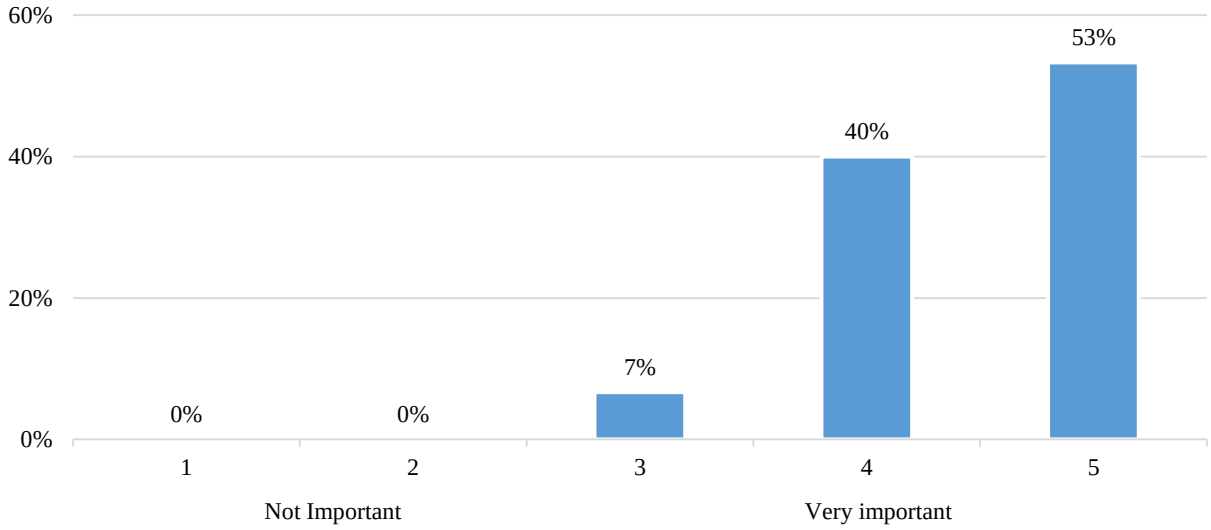
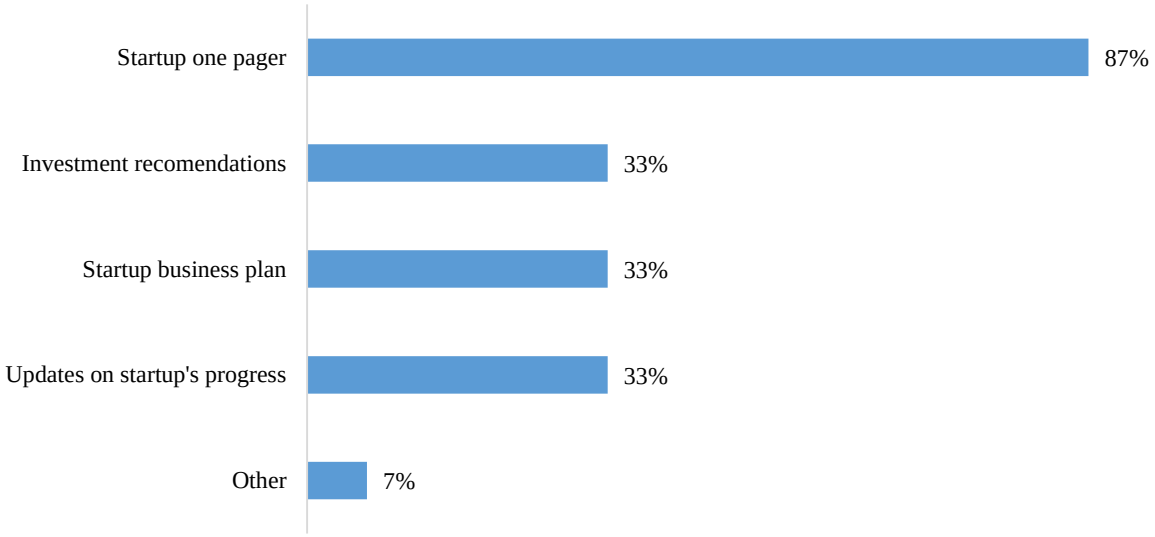


Figure 5.52 – Types of information shared by EBs (PT's results)



With regard to our assessment on the information sharing between Portugal's investor groups and ecosystem builders, depicted in Figure 5.51 and Figure 5.52, it is possible to state that investor groups see information share as a fundamental component on the cooperation between these two actors, with 93% of the respondents rating it as important. As for the different types of information shared through such cooperation, the collected data shows that startup one pagers are the most shared information by ecosystem builders, with 87% of the respondents indicating to receive such information, followed by investment recommendations, startup business plans and updates on startups' progress, all of which indicated by 33% of the respondents.

Table 5.9 – Suggestions to improve cooperation between IGs and EBs (PT's results)

– Promote more entrepreneurship events
– Prioritize national investors in favor of foreign investors
– Promote a closer cooperative work between ecosystem builders and investor groups more often
– Include investors earlier in the programs, and at a deeper level throughout every stage of the programs
– Focus on sharing more relevant information to the investors about promising prospects of investment
– Improve the communication levels between ecosystem builders and investor groups, and between the ecosystem builders themselves
– Work together with investors to better understand the critical factors behind the investors' most successful startups, and focus on improving education and mentoring in those areas

Table 5.9 presents the summary of our assessment of investor groups' perspectives on how to improve their cooperation with ecosystem builders. By observing these results we conclude that Portugal's investor groups' suggestions mainly pointed out the need to improving the communication levels between both actors, collaborating earlier and at a deeper level, promoting a closer involvement more often, organizing more entrepreneurship events, prioritizing national entrepreneurs in favor of foreign investors, understanding the critical factors behind successful startups in order to improve education and mentoring in those areas, and on better addressing investors' needs.

Table 5.10 – Suggestions to improve information sharing between IGs and EBs (PT's results)

– Create a common platform to share information specifically with investors
– Share information with investors more proactively and on a more regular basis
– Filter the information shared with investors, so that it better fits each investor's profile
– Promote meetings between investors and startups that might match the investor's criteria
– Share more information with investors concerning the development of their startups, and provide their insights on future prospects of investment

Concerning Portugal's collected data on how to improve information sharing between investor groups and ecosystem builders, summarized in Table 5.10, the results mainly pointed out to the necessity of creating a common platform to share information with investors, to share information more proactively and in a more regular basis, to sort the shared information by investor profile, to promote more meetings between investors and startups, and finally to provide updates on the progress of startups and on future prospects of investment.

5.3.4 Germany-U.K. results

Figure 5.53 – Investors' perception on the difficulty to find good investment opportunities (DE-UK's results)

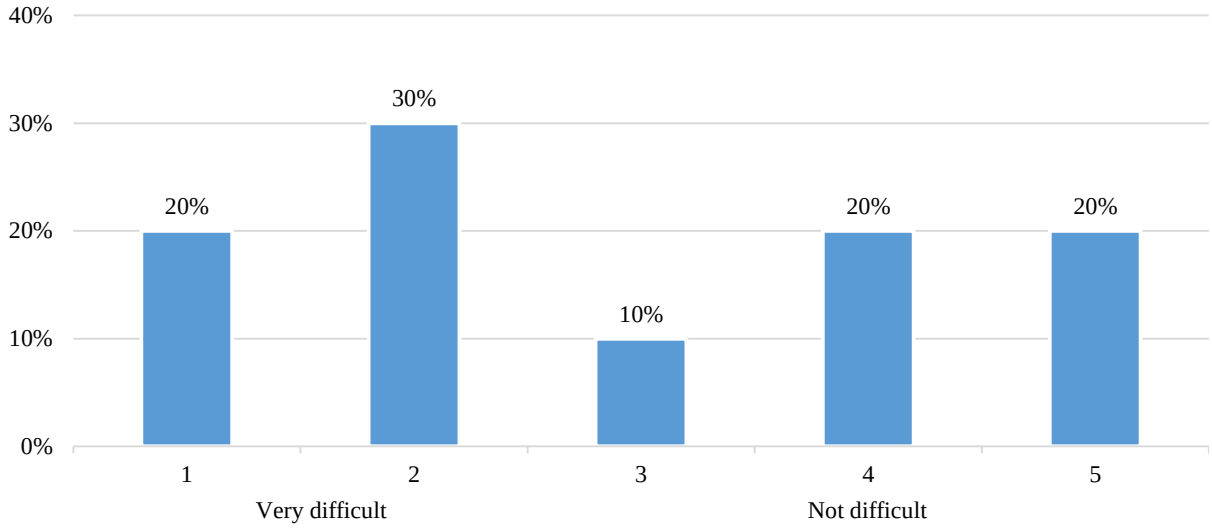
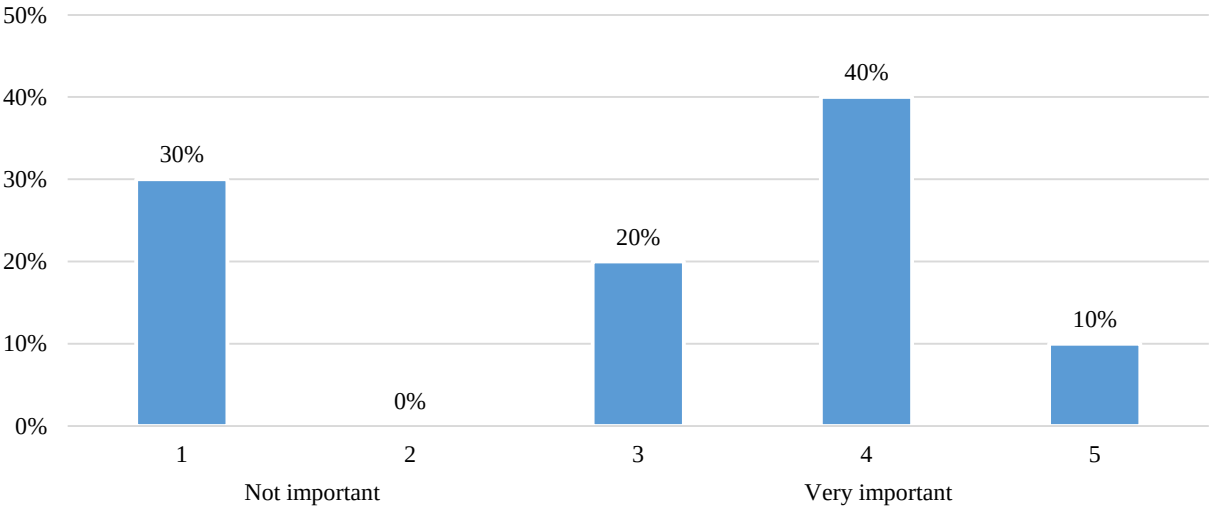


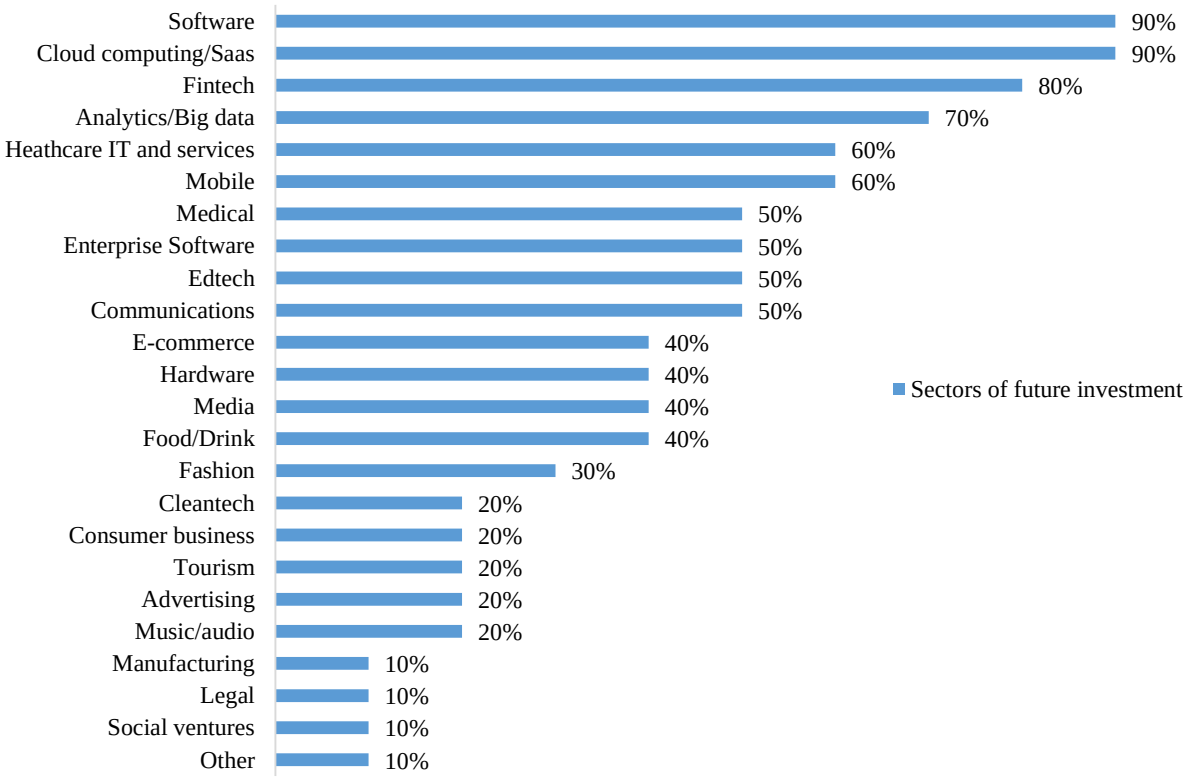
Figure 5.53 illustrates the results of Germany-U.K.'s investor groups with regard to their perception on the difficulty to find good investment opportunities. By analyzing the presented data we can state that the respondents' opinions on the difficulty to find good investment opportunities are well distributed, with a slight majority of the inquired investor groups, 50% of the respondents, indicating that they perceive such task as being difficult, against 40% of the respondents who do not perceive it as being difficult.

Figure 5.54 – EBs' role on finding good investment opportunities (DE-UK's results)



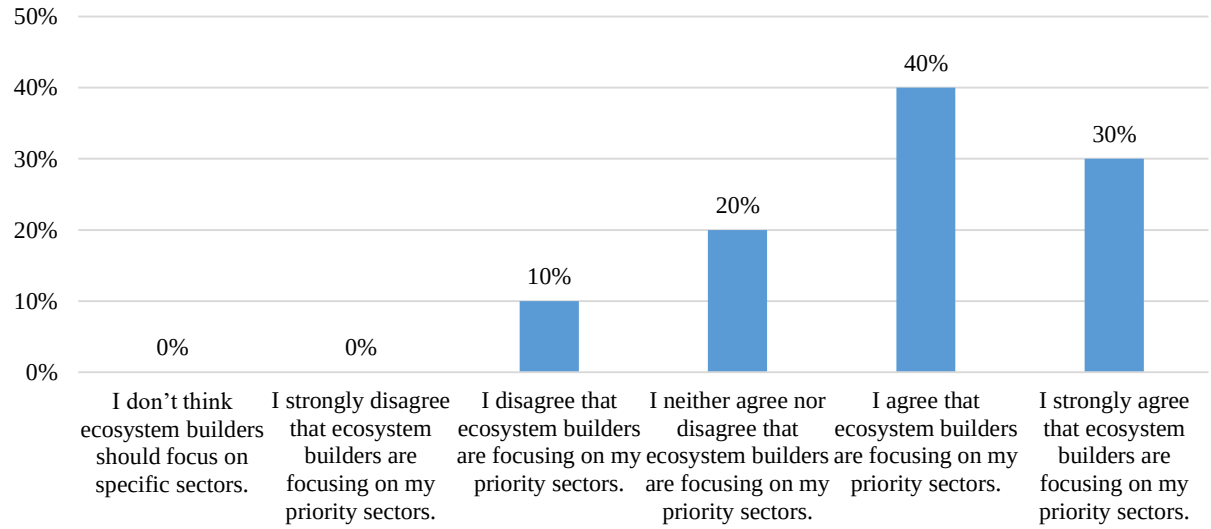
Concerning to ecosystem builders' role on helping investor groups finding good investment results, the results depicted in Figure 5.54 show that the a slight majority of the respondents in Germany-U.K. recognize ecosystem builders' importance, with 50% of the respondents rating them as important, against 30% who rate ecosystem builders as being not important.

Figure 5.55 – IGs' sectors of future investment (DE-UK's results)



With regard to investor groups' sectors of future investment, presented in Figure 5.55, we can state that the respondents in Germany-U.K. mainly aim to invest in technology sectors. Such trend is illustrated by this research's results, which shows that the six most mentioned areas of future investment are all technology sectors, namely: Software, Cloud computing/SaaS, Fintech, Analytics/Big data, Healthcare IT and services, and Mobile.

Figure 5.56 – EBs' focus on IGs' priority sectors (DE-UK's results)



Concerning to the ecosystem builders' focus on the investor groups' priority sectors of investment, illustrated in Figure 5.56, the results are greatly positive, with 70% of the respondents agreeing or

strongly agreeing that they are indeed focusing on their priority sectors of investments, and only 10% disagreeing that ecosystem builders are focusing on their priority sectors.

Figure 5.57 – EBs' role in the creation of successful startups (DE-UK's results)

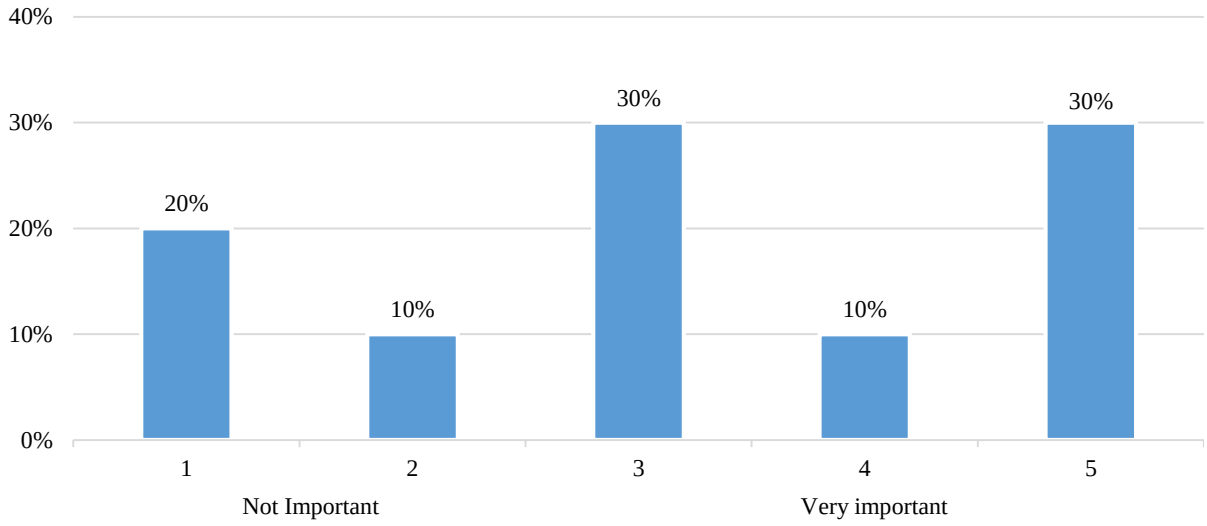
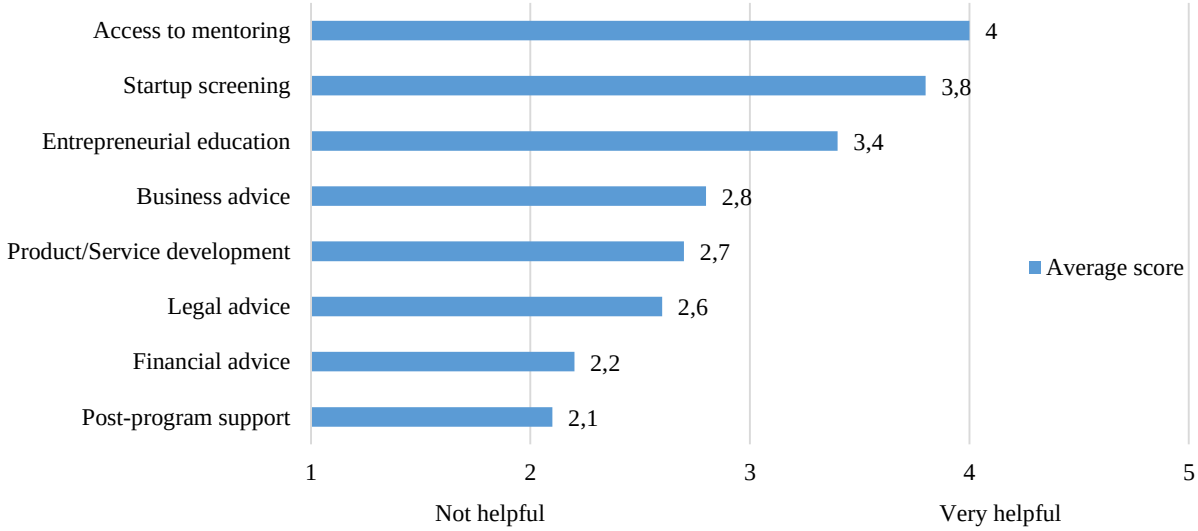


Figure 5.57 presents the respondents perception on the ecosystem builders' role in the creation of successful startups. Looking at Figure 5.57 we can conclude that Germany-U.K.'s investor groups show mixed feelings with regard to ecosystem builders' influence in the creation of successful of startups, with 40% of the respondents qualifying them as being important, against 30% who perceive them in a opposite way.

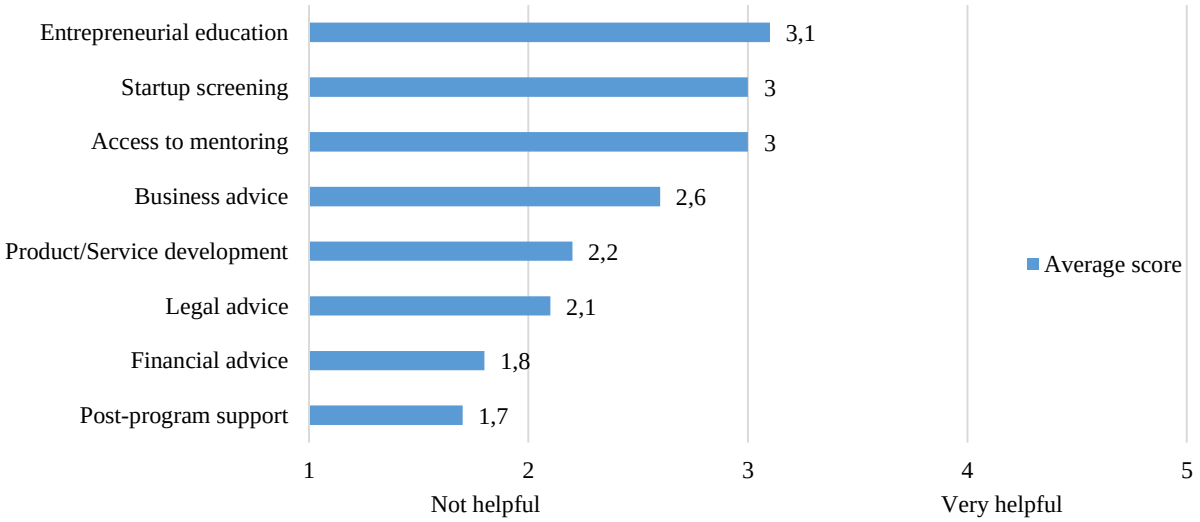
Figure 5.58 – Accelerator programs' added value elements (DE-UK's results)



With regard to the elements where accelerator programs generate the value to startups, as illustrated in Figure 5.58, Access to mentoring was rated as the element where accelerator programs add the most value to startups, with Startup screening and Entrepreneurial education also being highlighted by the inquired investor groups in Germany-U.K. On the opposite end, Post-program support, Financial advice

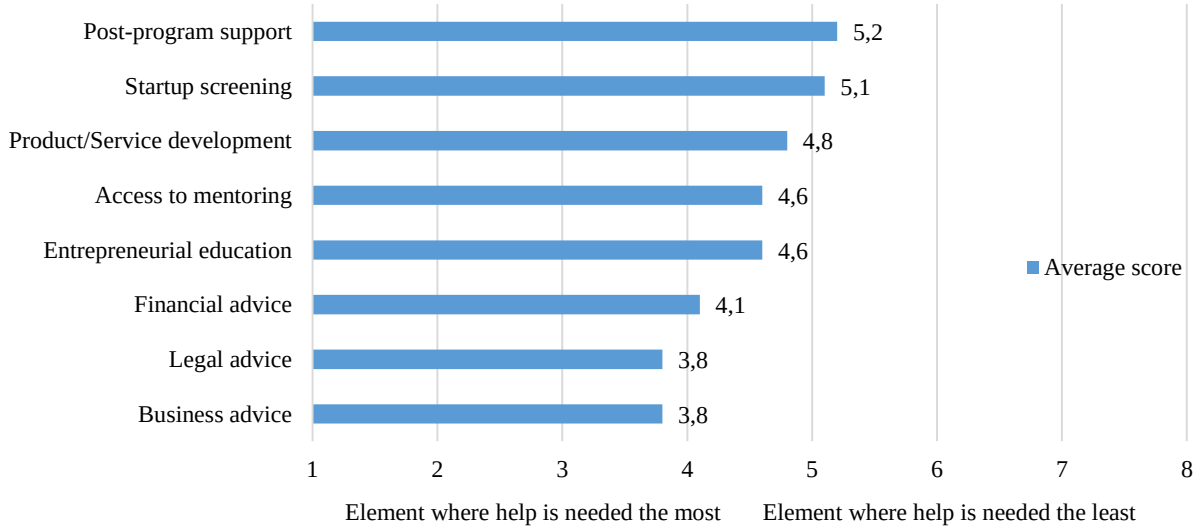
and Legal advice are perceived by investor groups as the elements were these programs add the least value to startups.

Figure 5.59 – Incubators' added value elements (DE-UK's results)



Concerning to incubators' added value elements to startups, presented in Figure 5.59, the respondents rated Entrepreneurial education as the most valuable element that incubators offer to its incubatees, closely followed by Startup screening and Access to mentoring. As for the elements where these entities generate the least value to startups, Post-program support and Financial advice were pointed out as the elements where incubators have helped the least their incubatees.

Figure 5.60 – EBs' elements to be improved (DE-UK's results)



With regard to the ecosystem builders' added value elements that investor groups perceive as being important to improve, illustrated in Figure 5.60, Business advice and Legal Advice were highlighted as the elements where help is needed the most, followed by Financial advice. As for the elements where improvement is needed the least, Germany-U.K.'s investor groups rated Post-program support and

Startup screening as the elements where they believe ecosystem builders should focus the least on improving.

Figure 5.61 – IGs' support to EBs (DE-UK's results)

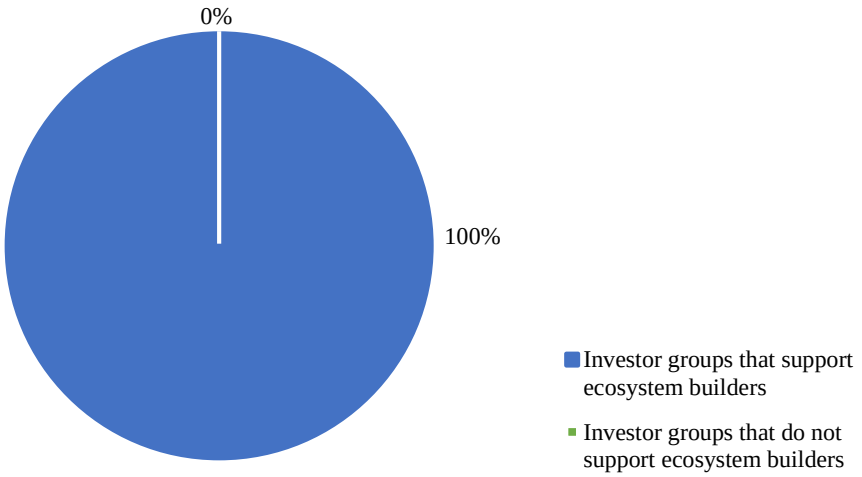


Figure 5.62 – Type of support provided to EBs (DE-UK's results)

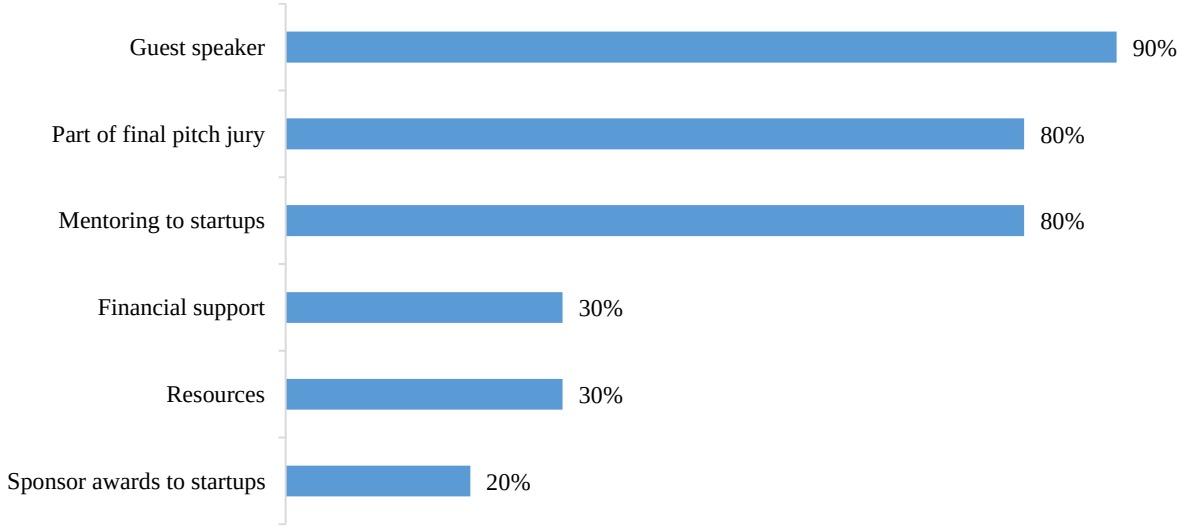


Figure 5.61 and Figure 5.62 present the assessment on Germany-U.K.'s investor groups' support to ecosystem builders. Based on the collected data regarding the support provided by investor groups to ecosystem builders, we can see 100% of the respondents claimed that they support ecosystem builders. From these, the most common forms of support are guest speaking to entrepreneurs, the participation in final pitch juries and the provision of mentoring startups.

Figure 5.63 – Information share between IGs and EBs (DE-UK's results)

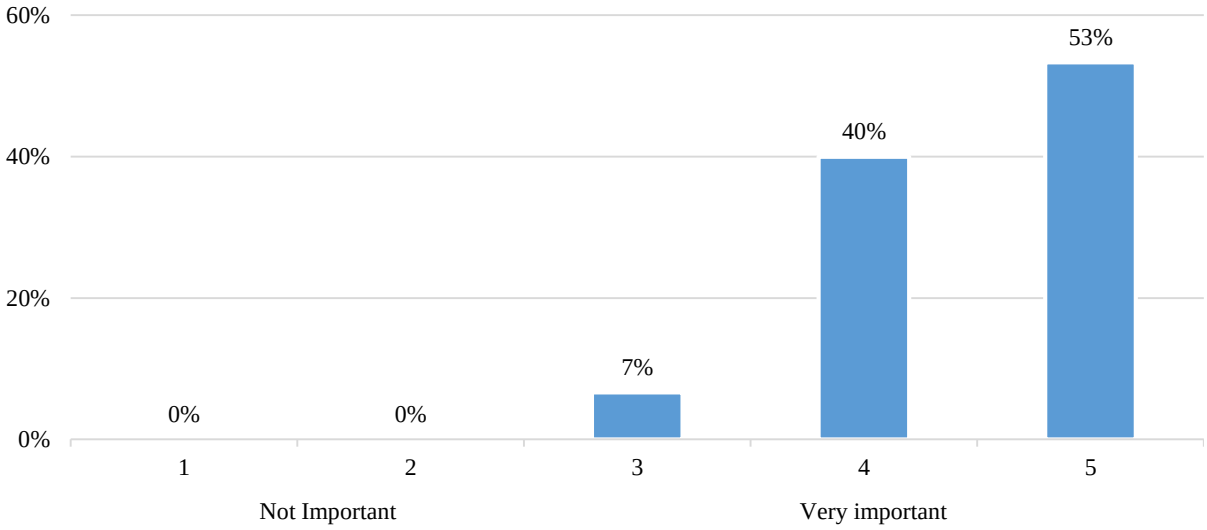
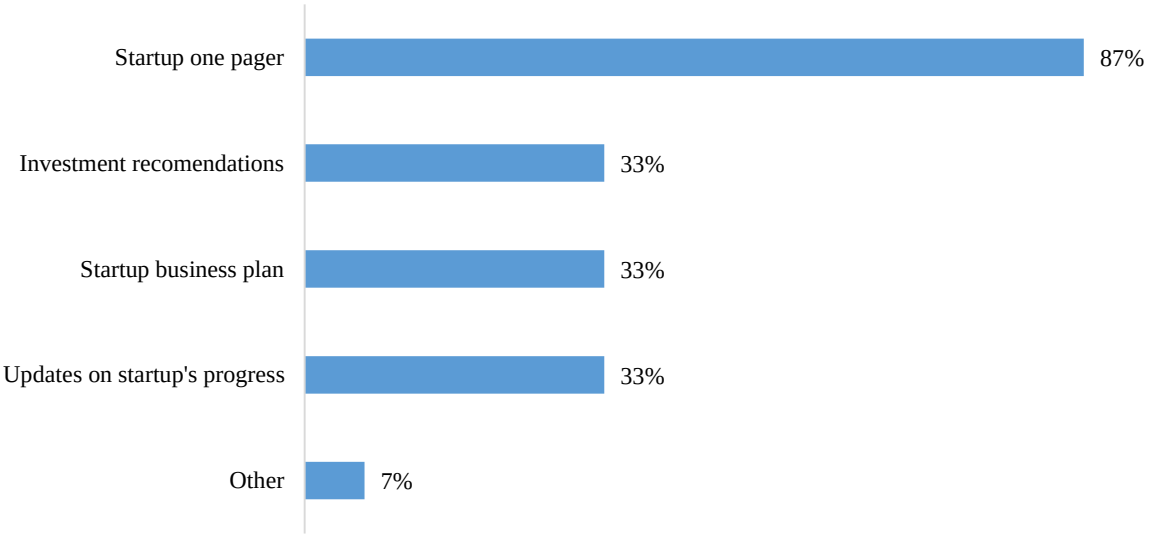


Figure 5.64 – Types of information shared by EBs (DE-UK's results)



With regard to our assessment on the information sharing between Germany-U.K.'s investor groups and ecosystem builders, depicted in Figure 5.63 and Figure 5.64, it is possible to state that investor groups perceive information share as a crucial component on the cooperation between these two actors, with 93% of the respondents rating it as important. As for the different types of information shared through such cooperation, the collected data shows that startup one pagers are by far the most shared information by ecosystem builders, with 87% of the respondents indicating to receive such information, followed by investment recommendations, startup business plans and updates on startups' progress, all of which indicated by 33% of the respondents.

Table 5.11 – Suggestions to improve cooperation between IGs and EBs (DE-UK's results)

– Promote a closer cooperative work between ecosystem builders and investor groups more often
– Include investors earlier in the programs, and at a deeper level throughout every stage of the programs
– Better address the needs of investors, with particular focus on startup scouting and post-program support to startups until they reach proper investment readiness levels

Table 5.12 – Suggestions to improve information sharing between IGs and EBs (DE-UK's results)

– Create a common platform to share information specifically with investors
– Share information with investors more proactively and on a more regular basis

Table 5.11 and Table 5.12 present respectively the summary of the collected data on investor groups' perspectives on how to improve their cooperation with ecosystem builders, and their suggestions on how to improve information sharing between these two entities. Unfortunately our respondents in Germany-U.K. did not disclose much information concerning how to address these issues, however from our results we can conclude that investor groups' suggestions to improve their cooperation with ecosystem builders focus on collaborating earlier and at a deeper level, promoting a closer involvement more often and on better addressing investors' needs. As for the specific aim of improving the information sharing, the collected data pointed out the necessity of creating a common platform to share information with investors and to share information more proactively and in a more regular basis.

Chapter 6

Analysis to the Results

Throughout the following chapter an analysis to the collected data will be presented. Firstly, the overall results will be analyzed in order to outline the main findings from the questionnaire. Following this analysis a comparison to the results by sample group will be conducted. Finally, based on the results analyzed earlier, in the last part of the chapter we shall provide an answer to the research questions of this dissertation.

6.1 Analysis to the overall results

Following the initial overview to the overall results, we'll now present a qualitative analysis to the collected data. Similarly to the previous chapter, the analysis will be divided into the three main subjects: Investment opportunities; Ecosystem builders' added value to startups; and Cooperation between ecosystem builders and investor groups.

6.1.1 Investment opportunities

With regard to the first subject under study, we have assessed 4 different questions concerning to ecosystem builders' role on helping investor groups finding good investment opportunities and on promoting the emergence of startups within investor groups' priority sectors of investment.

The assessed questions and collected data on each of these questions (i.e. absolute value, percentage and average) are following presented in Table 6.1.

Table 6.1 – Detailed analysis on investment opportunities' results

	Variable	Absolute frequency	Percentage	Average score
How would you classify the difficulty of finding good investment opportunities?	1	6	24%	2,76
	2	5	20%	
	3	5	20%	
	4	7	28%	
	5	2	8%	
What is your opinion concerning ecosystem builders' importance to help investors find better investment opportunities?	1	4	16%	3,72
	2	0	0%	
	3	3	12%	
	4	10	40%	
	5	8	32%	
From the following list, in which sectors would you like to invest on?	Software	22	88%	-
	Cloud computing/Saas	17	68%	
	Fintech	16	64%	
	Healthcare IT and services	16	64%	
	Analytics/Big data	15	60%	
	Mobile	13	52%	
	Medical	12	48%	
	E-commerce	11	44%	
	Enterprise Software	11	44%	
	Hardware	9	36%	
	Cleantech	9	36%	
	Communications	8	32%	
	Edtech	8	32%	
	Media	7	28%	
	Manufacturing	7	28%	
	Consumer business	7	28%	
	Tourism	6	24%	
	Food/Drink	6	24%	
	Fashion	5	20%	
	Advertising	5	20%	
	Music/audio	4	16%	
	Legal	3	12%	
	Social ventures	2	8%	
	Other	0	0%	

Table 6.1 – Detailed analysis on investment opportunities' results (Continuation)

	Variable	Absolute frequency	Percentage	Average score
Based on your answer to the previous question, do you think ecosystem builders are currently focusing on your priority sectors?	I strongly agree that ecosystem builders are focusing on my priority sectors	4	16%	-
	I agree that ecosystem builders are focusing on my priority sectors	15	60%	
	I neither agree nor disagree that ecosystem builders are focusing on my priority sectors	5	20%	
	I disagree that ecosystem builders are focusing on my priority sectors	1	4%	
	I strongly disagree that ecosystem builders are focusing on my priority sectors	0	0%	
	I don't think ecosystem builders should focus on specific sectors	0	0%	

With regard to the respondents' perception on the difficulty to find good investment opportunities, the results show that the respondents perceive this subject as being mildly difficult, with the average score of 2,76 backing this conclusion. While we were expecting results slightly more accentuated towards a lower score, pointing out an increased difficulty on finding good investment opportunities, such results are plausible given that we are analyzing different ecosystems and different investor groups.

As for the perceived impact of ecosystem builders in helping investor groups finding better investment opportunities, the overall results show a positive overview on the influence of ecosystem builders, with the average of 3,72 illustrating such conclusion. These results are in line with our expectations, as according to theoretical evidence this is one of the main reasons behind the relationship between investor groups and ecosystem builders.

Concerning the assessment on investor groups' sectors of future investment, the collected data show that the major trends in the investor landscape focus on software, cloud computing/SaaS, fintech, healthcare IT and services, and analytics/big data. These sectors show a great focus on tech startups by investor groups, which confirms our initial expectations on the current trends of investment.

Finally, our study on ecosystem builders' focus on investor groups' priority sectors illustrated great contentment by investors, with the results showing that 76% of the investor groups perceive that their priority sectors are being given the appropriate attention by ecosystem builders. Such results show that ecosystem builders are meeting investor groups' expectations with regard to this subject.

6.1.2 *Ecosystem builders' added value to startups*

Concerning to the second subject under study in our questionnaire, we assessed 4 questions related to the added value generated to startups by ecosystem builders.

The assessed questions and collected data on each of these questions (i.e. absolute value, percentage and average) are following presented in Table 6.2.

Table 6.2 – Detailed analysis on ecosystem builders' added value to startups' results

	Variable	Absolute frequency	Percentage	Average score
Considering your personal experience, how do you perceive ecosystem builders' role in the creation of successful startups?	1	2	8%	4,04
	2	1	4%	
	3	5	20%	
	4	3	12%	
	5	14	56%	

	Variable	Average score	Standard Deviation	Mode
Based on your experience, how relevant was the role of accelerators with regard to the following aspects?	Startup screening	3,96	1,00	5
	Entrepreneurial education	3,72	0,96	3
	Access to mentoring	4,08	1,06	5
	Business advice	3,32	1,09	3
	Product/Service development	3,36	1,20	4
	Financial advice	2,88	1,24	3
	Legal advice	2,84	1,08	3
	Post-program support	2,6	1,02	2
Based on your experience, how relevant was the role of incubators with regard to the following aspects?	Startup screening	3,48	1,20	4
	Entrepreneurial education	3,40	1,02	3
	Access to mentoring	3,24	1,11	4
	Business advice	2,96	0,96	2
	Product/Service development	2,64	1,16	3
	Financial advice	2,60	1,20	2
	Legal advice	2,48	1,06	2
	Post-program support	2,24	1,03	2
Concerning the following areas, where would you like to see greater help from ecosystem builders?	Startup screening	4,88	2,42	5
	Entrepreneurial education	4,08	2,35	2
	Access to mentoring	4,40	1,85	3
	Business advice	4,32	1,95	3
	Product/Service development	4,80	2,23	4
	Financial advice	4,40	2,19	3
	Legal advice	4,52	2,19	6
	Post-program support	4,60	2,88	8

Concerning to ecosystem builders' role in the creation of successful startups, the collected data shows that investor groups perceive great importance in the role of ecosystem builders, with the average score

of 4,04 reflecting such opinion. While we expected a positive result expressing the perceived value of ecosystem builders, we weren't expecting an evaluation this positive due to the theoretical evidence that pointed out to a perception of low on ecosystem builders' interventions by investor groups.

With regard to the elements where accelerator programs add value to startups, the results show that the elements where accelerators' intervention are the most valuable are Access to mentoring, with an average score of 4,08, followed by Startup screening and Entrepreneurial education, with an average score of 3,96 and 3,72 respectively. As for the elements where accelerators add the least value, Post-program support, Legal advice and Business advice were highlighted as the elements where accelerators' intervention was the least valuable, with average scores of 2,60, 2,84 and 2,88 respectively. Such results illustrate that accelerator programs' are mainly designed to first-time entrepreneurs, with investor groups stating a more valuable intervention by accelerators in introductory and general elements when in comparison with more specific elements.

As for the elements where incubators add value to startups, similarly to our assessment to accelerators, the elements where the respondents perceive the most value in incubators' intervention are Startup screening, with an average score of 3,48, followed by Entrepreneurial education and Access to mentoring, with average scores of 3,40 and 3,24 respectively, while Post-program support, Legal advice and Financial advice were highlighted as the elements where incubators add the least value, with average scores of 2,24, 2,48 and 2,60 respectively. These results indicate that, like accelerators, incubators are mainly designed to first-time entrepreneurs, with investor groups stating a more valuable intervention by incubators in introductory and general elements when in comparison with more specific elements. Additionally to this conclusion we can also observe that, while investor groups highlighted the same set of elements as the most valuable and least valuable in both assessments, the overall average scores of incubators' elements of intervention are significantly lower than the ones registered by accelerators, thus emphasizing the increased overall value that investor groups perceive in accelerators when in comparison to incubators.

Following the individual assessment on accelerators' and incubators' added value, we conducted an analysis to the elements where the respondents would like to see greater help by both these ecosystem builders in their interventions. The collected data showed that Entrepreneurial education, Business advice and Financial advice were highlighted as the elements where investor groups would appreciate to see a greater focus by ecosystem builders, with average scores of 4,08, 4,32 and 4,40 respectively. With regard to the elements where respondents perceived the least need to see improvements, Startup screening, with an average score of 4,88 was outlined as the element where investor groups find the current interventions to be the most adequate, followed by Product/Service development and Post-program support, with average scores of 4,80 and 4,60 respectively. Based on these results and on the ones previously analyzed we can conclude that investor groups don't perceive the need to see Post-

program support and Product/Service development being addressed by investor groups', while Entrepreneurial education is seen as a major element of ecosystem builders' intervention on startups, being among the ones which generate the most value in both accelerators and incubators, and being the element which the respondents reported to expect ecosystem builders to continue devoting the utmost attention. As for Business advice and Financial advice, the results show that investor groups perceive the need to see these elements being better addressed, with the collected data illustrating a mismatch between the expectations of ecosystem builders and investor groups with regard to these elements.

6.1.3 Cooperation between ecosystem builders and investor groups

The last subject under study on the questionnaire related to the cooperation between ecosystem builders and investor groups, having being conducted 6 questions on that topic.

The assessed questions and collected data on each of these questions (i.e. absolute value, percentage and average) are following presented in Table 6.3.

Table 6.3 – Detailed analysis on the cooperation between ecosystem builders and investor groups' results

	Variable	Absolute frequency	Percentage	Average score
Do you currently support (e.g. mentoring, financial support, awards, etc.) any ecosystem builder?	Yes	23	92%	-
	No	2	8%	
If you replied "yes" to the previous question, please specify how you support the ecosystem builders.	Guest speaker	18	72%	-
	Mentoring to startups	18	72%	
	Financial support	6	24%	
	Resources	4	16%	
	Sponsor awards to startups	6	24%	
	Part of final pitch jury	19	76%	
Based on your experience, how do you rate the cooperation between investors and ecosystem builders concerning information sharing on startups?	1	0	0%	4,04
	2	3	12%	
	3	4	16%	
	4	7	28%	
	5	11	44%	

Table 6.3 – Detailed analysis on the cooperation between ecosystem builders and investor groups' results (Continuation)

	Variable	Absolute frequency	Percentage	Average score
From the following list, please indicate the kind of information that ecosystem builders typically share with investors.	Startup one-pager	23	92%	-
	Startup business plan	9	36%	
	Investment recommendation	11	44%	
	Updates on startups' progress	9	36%	
	Other	3	12%	

	Summary of responses
How do you believe cooperation between investors and ecosystem builders could improve?	Promote more entrepreneurship events
	Prioritize national investors in favor of foreign investors
	Promote a closer cooperative work between ecosystem builders and investor groups more often
	Include investors earlier in the programs, and at a deeper level throughout every stage of the programs
	Focus on sharing more relevant information to the investors about promising prospects of investment
	Improve the communication levels between ecosystem builders and investor groups, and between the ecosystem builders themselves
	Better address the needs of investors, with particular focus on startup scouting and post-program support to startups until they reach proper investment readiness levels
	Work together with investors to better understand the critical factors behind the investors' most successful startups, and focus on improving education and mentoring in those areas
How do you believe cooperation between investors and ecosystem builders concerning information sharing could improve?	Create a common platform to share information specifically with investors
	Share information with investors more proactively and on a more regular basis
	Filter the information shared with investors, so that it better fits each investor's profile
	Promote meetings between investors and startups that might match the investor's criteria
	Share more information with investors concerning the development of their startups, and provide their insights on future prospects of investment

With regard to investor groups' support to ecosystem builders, as stated in Table 6.3, 92% of the respondents confirms to currently support ecosystem builders. These results are quite positive and back

our expectation that the level of cooperation between these two entities concerning the provision of support would be effective. From our assessment to the collected data we were also able to conclude that the support provided to ecosystem builders is mainly comprised by three services: participating in the final pitch jury (76% of the respondents), guest speaking and providing mentoring to startups (both confirmed by 72% of the respondents). These three services show that investor groups' contribution to ecosystem builders consist primarily in the provision of knowledge and on experience sharing, thus concurring with the theoretical evidence previously presented in this dissertation.

Concerning to the cooperation between ecosystem builders and investor groups regarding information sharing, the majority of the inquired investor groups considered it to be important, with 72% of the responding rating this elements as being important or very important, against only 12% of the respondents who disagreed on their importance. This opinion is further emphasized by the average score of 4,04 which leaves no margin for doubts on the perceived importance of information share. Although such evaluation was not unexpected, given that the key in any successful cooperation is communication, oddly, according to the collected data, it coincides with the most troubled component in the interconnectivity between these two entities. Such claim is backed by the following presented assessment to the cooperation between ecosystem builders and investor groups.

Analyzing the type of information shared by ecosystem builders, startup one-pagers come clearly highlighted as the primary information being shared between these two entities, with 92% of the respondents indicating to typically receive this information. Following startup one-pagers, the second most shared type of information are investment recommendations, with 44% of the respondents claiming to receive such information, a value which represents less than half of the startup one-pagers' value. In third and fourth place come startup business plan and updates on startups' progress, with only 36% of the respondents stating to receive these information. This analysis to the results show that although information share is considered to be important to investor groups, the cooperation between ecosystem builders and investor groups is not being efficiently conducted by both parties, with relevant information not reaching its interested parties, thus resulting an underwhelming relationship that doesn't live up to its potential.

Also concerning the cooperation between ecosystem builders and investor groups we conducted 2 questions that aimed to understand investor groups' opinions on how to improve the cooperation and the information share with ecosystem builders. The summarized results presented in Table 6.3 further emphasize the current shortcomings in the interconnectivity between these entities. With regard to the overall cooperation with ecosystem builders, the respondents' suggestions mainly focused on the need to promote a closer cooperative work between ecosystem builders and investor groups earlier and at a deeper level, the need to improve the communication levels, promoting more entrepreneurship events and also of better addressing investors' needs. As for the suggestions on how to improve the information

share between these entities, the most referred suggestions were to create a common platform specifically designed to promote information share with investors, to share information more regularly and proactively, and finally to filter the shared information by investor so that it better fits each investor's profile.

6.2 Comparison to the results by sample group

Having analyzed the overall results, we'll now analyze the results by country and by investor group. In this analysis we have performed both a quantitative analysis and a qualitative analysis in order to better evaluate the different groups comprised in the sample of this research.

Concerning the quantitative analysis, in order to test the differences between the different groups comprised in the sample (i.e. business angels & venture capitalists, and Portugal & Germany-U.K.), we have conducted Fisher's exact test, at a significance level of $p < 0,05$, to the absolute frequencies of a selected set of questions which we found relevant to study. We chose to employ this statistical test due to this research sample's characteristics, namely the reduced sample size and the unequal data distribution by sample group. These statistical tests were conducted resorting to the statistical software *IBM Statistical Package of Social Science 19* (IBM SPSS 19).

The results to the quantitative comparison by investor group and by country are presented in Appendix 4 and Appendix 5 respectively.

While our aim with this test was to determine the significant differences between the different sample groups, and hence complement our qualitative analysis, the results obtained from the statistical tests did not match our expectations, having failed to identify most of the differences found in the qualitative analysis, with the differences between both analysis' results being rather evident. We believe such differences might be justified by the reduced dimension of our sample, which reduced the statistical power of our study and thus undermined the reliability of our results. As such, despite our initial desire to back the findings from our qualitative analysis with quantitative data, we decided to focus solely on the findings from our qualitative analysis to the different sample groups.

With regard to our qualitative analysis, which will be following presented, we have compared the results from the different sample groups considered in this study, and sought to compare the questions in which we found the most considerable differences on the results. In that sense, as some of the results between the different sample groups will be similar, we will focus our attention on the questions where we observe the most significant differences in the results.

6.2.1 Comparison on the results by investor group type

The following analysis will compare the results from our questionnaire by investor group, i.e. by venture capitalists and business angels. With this analysis we aim to contribute to a better comprehension on the main differences between these two ecosystem actors with regard to the topic of this research study.

Figure 6.1 and Figure 6.2 respectively present the comparison between venture capitalists' and business angels' perceptions on the difficulty to find good investment opportunities, and the comparison between these ecosystem actors with regard to their perception on ecosystem builders' role to help them find good investment opportunities.

Figure 6.1 – Comparison between VCs and BAs on the difficulty to find good investment opportunities

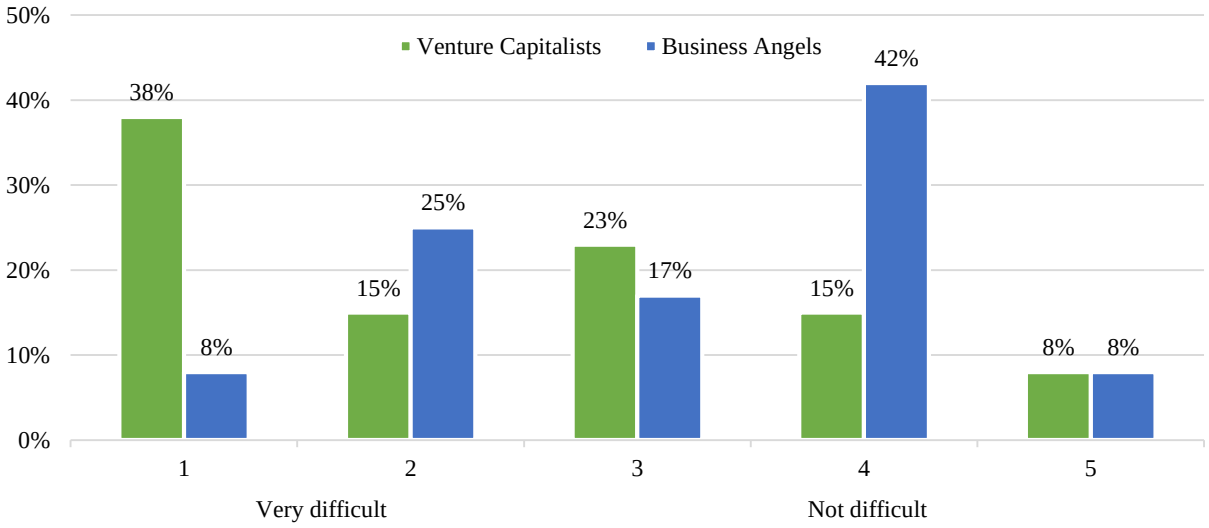
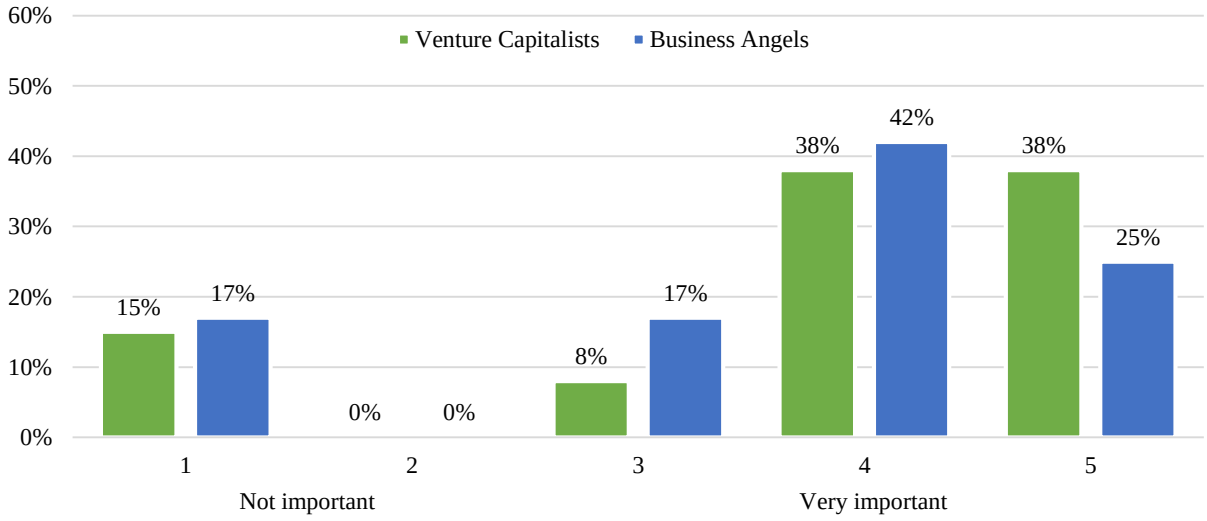


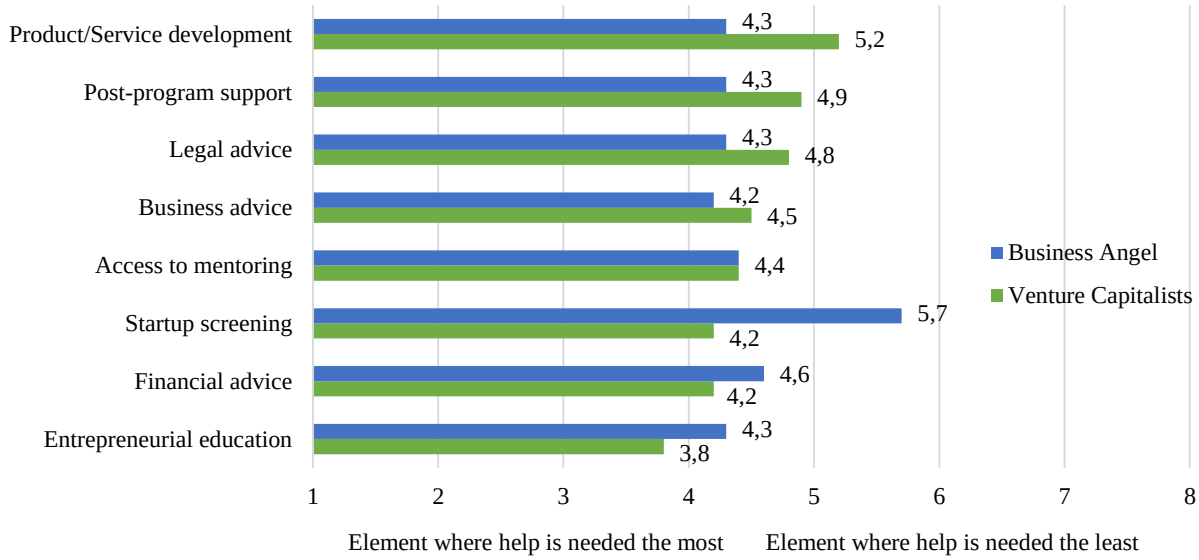
Figure 6.2 – Comparison between VCs and BAs on EBs' role to help find good investment opportunities



As the results illustrate, it is possible to observe that venture capitalists find harder to discover good investment opportunities than business angels, with 58% of the venture capitalists to consider it difficult

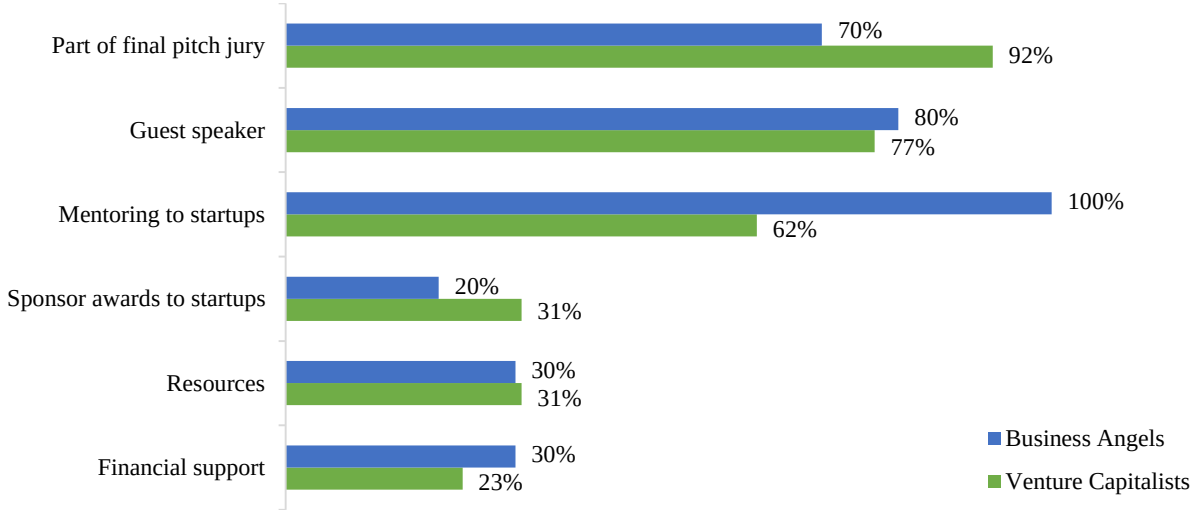
against 33% of the business angels. On the opposite side, only 23% of the venture capitalists find not difficult to discover good investment opportunities against 50% of the business angels. These conclusions are further backed by the average score of both entities, with venture capitalists possessing an average score of 2,38 against 3,17 from business angels. While the results show venture capitalists and business angels perceive differently the difficulty on finding investment opportunities, Figure 6.2 shows that they perceive similarly ecosystem builders' role on facilitating their search for worthy investment opportunities.

Figure 6.3 – Comparison between VCs and BAs on the Ecosystem builders' elements to improve



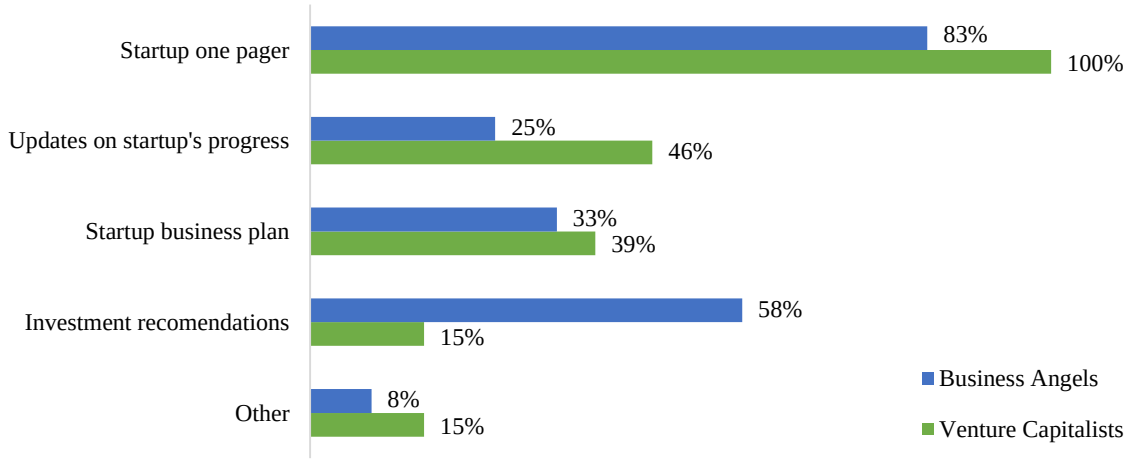
With regard to venture capitalists' and business angels' assessment on which ecosystem builders' elements should be improved, depicted in Figure 6.3, we can see some differences on their results. The most noticeable difference relates to their opinion on Startup screening, where with an average score of 5,7 business angels clearly highlight that such element shouldn't be considered a priority with regard to a potential improvement, being in fact considered the element where help is needed the least, while on the other hand venture capitalists, with an average score of 4,2, considered it to be one elements where help is needed the most. One other element where we can a great difference between these two actors' results relates to Product/Service development, where venture capitalists, with an average score of 5,2, considered to be the element where help is needed the least, while business angels, with an average score of 4,3, placed Product/Service development among the elements where they feel help is needed the most. Other elements where we can see some significant difference between venture capitalists' and business angels' perception are Post-program support, Legal advice and Entrepreneurial education.

Figure 6.4 – Comparison between VCs' and BAs' type of support to EBs



By comparing venture capitalists' and business angels' results on the type of support they provide to ecosystem builders, depicted in Figure 6.4, it is possible to observe some differences concerning their approaches to this topic. While venture capitalists' results put mentoring to startups as the third most provided type of support, with 62% of the respondents saying to provide such type of support, business angels emphasize much more this type of support, being in fact the most provided type of support, with 100% of the respondents confirming to provide such support. On the opposite way, being part of the final pitch jury can be seen as the primary priority type of support provided by venture capitalists, with 92% of the respondents claiming to provide such support, while business angels on the other hand, with 70% of the respondents stating to provide this type of support, see such support as important but not as their priority. From the assessed results we can also see a considerable difference between both actors' results with regard to sponsoring awards to startups and financially support ecosystem builders, however both types of support are not seen as a priority, being among the least provided types of support according to the results.

Figure 6.5 – Comparison on the types of information shared by EBs to VCs and BAs



With regard to the assessment on the information shared by ecosystem builders to venture capitalists and business angels, illustrated in Figure 6.5, we can see some interesting differences on their results. While both actors rated startup one pagers as the most common type of information shared by ecosystem builders, we can argue that this information is somewhat more important for venture capitalists than business angels, with 100% of the venture capitalists reporting to receive it against 83% of the business angels. Concerning investment recommendations, these appear to be rather important for business angels, being the second most shared information by ecosystem builders with 58% of the respondents confirming to receive such information, contrary to venture capitalists, who with only 15% of the respondents claiming to receive it, clearly don't see the same value in these information. On an opposite situation, updates on startups' progresses are highly valued by venture capitalists, being the second most referred information by the respondents with 46% of the venture capitalists receiving this information by ecosystem builders, while the same cannot be said about business angels, who with only 25% of the respondents receiving this information, don't see as much value/necessity in receiving it.

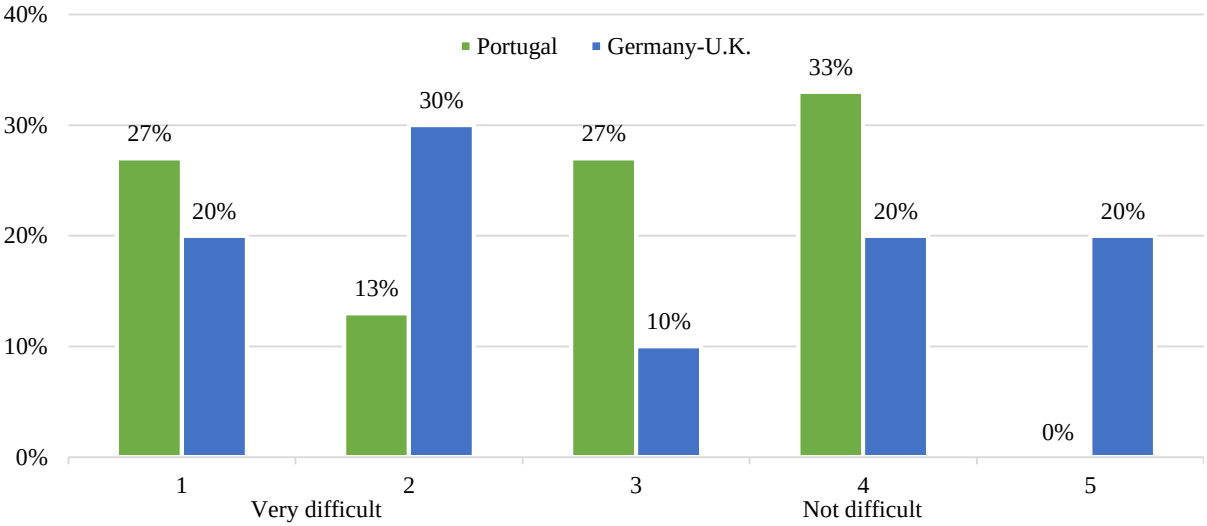
Analyzing the conclusions on the comparison between venture capitalists and business angels perceptions we were are able to notice that although these two actors present some differences on their assessments, these are mostly inherent to their nature and characteristics. Based on the theoretical foundation of this research on each of these actors, we can inclusively say that such different results were expected.

6.2.2 Comparison to the results by country

Having analyzed the differences among the results by investor group, we'll now present a comparison between the results from Portugal against the results from Germany-U.K. By conducting this comparison we aim to understand how different the results from these different countries are, so that we can conclude if the perception from the inquired investor groups in Portugal might be in line with the perception of the investor groups from other countries.

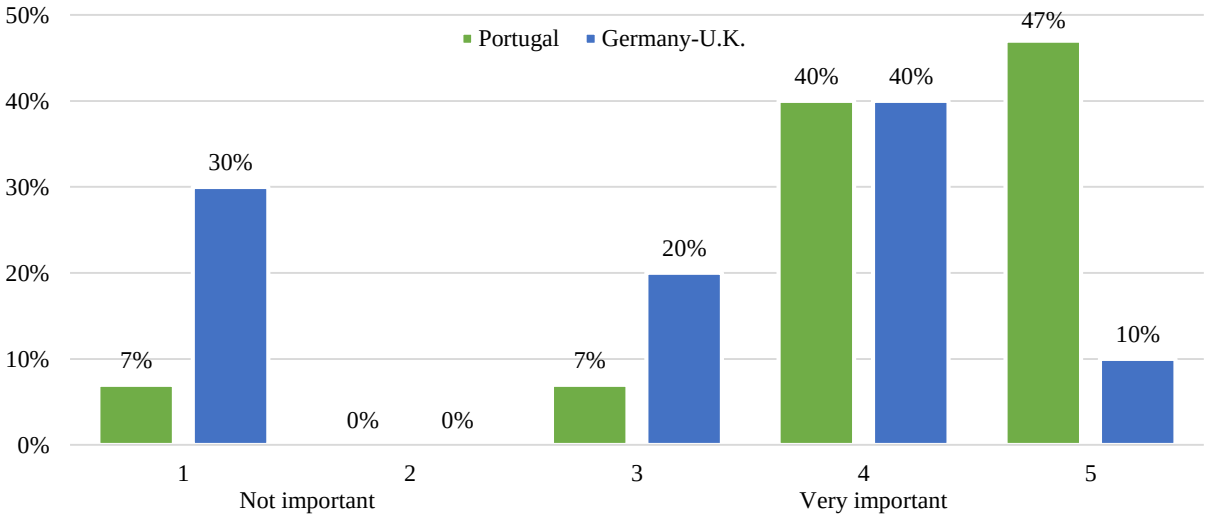
Figure 6.6 presents the comparison between the results in Portugal and Germany-U.K. about investor groups' perception with regard to the difficulty to find good investment opportunities.

Figure 6.6 – Comparison by country on the difficulty to find good investment opportunities



By analyzing Figure 6.6, it's possible to state some differences between the way both samples perceive this subject. While in Germany-U.K., 50% of the respondents qualified as being difficult the process of finding good investment opportunities, in Portugal the respondents' perspective is slightly less negative, with just 40% of the respondents qualifying this process as being difficult. On the other hand, the percentage of respondents in Germany-U.K. who find such process as not being difficult is also superior to Portugal, with 40% of the respondents in Germany-U.K. qualifying it as not difficult against 33% in Portugal. This data shows that the overall opinions in Portugal with regard to this topic are less acute than the ones shown by the respondents from Germany-U.K.

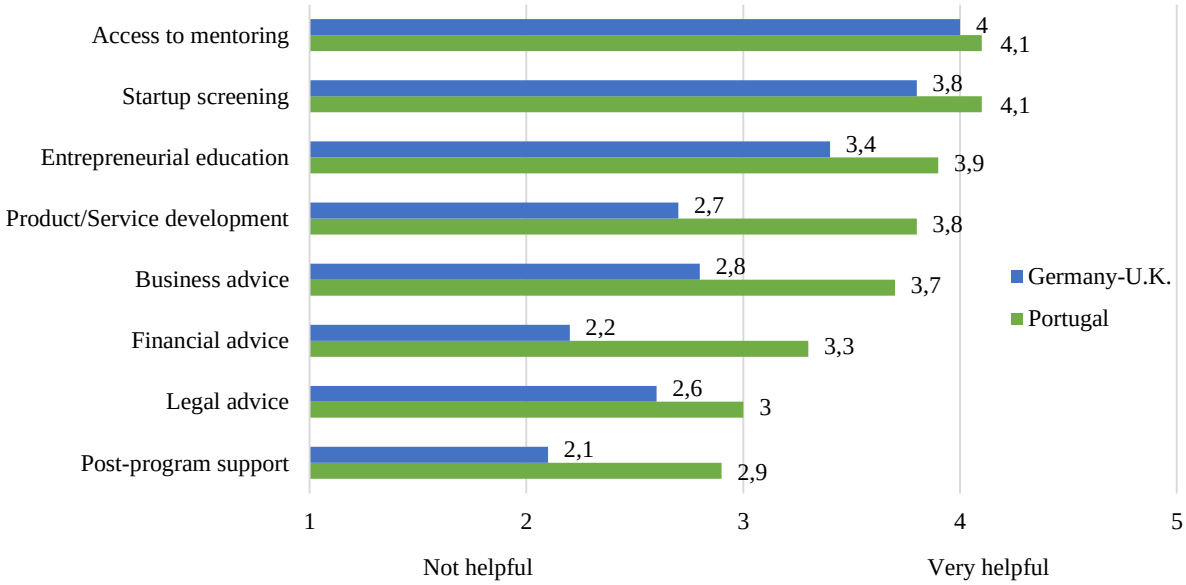
Figure 6.7 – Comparison by country on the EBs' role on finding good investment opportunities



Comparing the results by country with regard to the ecosystem builders' role on finding good investment opportunities, illustrated in Figure 6.7, allows us to observe a considerable difference in the assessment by the respondents in Portugal and by the respondents in Germany-U.K. In Portugal the vast majority of the respondents consider ecosystem builders' role on facilitating the search for good investment

opportunities as being important, with 86% of the respondents sharing such perception, and only 7% considering them as being not important. Meanwhile, the respondents in Germany-U.K. find ecosystem builders to be significantly less important when in comparison with the Portuguese respondents, with only 50% of the respondents qualifying them as important, and 30% as not important.

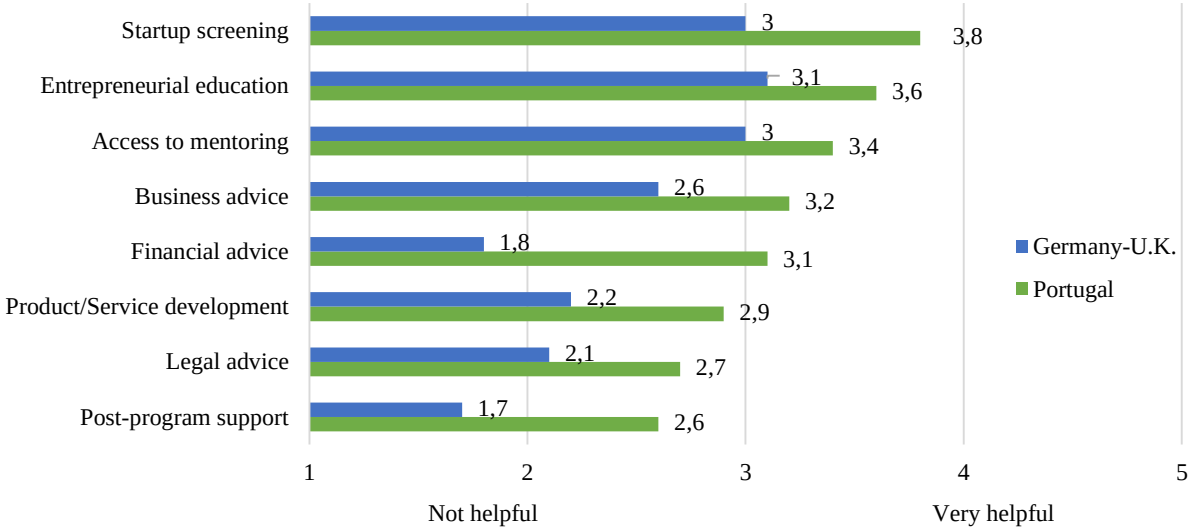
Figure 6.8 – Comparison by country on the accelerator programs' added value elements



With regard to the analysis of investor groups' perception on the added value elements of accelerator programs, Figure 6.8 presents a comparison between the data collected in Portugal and in Germany-U.K. While comparing the overall results allows us to conclude that both samples of respondents share similar opinions on the most and least added value elements, with Access to mentoring and Startup screening being considered the elements where accelerator programs add the most value, and with Post-program support, Legal advice and Financial advice being the elements which generate the least value, the most noticeable difference in the individual results of both countries relates to the overall higher average rating by the respondents in Portugal when in comparison with the respondents from Germany-U.K. Such results allows us to conclude that the Portuguese respondents perceive greater value in the impact of accelerator programs on startups than its counterparts in Germany-U.K.

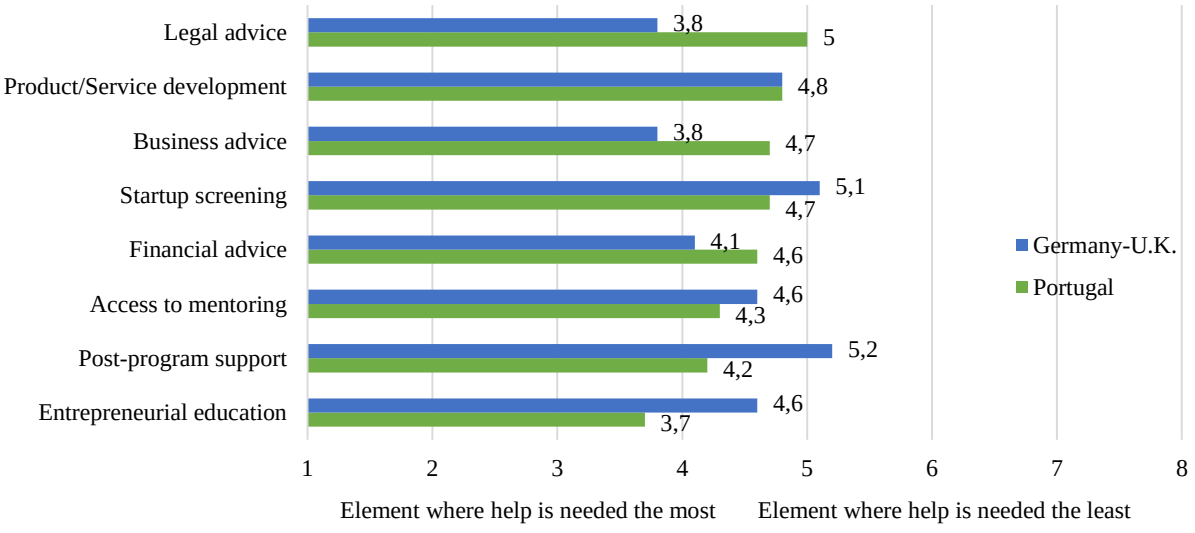
Similarly to the above presented comparison on the added value elements of accelerator programs, Figure 6.9 presents the comparison by country on the respondents' perception of the added value elements of incubators.

Figure 6.9 – Comparison by country on incubators' added value elements



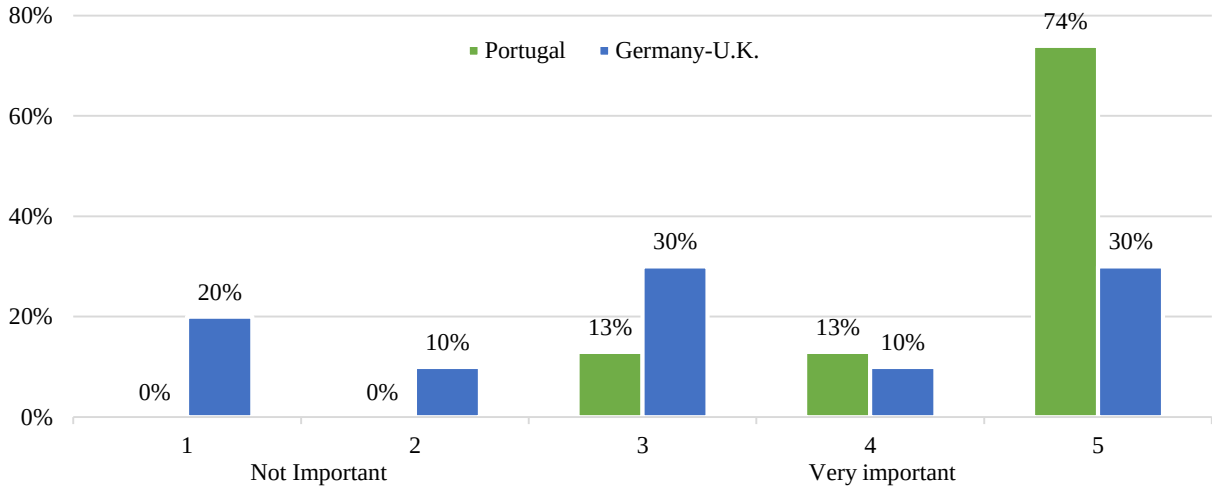
By observing Figure 6.9 we can see a similar trend to the one registered in the comparison by country on the accelerator programs' added value elements, where both samples of respondents have similar opinions concerning the most and least added value elements, with Startup screening and Entrepreneurial education being the most added value elements, and with Post-program support and Legal advice being among the elements with least perceived added value. The exception to this trend is Financial advice, which was evaluated by the Portuguese respondents as being mildly helpful, while the respondents in Germany-U.K. rated it as the second least helpful element in incubators. Like in the previous comparison, Figure 6.9 shows an overall higher average rating by the respondents in Portugal when in comparison with the respondents from Germany-U.K, thus allowing us to conclude that the Portuguese respondents perceive greater value in the impact of incubators on startups than its counterparts in Germany-U.K.

Figure 6.10 – Comparison by country on the Ecosystem builders' elements to improve



Comparing the results on the assessment on the elements to be improved in the ecosystem builders' programs, depicted in Figure 6.10, we can see that Portugal's respondents reported Entrepreneurial education, Post-program support and Access to mentoring as the main elements that need the most to be improved, while Legal advice, Product/Service development and Business advice were seen as the elements where help is needed the least. Interestingly, Legal advice and Business advice were considered the elements where improvement is needed the most by the respondents in Germany-U.K., while Post-program support and Startup screening were considered to be the elements where help is needed the least, with other elements such as Product/Service development, Access to mentoring and Entrepreneurial education also being highlighted as elements where improvement is not of the utmost necessity.

Figure 6.11 – Comparison by country on the EBs' role in the creation of successful startups



With regard to the perceived ecosystem builders' role in the creation of successful startups, displayed in Figure 6.11, the results show great disparity, with 87% of Portugal's respondents considering ecosystem builders as being important, against only 40% of the respondents in Germany-U.K. Such results highlight the fact that apparently investor groups in Portugal find greater value in ecosystem builders than its counterparts in Germany-U.K.

Concerning the characterization on the type of support provided by investor groups to ecosystem builders, illustrated in Figure 6.12, we can see that the overall results revolve around the same trends, in which providing mentoring to startups, participating as a part of the final pitch jury and guest speaking are the most common types of support provided to ecosystem builders, while sponsoring awards to startups, financial support and resources are reported to be provided by merely a small fraction of the respondents. However, these results exhibit some differences with regard to the type of support provided by both samples of respondents. While Germany-U.K. respondents show a set of support actions clearly defined, with 80% of the respondents claiming to provide mentoring to startups and being part of the final pitch jury, and 90% of the respondents claiming to provide guest speaking, these actions in Portugal

do not show such a denoted expression, with 73% of the respondents claiming to support ecosystems by participating as part of the final pitch jury, 67% by providing mentoring to startups and 60% by guest speaking.

Figure 6.12 – Comparison by country on the type of support provided to EBs

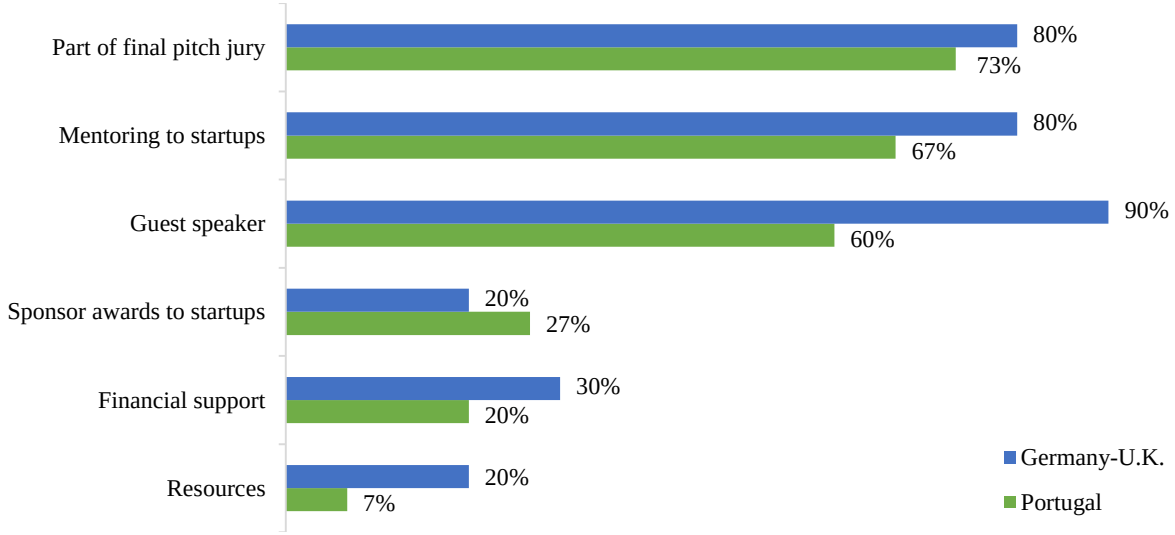
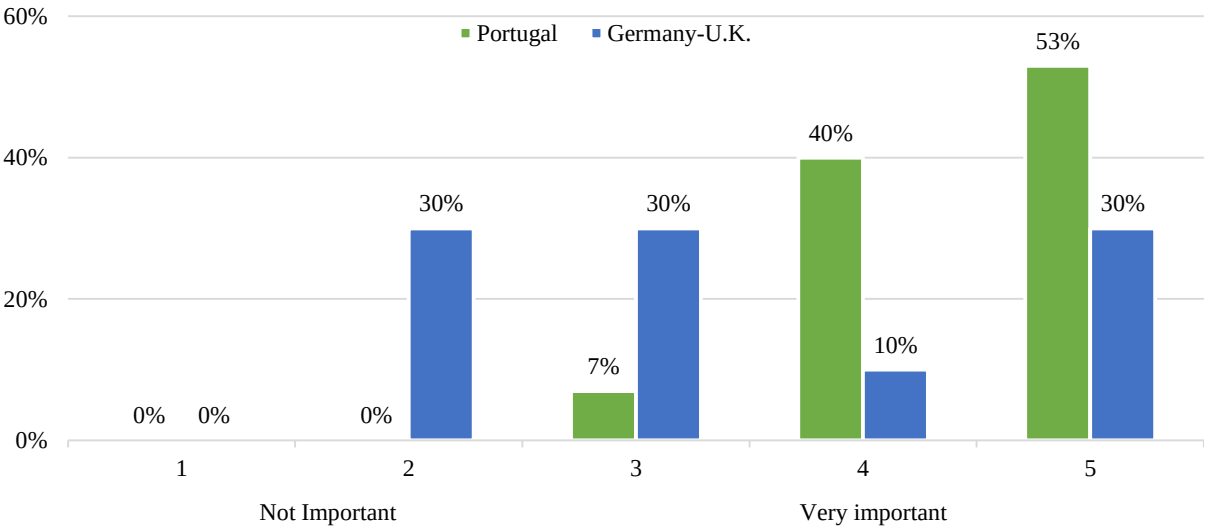


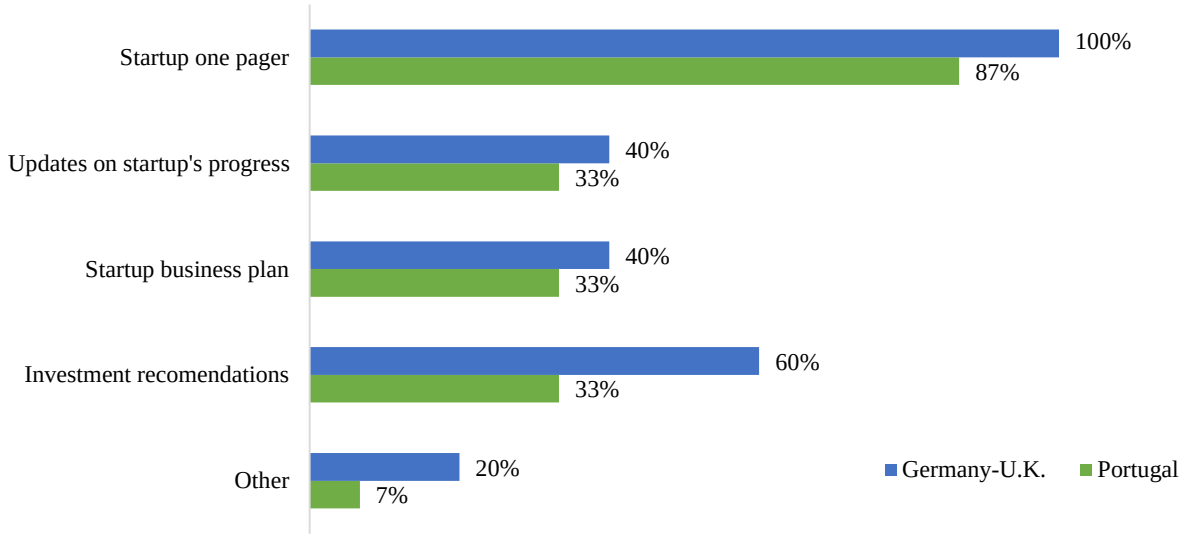
Figure 6.13 – Comparison by country on the information share between IGs and EBs



Similarly to what has been seen in other comparisons, by analyzing the respondents' perception of the importance of information sharing between investor groups and ecosystem builder, illustrated in Figure 6.13, we can state the existence of some differences in the respondents' perspectives with regard this topic. While the majority of Portugal's respondents rated their assessment on the value of information sharing as being important, with 93% of the respondents sharing such opinion, only 40% of the respondents from Germany-U.K. rated similar value on the importance of this cooperation. Also concerning the respondent sample from Germany-U.K., 30% of the respondents rated information sharing as being not important, while not a single respondent rated similarly this cooperation. Such

results elucidate that the overall value of information sharing between investor groups and ecosystem builders is much highly perceived by the Portuguese respondents than by its peers in Germany-U.K.

Figure 6.14 – Comparison by country on the types of information shared by EBs to IGs



As for the comparison by country on the types of information shared by ecosystem builders to investor groups, Figure 6.14 shows that the results from Portugal and Germany-U.K. are quite similar. The only major exception can be observed in the sharing of investment recommendations, which 60% of the respondents in Germany-U.K. claimed to receive, against just 33% of Portugal's respondents.

By analyzing the overall comparisons between the collected data in Portugal and in Germany-U.K., we can state that they present several differences. Among all differences, the most significant one is in the perceived value that investor groups see in ecosystem builders: while the respondents in Portugal see great added value in the role of ecosystem builders, the respondents in Germany-U.K. perceive considerably less value in the impact of these actors. These results might be explained by the different maturity of these three startup ecosystems, as while Portugal's startup ecosystem is rapidly emerging in the European entrepreneurial scene, Germany and U.K. are regarded as the two major startup ecosystems in Europe. Hence, such difference in the respondent's perception may be justified by the larger role that ecosystem builders assume in emerging ecosystems, as in these ecosystems entrepreneurial actors, such as accelerators and incubators, assume greater importance in encouraging and nurturing the entrepreneurial spirit in entrepreneurs and aspiring entrepreneurs, by contributing with the knowledge, skills, tools and motivation needed for them prosper within their regional startup ecosystems.

6.2.3 Addressing the research questions

This research aims to study the interconnectivity between ecosystem builders and investor groups, with particular focus on understanding investors' perception of ecosystem builders' added value and on

comprehending the interactions between both entities. In order to perform such assessment and to evaluate investor groups' opinions and perspectives on the scope of this dissertation, we have conducted a questionnaire where we aimed to collect data so that we could find answer to our two research questions:

1. **Which aspects of the ecosystem builders' contribution towards startups are valued most valued by investor groups?**

2. **Which factors should ecosystem builders address in order to promote an enhanced relationship with investor groups?**

With regard to the first research question, while the results from the collected data vary depending on the assessed investor group (i.e. business angels, venture capitalists) or on the assessed country (i.e. Portugal, U.K. and Germany), broadly speaking the overall results highlight startup screening, entrepreneurial education and access to mentoring as the primary aspects through which ecosystem builders add value to entrepreneurs and startups, and which investor groups value the most.

Although these three aspects were considered to be the most valuable ones to investor groups, it's noteworthy to bring attention to two other elements that were pointed out as the aspects where some improvement would be the most beneficial: business advice and financial advice. While these elements where not referred to be the most valuable aspects through which ecosystem builders generate value, the fact that they were emphasized might indicate that these are areas where investor groups believe that an additional contribution by ecosystem builders could have an important impact in the success of startups.

As for the second question, as expected the research showed that currently the relationship between ecosystem builders and investor groups is not working properly, namely with regard to the way these two ecosystem actors cooperate and share information with each other. While most investor groups refer to consider such cooperation as being important, the results point out to the existence of several shortcomings, especially in terms of communication and information sharing that limit the efficiency of the collaboration between these two ecosystem actors.

Among the factors which investor groups highlighted the most over the necessity to be addressed, we can emphasize the need to improve the communication levels between both actors, the necessity of promoting the collaboration between ecosystem builders and investor groups earlier and at a deeper level, and also of better addressing investors' needs.

Chapter 7

Conclusions & Recommendations

In this final section of the study we will overview the overall research work conducted throughout this dissertation, followed by an analysis to our findings and a reflection on the accomplishment of the research objectives. Based on our results we will also propose recommendations on how to improve the interconnectivity between ecosystem builders and investor groups. Finally, the limitations of the study and some suggestions for future research will also be presented.

7.1 Overall conclusions

The development of this dissertation allowed us to study the interconnectivity between ecosystem builders and investor groups, in furtherance of understanding how they interact with each other to create value to the community.

With the aim of increasing our comprehension on the topic of this research, we conducted a literature review to obtain a solid theoretical foundation of knowledge on the diverse topics of interest and relevance to the scope of this work. Over the course of this theoretical assessment we undertook a bibliographic research, where we resorted to books, academic research works, reports and websites, in order to collect data on the concepts of startup, startup ecosystems and ecosystem actors.

Although some previously developed research works have already covered some aspects of the relationship between ecosystem builders and investor groups, most focused on the relationship between specific ecosystem actors (e.g. incubators and business angels, accelerators and venture capitalists, etc.). In this case study however, we investigated the overall interconnectivity between ecosystem builders and investor groups, having developed our research around two main topics: the aspects through which ecosystem builders add value to entrepreneurs and startups; and the cooperation between ecosystem builders and investor groups.

In that sense, to identify the perceived aspects through which ecosystem builders generate the most value to entrepreneurs and evaluate how ecosystem builders and investor groups cooperate with each other, it

was conducted a survey through an online questionnaire, to a sample of investor groups located in Portugal, U.K. and Germany.

Based on the analysis to the results, it was discovered that investor groups perceive Startup screening, Entrepreneurial education and Access to mentoring as the elements through which ecosystem builders generate the most value to entrepreneurs. It was also discovered that the cooperation between these two ecosystem actors could be improved, with investor groups highlighting the existence of diverse shortcomings in their collaboration, particularly in terms of communication and information sharing.

With regard to the different results by investor groups, the comparison to the collected data showed that business angels and venture capitalists present some differences on their assessments, especially with regard to their perception of the elements which ecosystem builders should improve. As for the comparison to the collected data by country, the results revealed great differences on the interconnectivity between ecosystem builders and investor groups. The overall results showed that investor groups' in Portugal perceived greater added value in the role of ecosystem builders than its counterparts in U.K. and Germany, who do not seem to rely on ecosystem builders as much as the inquired Portuguese investor groups. Such difference on the perception of both sample groups can be observed in the importance that they find in ecosystem builders' role to help them find good investment opportunities as well as in the creation of successful startups, and also in the perceived importance that they find on information sharing with ecosystem builders.

Throughout the development of the study we were faced with some limitations on the nature of the research which might affect the applicability of the results. These limitations are mainly comprehended by the sample size, which we found to be reduced and rather limited with regard to the analyzed countries, and also by the fact that we only investigated investor groups' perception, thus confining the scope of the dissertation to the point of view of only one of the involved entities.

In spite of limitations on the nature of the study, we consider this research as having been successfully conducted, with the results hereby presented constituting a significant contribution to the global effort of possessing a greater understanding on the intricacies of the entrepreneurial ecosystems in Europe, particularly with regard to interconnectivity between ecosystem builders and investor groups. Although the collected data lacks the proper dimension to attest the validity of the results, this research work provides an interesting assessment on this specific topic, which may possibly contribute to stimulate the development of future research that addresses the limitations that we have previously identified.

7.2 Recommendations

The ultimate objective of this research work was of proposing conclusive solutions on how to improve the interconnectivity between ecosystem builders and investor groups, and consequently, the overall European entrepreneurial ecosystem. In that sense, based on the collected data and on the analysis to the results, we suggest some recommendations about how can ecosystem builders generate greater value to startups, and about how to improve the cooperation between ecosystem builders and investor groups:

1. **Promote a closer cooperative work between ecosystem builders and investor groups**

While ecosystem builders focus on promoting entrepreneurship and on supporting startups throughout their development stages, their contribution often lacks the hands-on and business-oriented experience that investor groups possess, thus limiting the added value of their intervention. In that sense, cooperating more closely with investor groups could lead to a more meaningful impact on ecosystem builders' intervention in startups.

2. **Promote a clearer understanding between ecosystem builders and investor groups with regard to the expectations about each other's role**

As illustrated in our questionnaire results, there exists a slight mismatch between the ecosystem builders' contribution to startups and the elements where investor groups believe they should focus on adding value to startups. Such disparity might result from the lack of understanding and knowledge about each other's role and perspectives. By means of a greater communication and mutual understanding between both entities, ecosystem builders and investor groups could come to an agreement about how to add the most value to startups, and hence improve their contribution to the emergence of higher quality startups.

3. **Create a common platform specifically for information sharing between ecosystem builders and investor groups**

One of the most referred suggestions on how to address the existing liabilities in information sharing between ecosystem builders and investor groups was the creation of a common platform designed specifically for the purposes of information sharing between these two entities. The intent behind the creation of such platform would be of facilitating the information sharing between ecosystem builders and investor groups, and also of promoting a more proactive and regular sharing of relevant information according to individual profile of each investor group.

7.3 Limitations and future research

This research was successful with regard to investigation on the interconnectivity between ecosystem builders and investor groups, and on proposing recommendations with the potential to help improve the European entrepreneurship ecosystem. However, throughout the development of this study we were faced with some limitations on the nature of our research which might affect the applicability of the results.

Firstly, this research revolved around the study to the interconnectivity between ecosystem builders and investor groups. However, in the empirical part of this research we focused solely on the perception of investor groups, thus confining the scope of the dissertation to the point of view of only one of the involved entities. Future research could focus on the opportunity of comprising both entities' perspective on this topic.

Secondly, while the main objective of this research was to propose conclusive solutions about how to improve the overall European entrepreneurship ecosystem, the data collection took place mostly in Portugal. This can be pointed out as a limitation to the validity of the recommendations hereby proposed, as we don't possess much evidence that the results obtained in this study are consistent with the reality of other ecosystems in Europe. A more detailed study across other European ecosystems would be necessary to assess on the validity of our results in other ecosystems.

Thirdly, with regard to the questionnaire results, during the analysis we believe we might have come across a misconception on the design of a question. Observing the collected data, accelerator programs – which since the last few years are globally seen as one of the main responsible for the startup boom worldwide – weren't as highly rated by the respondents as we would have expected prior to this study. On the contrary, startup events (e.g. hackathons, startup fairs, meetups, etc.) were much highly rated than expected. While such scenario might be plausible, we believe that these results might be skewed due to a question poor design, which might have led the participants to relate "startup events" to every type of startup events, including accelerator-based events.

Finally, our empirical research questionnaire managed to collect data from some of the most relevant business angels and venture capitalist associations in Portugal. However, despite the fact that our sample of 15 respondents in Portugal can be considered to be consistent with the dimension of Portugal's entrepreneurship ecosystem, it is undeniable that the sample of respondents is of reduced dimension. As a result, although this research's conclusions possess value, they may be considered to be of limited added value, as we do not possess enough data to validate this study's data analysis. A more detailed study throughout Europe with a larger sample size would be necessary to validate the findings from this research.

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Appendix

Appendix 1: Interview topics

1. **Investors' perception concerning ecosystem builders' role to help finding the best startups**
   - Do ecosystem builders' screening and selection processes help investors find better startups? / Do ecosystem builders' screening and selection processes give greater credibility to startup?
2. **Investors' perception concerning entrepreneurial education and mentoring to startups by ecosystem builders**
   - Do ecosystem builders provide the proper entrepreneurial education and mentoring to their attendees?
3. **Investors' perception concerning ecosystem builders' role to help mitigate investment risks**
   - Do ecosystem builders have an actual impact in reducing the risks associated to investments?
4. **Investors' perception concerning ecosystem builders' role to stimulate entrepreneurial spirit in society**
   - Do ecosystem builders play an active role in boosting entrepreneurship in society?
5. **Investors' perception on the impact of ecosystem builders' in promoting the creation of startup clusters in their regions**
   - Do ecosystem builders play a part in the creation of startup clusters in their regions?
6. **Investors' perception on the cooperation level between investors and ecosystem builders**
   - Do ecosystem builders and investors cooperate with each other in a beneficial way?
7. **Investors' perception on the information sharing level between investors and ecosystem builders**
   - Do ecosystem builders share with investors useful information concerning their attendees?
8. **Investors' perception concerning ecosystem builders' post-programme support**

- Do ecosystem builders provide an appropriate post-programme support on their former attendees?

9. **Investors' perception concerning ecosystem builders' impact in the creation of future success for their attendees**
   - Do ecosystem builders have a meaningful impact in the creation of future success for their attendees?
10. **Investors' perception concerning the survival rate of formerly supported startups vs non-supported startups**
    - Do formerly supported startups have higher survival chances than its non-supported counterparts?
11. **Investors' perception concerning the economic performance of formerly supported startups vs non-supported startups**
    - Do formerly supported startups show better economic performance than non-supported startups?
12. **Investors' perception concerning the growth rate of formerly supported startups vs non-supported startups**
    - Do formerly supported startups grow faster than non-supported startups?
13. **Investors' perception concerning ecosystem builders' role in startups' ability to overcome problems**
    - Do ecosystem builders play an active role in improving startups' ability to adapt and overcome problems?
14. **Investors' perception concerning startup key areas in which they would like to invest**
    - Do investors have startup key areas in which they would like to invest? If so, could ecosystem builders play a part in helping investors reaching their investment goals?
15. **Investors' suggestions on potential improvements for ecosystem builders**
    - What changes would investors like to see in ecosystem builders in order to improve their relationship?

Appendix 2: Preliminary questionnaire

Name of the Investor: _____

Type of Investor: Venture Capitalist ☐ Business Angel ☐ Other ☐

Date: __ /__ /__

Thank you for accepting to take part in this research questionnaire. Throughout this survey we intend to measure the interconnectivity between investors and ecosystem builders (i.e. entrepreneurial actors within the ecosystem that aim to support startups, such as incubators and accelerators), specifically investor's perception of ecosystem builders, and the cooperation between investors and ecosystem builders. This questionnaire should only take 8-10 minutes to complete. Be assured that all answers you provide will be kept confidential.

Investor profile

1. For how long do you invest in startups?

   _____

2. Currently, what is the size of your startup portfolio?

   _____

3. Concerning your startup portfolio, in which sectors have you invested on? (Please select one or more options from the following items.)

Software ☐	Hardware ☐	Mobile ☐	Medical ☐
Ecommerce ☐	Analytics/ Big data ☐	Fintech ☐	Edtech ☐
Communications ☐	Media ☐	Advertising ☐	Social ventures ☐
Manufacturing ☐	Cleantech ☐	Fashion ☐	Food/Drink ☐
Tourism ☐	Music/Audio ☐	Legal ☐	Consumer business ☐
Cloud computing/ SaaS ☐	Healthcare IT and services ☐	Enterprise software ☐	Other ☐

4. What sources do you use to search for startups? (Please select one or more options from the following items.)

Accelerators ☐	Incubators ☐	Startup events ☐	Universities ☐
Social network platforms ☐	Angel networks ☐	Crowdfunding sites ☐	Other ☐

5. Concerning your startup portfolio, from which sources did you get your most valuable startups? (Please select one or more options from the following items.)

Accelerators ☐	Incubators ☐	Startup events ☐	Universities ☐
Social network platforms ☐	Angel networks ☐	Crowdfunding sites ☐	Other ☐

Investors' perception of ecosystem builders

6. How would you classify the difficulty of finding good investment opportunities? (Please rate the following item on a scale of 1-5, where 1 is 'very difficult' and 5 is 'not difficult'.)

1	2	3	4	5

7. What is your opinion concerning ecosystem builders' importance to help investors find better investment opportunities? (Please rate the following item on a scale of 1-5, where 1 is 'not important' and 5 is 'very important'.)

1	2	3	4	5

8. Based on your experience, how relevant was the role of accelerators and incubators with regards to the following? (Please rate each of the following items, in both columns, on a scale of 1-5, where 1 is 'not helpful' and 5 is 'very helpful'.)

	Accelerators					**Incubators**				
Startup screening	1	2	3	4	5	1	2	3	4	5
Entrepreneurial education	1	2	3	4	5	1	2	3	4	5
Access to mentoring	1	2	3	4	5	1	2	3	4	5
Business advice	1	2	3	4	5	1	2	3	4	5
Product/service development	1	2	3	4	5	1	2	3	4	5
Financial advice	1	2	3	4	5	1	2	3	4	5
Legal advice	1	2	3	4	5	1	2	3	4	5

Post-program support	1	2	3	4	5	1	2	3	4	5

9. Concerning the following areas, where would you like to see greater help from ecosystem builders? (Please rank each of the following items in order of importance, on a scale of 1-8, where 1 is 'area where help is needed the most', and 8 is 'area where help is needed the least'.)

Startup screening ☐	Access to mentoring ☐	Product/service development ☐	Legal advice ☐
Entrepreneurial education ☐	Business advice ☐	Financial advice ☐	Post-program support ☐

10. How do you perceive the importance of ecosystem builders' role for the creation of successful startups? (Please rate the following item on a scale of 1-5, where 1 is 'not important' and 5 is 'very important'.)

1	2	3	4	5

11. From the following list, in which sectors would you like to invest on? (Please select one or more options from the following items.)

Software ☐	Hardware ☐	Mobile ☐	Enterprise software ☐
Ecommerce ☐	Analytics/ Big data ☐	Fintech ☐	Edtech ☐
Communications ☐	Media ☐	Advertising ☐	Social ventures ☐
Manufacturing ☐	Cleantech ☐	Fashion ☐	Food/Drink ☐
Tourism ☐	Music/Audio ☐	Legal ☐	Consumer business ☐
Cloud computing/ SaaS ☐	Healthcare IT and services ☐	Medical ☐	Other ☐

12. Based on your answer to the previous question, do you think ecosystem builders are currently focusing on your priority sectors? (Please choose only one option from the following items.)

I strongly agree that ecosystem builders are focusing on my priority sectors.	☐
I agree that ecosystem builders are focusing on my priority sectors.	☐
I neither agree nor disagree that ecosystem builders are focusing on my priority sectors.	☐
I disagree that ecosystem builders are focusing on my priority sectors.	☐
I strongly disagree that ecosystem builders are focusing on my priority sectors.	☐
I don't think ecosystem builders should focus on specific sectors.	☐

Cooperation between ecosystem builders and investors

13. Do you currently support (e.g. mentoring, financial support, awards, etc.) any ecosystem builder?

Yes	No

14. If you replied "yes" to the previous question, please specify how you support the ecosystem builders. ? (Please select one or more options from the following items.)

Guest speaker ☐	Mentoring ☐	Financial support ☐	Resources ☐
Sponsor awards to startups ☐	Part of final pitch jury ☐	Other: _____ ☐	

15. How do you believe cooperation between investors and ecosystem builders could improve?

_____
_____
_____

16. Based on your experience, how do you rate the cooperation between investors and ecosystem builders concerning information sharing on startups? (Please rate the following item on a scale of 1-5, where 1 is 'not important' and 5 is 'very important'.)

1	2	3	4	5

17. From the following list, please indicate the kind of information that ecosystem builders typically share with investors.

Startup one-pagers ☐	Startup business plan ☐	Investment recommendations ☐	Updates on startup's progress ☐
Other: _____ ☐			

18. How do you believe cooperation between investors and ecosystem builders concerning information sharing on startups could improve?

_____
_____
_____

Appendix 3: Final questionnaire

Thank you for accepting to take part in this research questionnaire in entrepreneurship. Throughout this survey we intend to measure the inter connectivity between investors and ecosystem builders (i.e. entrepreneurial actors within the ecosystem that aim to support startups, such as incubators and accelerators), specifically investor's perception of ecosystem builders, and the cooperation between investors and ecosystem builders. This questionnaire should take 10-12 minutes to complete. Be assured that all answers you provide will be kept confidential.

Investor profile

1. From which country are you from?

   _____

2. For what company do you work for?

   _____

3. Concerning your investor profile, what type do you believe describes you the best?

   ☐ Angel investor
   ☐ Venture capitalist
   ☐ Other: ☐

4. For how long do you invest in startups?

   _____

5. Currently, what is the size of your startup portfolio?

   _____

6. Concerning your startup portfolio, in which sectors have you invested on?
   (Please select one or more options from the following items.)

   ☐ Software
   ☐ Hardware
   ☐ Mobile
   ☐ Enterprise software
   ☐ E-commerce
   ☐ Analytics/Big data
   ☐ Cloud computing/SaaS

- ☐ Communications
- ☐ Fintech
- ☐ Edtech
- ☐ Media
- ☐ Advertising
- ☐ Social ventures
- ☐ Manufacturing
- ☐ Cleantech
- ☐ Fashion
- ☐ Food/Drink
- ☐ Tourism
- ☐ Music/Audio
- ☐ Legal
- ☐ Consumer business
- ☐ Healthcare IT and services
- ☐ Medical
- ☐ Other: ☐

7. What sources do you use to search for startups?
   (Please rank each of the following items in order of importance, on a scale of 1-7, where 1 is 'source which I use the least', and 7 is 'source which I use the most'.)

	1	2	3	4	5	6	7	8
Accelerators								
Incubators								
Startup events								
Universities								
Social network platforms								

Angel networks								
Crowdfunding sites								

8. Concerning your startup portfolio, from which sources did you get your most valuable startups? (Please rank each of the following items in order of importance, on a scale of 1-7, where 1 is ‘source where I get my least valuable startups’, and 7 is 'source where I get my most valuable startups’.)

	1	2	3	4	5	6	7	8
Accelerators								
Incubators								
Startup events								
Universities								
Social network platforms								
Angel networks								
Crowdfunding sites								

9. Concerning your startup portfolio, at which funding stages do you usually invest? (Please rank each of the following items in order of importance, on a scale of 1-4, where 1 is ‘stage where I invest the least’, and 4 is 'stage where I invest the most’).

	1	2	3	4
Seed stage				
Early stage				
Late stage				
IPO				

Investors' perception of ecosystem builders

10. How would you classify the difficulty of finding good investment opportunities? (Please rate the following item on a scale of 1-5, where 1 is 'very difficult' and 5 is 'not difficult'.)

	1	2	3	4	5	
Very difficult						Not difficult

11. What is your opinion concerning ecosystem builders' importance to help investors find better investment opportunities?
    (Please rate the following item on a scale of 1-5, where 1 is 'not important' and 5 is 'very important'.)

	1	2	3	4	5	
Not important						Very important

12. Based on your experience, how relevant was the role of accelerators with regard to the following aspects?
    (Please rate each of the following items on a scale of 1-5, where 1 is 'not helpful' and 5 is 'very helpful'.)

	1	2	3	4	5
Startup screening					
Entrepreneurial education					
Access to mentoring					
Business advice					
Product/Service development					
Financial advice					
Legal advice					

Post-program support					

13. Based on your experience, how relevant was the role of incubators with regard to the following aspects?
    (Please rate each of the following items on a scale of 1-5, where 1 is 'not helpful' and 5 is 'very helpful'.)

	1	2	3	4	5
Startup screening					
Entrepreneurial education					
Access to mentoring					
Business advice					
Product/Service development					
Financial advice					
Legal advice					
Post-program support					

14. Concerning the following areas, where would you like to see greater help from ecosystem builders?
    (Please rank each of the following items in order of importance, on a scale of 1-8, where 1 is 'area where help is needed the most', and 8 is 'area where help is needed the least'.)

	1	2	3	4	5	6	7	8
Startup screening								
Entrepreneurial education								
Access to mentoring								

Business advice								
Product/Service development								
Financial advice								
Legal advice								
Post-program support								

15. Considering your personal experience, how do you perceive ecosystem builders' role in the creation of successful startups?
(Please rate the following item on a scale of 1-5, where 1 is 'not important' and 5 is 'very important'.)

	1	2	3	4	5	
Not important						Very important

16. From the following list, in which sectors would you like to invest on?
(Please select one or more options from the following items.)

- ☐ Software
- ☐ Hardware
- ☐ Mobile
- ☐ Enterprise software
- ☐ E-commerce
- ☐ Analytics/Big data
- ☐ Cloud computing/SaaS
- ☐ Communications
- ☐ Fintech
- ☐ Edtech
- ☐ Media
- ☐ Advertising

- ☐ Social ventures
- ☐ Manufacturing
- ☐ Cleantech
- ☐ Fashion
- ☐ Food/Drink
- ☐ Tourism
- ☐ Music/Audio
- ☐ Legal
- ☐ Consumer business
- ☐ Healthcare IT and services
- ☐ Medical
- ☐ Other: ☐

17. Based on your answer to the previous question, do you think ecosystem builders are currently focusing on your priority sectors?
(Please choose only one option from the following items.)

- ☐ I strongly agree that ecosystem builders are focusing on my priority sectors.
- ☐ I agree that ecosystem builders are focusing on my priority sectors.
- ☐ I neither agree nor disagree that ecosystem builders are focusing on my priority sectors.
- ☐ I disagree that ecosystem builders are focusing on my priority sectors.
- ☐ I strongly disagree that ecosystem builders are focusing on my priority sectors.
- ☐ I don’t think ecosystem builders should focus on specific sectors.

Cooperation between ecosystem builders and investors

18. Do you currently support (e.g. mentoring, financial support, awards, etc.) any ecosystem builder?

- ☐ Yes
- ☐ No

19. If you replied “yes” to the previous question, please specify how you support the ecosystem builders.

(Please select one or more options from the following items.)

- ☐ Guest speaker
- ☐ Mentoring to startups
- ☐ Financial support
- ☐ Resources
- ☐ Sponsor awards to startups
- ☐ Part of final pitch jury

20. How do you believe cooperation between investors and ecosystem builders could improve?

_____

_____

_____

21. Based on your experience, how do you rate the cooperation between investors and ecosystem builders concerning information sharing on startups? (Please rate the following item on a scale of 1-5, where 1 is ‘not important’ and 5 is ‘very important’.)

	1	2	3	4	5	
Not important						Very important

22. From the following list, please indicate the kind of information that ecosystem builders typically share with investors.

- ☐ Startup One-Pager
- ☐ Startup Business Plan
- ☐ Investment Recommendations
- ☐ Updates on Startups’ Progress
- ☐ Other: ☐

23. How do you believe cooperation between investors and ecosystem builders concerning information sharing could improve?

_____

_____

_____

Appendix 4: Quantitative analysis by investor group

	Variable	Absolute frequency		Statistical test
		Venture Capitalist	Business Angel	
How would you classify the difficulty of finding good investment opportunities?	1	5	1	p = 0,34 p > 0,05 Non-significant Dif.
	2	2	3	
	3	3	2	
	4	2	5	
	5	1	1	
What is your opinion concerning ecosystem builders' importance to help investors find better investment opportunities?	1	2	2	p = 0,89 p > 0,05 Non-significant Dif.
	2	0	0	
	3	1	2	
	4	5	5	
	5	5	3	
Based on your experience, how relevant was the role of accelerators with regard to the following aspects? [Startup screening]	1	1	0	p = 1,00 p > 0,05 Non-significant Dif.
	2	0	0	
	3	3	4	
	4	4	4	
	5	5	4	
Based on your experience, how relevant was the role of accelerators with regard to the following aspects? [Entrepreneurial education]	1	0	0	p = 0,88 p > 0,05 Non-significant Dif.
	2	1	1	
	3	5	5	
	4	4	2	
	5	3	4	
Based on your experience, how relevant was the role of accelerators with regard to the following aspects? [Access to mentoring]	1	1	0	p = 0,89 p > 0,05 Non-significant Dif.
	2	0	1	
	3	2	2	
	4	5	3	
	5	5	6	
Based on your experience, how relevant was the role of accelerators with regard to the following aspects? [Business advice]	1	1	0	p = 0,30 p > 0,05 Non-significant Dif.
	2	1	4	
	3	6	2	
	4	3	4	

	5	2	2	
Based on your experience, how relevant was the role of accelerators with regard to the following aspects? [Product/Service Development]	1 2 3 4 5	2 1 3 5 2	1 1 4 4 2	p = 1,00 p > 0,05 Non-significant Dif.
Based on your experience, how relevant was the role of accelerators with regard to the following aspects? [Financial advice]	1 2 3 4 5	2 3 3 3 2	2 3 4 2 1	p = 1,00 p > 0,05 Non-significant Dif.
Based on your experience, how relevant was the role of accelerators with regard to the following aspects? [Legal advice]	1 2 3 4 5	2 2 6 2 1	1 4 4 2 1	p = 0,89 p > 0,05 Non-significant Dif.
Based on your experience, how relevant was the role of accelerators with regard to the following aspects? [Post-program support]	1 2 3 4 5	2 5 3 2 1	1 5 4 2 0	p = 1,00 p > 0,05 Non-significant Dif.
Based on your experience, how relevant was the role of incubators with regard to the following aspects? [Startup screening]	1 2 3 4 5	2 1 4 4 2	0 2 3 3 4	p = 0,66 p > 0,05 Non-significant Dif.
Based on your experience, how relevant was the role of incubators with regard to the following aspects? [Entrepreneurial education]	1 2 3 4 5	1 2 6 1 3	0 0 7 3 2	p = 0,51 p > 0,05 Non-significant Dif.
Based on your experience, how relevant was the role	1 2	1 2	1 2	p = 0,89 p > 0,05

of incubators with regard to the following aspects? [Access to mentoring]	3 4 5	3 5 2	5 3 1	Non-significant Dif.
Based on your experience, how relevant was the role of incubators with regard to the following aspects? [Business advice]	1 2 3 4 5	1 2 6 4 0	0 6 2 3 1	p = 0,16 p > 0,05 Non-significant Dif.
Based on your experience, how relevant was the role of incubators with regard to the following aspects? [Product/Service Development]	1 2 3 4 5	2 3 5 2 1	3 3 4 1 1	p = 1,00 p > 0,05 Non-significant Dif.
Based on your experience, how relevant was the role of incubators with regard to the following aspects? [Financial advice]	1 2 3 4 5	3 5 2 2 1	1 5 4 0 2	p = 0,54 p > 0,05 Non-significant Dif.
Based on your experience, how relevant was the role of incubators with regard to the following aspects? [Legal advice]	1 2 3 4 5	3 5 2 3 0	1 6 3 1 1	p = 0,60 p > 0,05 Non-significant Dif.
Based on your experience, how relevant was the role of incubators with regard to the following aspects? [Post-program support]	1 2 3 4 5	4 4 4 0 1	3 4 4 1 0	p = 1,00 p > 0,05 Non-significant Dif.
Concerning the following areas, where would you like to see greater help from ecosystem builders? [Startup screening]	1 2 3 4 5	4 0 0 1 5	0 2 1 1 1	p = 0,07 p > 0,05 Non-significant Dif.

	6	1	1	
	7	1	2	
	8	1	4	
Concerning the following areas, where would you like to see greater help from ecosystem builders? [Entrepreneurial education]	1	2	2	p = 0,30 p > 0,05 Non-significant Dif.
	2	4	1	
	3	0	2	
	4	3	1	
	5	0	2	
	6	2	1	
	7	0	2	
	8	2	1	
Concerning the following areas, where would you like to see greater help from ecosystem builders? [Access to mentoring]	1	1	1	p = 0,81 p > 0,05 Non-significant Dif.
	2	0	2	
	3	3	2	
	4	2	1	
	5	4	1	
	6	2	3	
	7	1	1	
	8	0	1	
Concerning the following areas, where would you like to see greater help from ecosystem builders? [Business advice]	1	1	2	p = 0,88 p > 0,05 Non-significant Dif.
	2	0	1	
	3	4	1	
	4	2	2	
	5	2	3	
	6	2	2	
	7	1	0	
	8	1	1	
Concerning the following areas, where would you like to see greater help from ecosystem builders? [Product/Service Development]	1	2	0	**p = 0,04** **p < 0,05** **Significant Dif.**
	2	2	1	
	3	0	2	
	4	1	5	
	5	0	2	
	6	1	0	

	7	4	2	
	8	3	0	
Concerning the following areas, where would you like to see greater help from ecosystem builders? [Financial advice]	1	0	2	p = 0,18 p > 0,05 Non-significant Dif.
	2	4	0	
	3	2	3	
	4	1	2	
	5	1	0	
	6	3	1	
	7	2	2	
	8	0	2	
Concerning the following areas, where would you like to see greater help from ecosystem builders? [Legal advice]	1	1	1	p = 0,84 p > 0,05 Non-significant Dif.
	2	2	3	
	3	2	1	
	4	1	0	
	5	1	2	
	6	2	4	
	7	2	1	
	8	2	0	
Concerning the following areas, where would you like to see greater help from ecosystem builders? [Post-program support]	1	2	4	p = 0,54 p > 0,05 Non-significant Dif.
	2	1	2	
	3	2	0	
	4	2	0	
	5	0	1	
	6	0	0	
	7	2	2	
	8	4	3	
Considering your personal experience, how do you perceive ecosystem builders' role in the creation of successful startups?	1	1	1	p = 0,43 p > 0,05 Non-significant Dif.
	2	1	0	
	3	3	2	
	4	0	3	
	5	8	6	
Based on your experience, how do you rate the	1	0	0	p = 0,40 p > 0,05
	2	1	2	

cooperation between investors and ecosystem builders concerning information sharing on startups?	3 4 5	3 5 4	1 2 7	Non-significant Dif.

Non-significant difference		The analyzed data with Fisher's exact test shows no evidence that the two sample groups possess different perceptions
Significant difference		The analyzed data with Fisher's exact test indicates that the null hypothesis can be rejected, hence there is a significant difference in the perception of the two sample groups

Appendix 5: Quantitative analysis by country

	Variable	Absolute frequency		Statistical test
		Portugal	Germany – U.K.	
How would you classify the difficulty of finding good investment opportunities?	1	4	2	p = 0,39 p > 0,05 Non-significant Dif.
	2	2	3	
	3	4	1	
	4	5	2	
	5	0	2	
What is your opinion concerning ecosystem builders' importance to help investors find better investment opportunities?	1	1	3	p = 0,14 p > 0,05 Non-significant Dif.
	2	0	0	
	3	1	2	
	4	6	4	
	5	7	1	
Based on your experience, how relevant was the role of accelerators with regard to the following aspects? [Startup screening]	1	0	1	p = 0,61 p > 0,05 Non-significant Dif.
	2	0	0	
	3	4	3	
	4	6	2	
	5	5	4	
Based on your experience, how relevant was the role of accelerators with regard to the following aspects? [Entrepreneurial education]	1	0	0	p = 0,34 p > 0,05 Non-significant Dif.
	2	1	1	
	3	4	6	
	4	5	1	
	5	5	2	
Based on your experience, how relevant was the role of accelerators with regard to the following aspects? [Access to mentoring]	1	0	1	p = 0,71 p > 0,05 Non-significant Dif.
	2	1	0	
	3	3	1	
	4	4	4	
	5	7	4	
Based on your experience, how relevant was the role of accelerators with regard to the following aspects? [Business advice]	1	0	1	p = 0,33 p > 0,05 Non-significant Dif.
	2	2	3	
	3	4	4	
	4	6	1	

	5	3	1	
Based on your experience, how relevant was the role of accelerators with regard to the following aspects? [Product/Service Development]	1 2 3 4 5	0 1 4 7 3	3 1 3 2 1	p = 0,17 p > 0,05 Non-significant Dif.
Based on your experience, how relevant was the role of accelerators with regard to the following aspects? [Financial advice]	1 2 3 4 5	1 2 6 3 3	3 4 1 2 0	p = 0,12 p > 0,05 Non-significant Dif.
Based on your experience, how relevant was the role of accelerators with regard to the following aspects? [Legal advice]	1 2 3 4 5	2 2 7 2 2	1 4 3 2 0	p = 0,54 p > 0,05 Non-significant Dif.
Based on your experience, how relevant was the role of accelerators with regard to the following aspects? [Post-program support]	1 2 3 4 5	1 5 4 4 1	2 5 3 0 0	p = 0,36 p > 0,05 Non-significant Dif.
Based on your experience, how relevant was the role of incubators with regard to the following aspects? [Startup screening]	1 2 3 4 5	0 2 4 4 5	2 1 3 3 1	p = 0,44 p > 0,05 Non-significant Dif.
Based on your experience, how relevant was the role of incubators with regard to the following aspects? [Entrepreneurial education]	1 2 3 4 5	0 1 8 2 4	1 1 5 2 1	p = 0,73 p > 0,05 Non-significant Dif.
Based on your experience, how relevant was the role	1 2	0 3	2 1	p = 0,63 p > 0,05

of incubators with regard to the following aspects? [Access to mentoring]	3 4 5	5 5 2	3 3 1	Non-significant Dif.
Based on your experience, how relevant was the role of incubators with regard to the following aspects? [Business advice]	1 2 3 4 5	0 4 5 5 1	1 4 3 2 0	p = 0,78 p > 0,05 Non-significant Dif.
Based on your experience, how relevant was the role of incubators with regard to the following aspects? [Product/Service Development]	1 2 3 4 5	0 5 7 2 1	5 1 2 1 1	**p = 0,02** **p < 0,05** **Significant Dif.**
Based on your experience, how relevant was the role of incubators with regard to the following aspects? [Financial advice]	1 2 3 4 5	0 5 6 1 3	4 5 0 1 0	**p = 0,01** **p < 0,05** **Significant Dif.**
Based on your experience, how relevant was the role of incubators with regard to the following aspects? [Legal advice]	1 2 3 4 5	2 5 4 3 1	2 6 1 1 0	p = 0,65 p > 0,05 Non-significant Dif.
Based on your experience, how relevant was the role of incubators with regard to the following aspects? [Post-program support]	1 2 3 4 5	2 5 6 1 1	5 3 2 0 0	p = 0,32 p > 0,05 Non-significant Dif.
Concerning the following areas, where would you like to see greater help from ecosystem builders? [Startup screening]	1 2 3 4 5	3 1 1 1 3	1 1 0 1 3	p = 0,99 p > 0,05 Non-significant Dif.

	6	1	1	
	7	2	1	
	8	3	2	
Concerning the following areas, where would you like to see greater help from ecosystem builders? [Entrepreneurial education]	1	3	1	p = 0,96 p > 0,05 Non-significant Dif.
	2	4	1	
	3	1	1	
	4	2	2	
	5	1	1	
	6	1	2	
	7	1	1	
	8	2	1	
Concerning the following areas, where would you like to see greater help from ecosystem builders? [Access to mentoring]	1	1	1	p = 0,99 p > 0,05 Non-significant Dif.
	2	2	0	
	3	3	2	
	4	2	1	
	5	3	2	
	6	2	3	
	7	1	1	
	8	1	0	
Concerning the following areas, where would you like to see greater help from ecosystem builders? [Business advice]	1	1	2	p = 0,91 p > 0,05 Non-significant Dif.
	2	0	1	
	3	3	1	
	4	3	2	
	5	3	3	
	6	3	2	
	7	1	0	
	8	1	1	
Concerning the following areas, where would you like to see greater help from ecosystem builders? [Product/Service Development]	1	1	1	p = 0,96 p > 0,05 Non-significant Dif.
	2	2	1	
	3	1	1	
	4	3	3	
	5	2	0	
	6	1	0	

	7	4	2	
	8	1	2	
Concerning the following areas, where would you like to see greater help from ecosystem builders? [Financial advice]	1	1	1	p = 0,98 p > 0,05 Non-significant Dif.
	2	2	2	
	3	3	2	
	4	2	1	
	5	1	0	
	6	2	2	
	7	2	2	
	8	2	0	
Concerning the following areas, where would you like to see greater help from ecosystem builders? [Legal advice]	1	1	1	p = 0,60 p > 0,05 Non-significant Dif.
	2	2	3	
	3	1	2	
	4	1	0	
	5	2	1	
	6	5	1	
	7	1	2	
	8	2	0	
Concerning the following areas, where would you like to see greater help from ecosystem builders? [Post-program support]	1	4	2	p = 0,79 p > 0,05 Non-significant Dif.
	2	2	1	
	3	2	0	
	4	1	1	
	5	0	1	
	6	0	0	
	7	3	1	
	8	3	4	
Considering your personal experience, how do you perceive ecosystem builders' role in the creation of successful startups?	1	0	2	p = 0,10 p > 0,05 Non-significant Dif.
	2	0	1	
	3	2	3	
	4	2	1	
	5	11	3	
Based on your experience, how do you rate the	1	0	0	**p = 0,03** **p < 0,05**
	2	0	3	

cooperation between investors and ecosystem builders concerning information sharing on startups?	3 4 5	1 6 8	3 1 3	**Significant Dif.**

Non-significant difference		The analyzed data with Fisher's exact test shows no evidence that the two sample groups possess different perceptions
Significant difference		The analyzed data with Fisher's exact test indicates that the null hypothesis can be rejected, hence there is a significant difference in the perception of the two sample groups