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School of Business and Management

International Marketing Management

**MASTER'S THESIS**

The Role of the Entrepreneurial Ecosystem in Developing Born Global Firms  
in the Estonian Startup Community

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## **ABSTRACT**

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The main motivation behind the thesis is author's personal interest towards startups with high-growth potential. As these companies are the new and fast growing source for innovation, it is an important topic to study. Moreover, for startups to thrive, certain circumstances need to be present, therefore the focus is turned towards the entrepreneurial ecosystem. In more detail, the ecosystem's elements and their influence in nurturing Born Global startups becomes the focal point. The objective is to create a framework which would include these elements and Born Global startups, but to enhance the scope of these dynamic relationships, the life-cycle stages and entrepreneurs' perceptions are integrated. Furthermore, the framework is used to uncover which ecosystem elements influenced startups in their first phases of discovery and validation. Also, the results reflect which of the elements are depicted as the strengths and weaknesses of the local ecosystem, and what are the main features of local startups. Lastly, these features are used to detect their different views of the importance and availability of these ecosystem elements.

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*"There isn't a thing we cannot achieve, there are only the things we don't dream about"*

*~ Hannes Velt*

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# 1 INTRODUCTION

In this chapter, the background of the study is described alongside with the research gaps, objectives and questions followed by description of the methodology and outline of the report structure.

## 1.1 Background

In the last two decades, a new form of economic entities has received a lot of attention throughout the globe as they have the ability to outperform others alike from early on, just right after inception, and subsequently sustain their international growth by moving from market to market looking for new opportunities. Behind the scenes, these rapid performers are referred to as Born Global firms, but in more practical perspective they are commonly known as startups. Startups are considered as a new generation of firms which in their core reflect the potentiality of their founders' capabilities, hence they can be regarded as the extension of the entrepreneurial drive. Therefore, the entrepreneurial mindset is what gives the first push in concepting such a remarkable entity, but it should be noted that not all startups are able to take the Born Global pathway of triumph as most of them would default while being unable to withstand against the challenges of the gauntlet. As only a fraction becomes successful, the question remains, what are they doing differently, omitting the share of pure luck. Hence, as the vitality of a plant is dependent on the environment that nurtures it, the same parallel could be applied describing the surrounding community and its role in launching and growing high-growth startups.

Moreover, this immediate environment is called entrepreneurial ecosystem as it directly influences the activities of the entrepreneurs to initiate startups in search for novel ideas leading to new innovations and subsequent value for the whole society. These ecosystems are present everywhere around the world making each of them unique respective to its location and characteristics. But as there are contextual differences among those ecosystems, one thing remains the same, namely the composition of the system. This structural formation consists of elements which have different features and capabilities that directly affect the livelihoods of startups and their founding entrepreneurs. Therefore, to be able to thrive, some certain combinations of resources, abilities and support is required. These elements are portrayed in many different forms, but as the main notions stay the

same, about 10 elements matter. These are formal institutions, culture, physical infrastructure, demand, networks, leadership, finance, talent, knowledge and support services. Hence, these elements are generally associated with the entrepreneurial ecosystem and their dynamic behaviour supports entrepreneurial activities and consecutive value creation.

Furthermore, as both of the phenomenon are still theoretically immature, the relationship between them has not been researched in depth. Taking these theoretical limitations into account, author of this study is determined to give further insights for this major gap (see [Section 2.3](#) for more arguments, prior research and the theoretical framework). Also, as there are plentiful of ecosystems to choose from, one of the newest ones standing out is the Estonian Startup Community. Estonian startup ecosystem and Estonian-founded Born Global startups have been making waves in the recent decade. This startup fairy-tale started with the invention of Skype and has gained its momentum since, making it a dashing and up-to-date example to be applied. In addition to, as most of the prior research has already concentrated on already well-established western economies, new views and data about transitional economies is a prerequisite to advance our understanding on the subject.

## 1.2 Research Objective and Questions

The main research objective is to investigate the entrepreneurial ecosystem and its structural elements which directly affect launching and growing processes of new ventures. Thus, it is necessary to investigate each of those elements in the appropriate life-cycle stage and their direct contribution in creating a supportive environment for startup development. Therefore, the main research question is formulated as,

***What is the role of the entrepreneurial ecosystem in developing Born Global startups?***

As the main research question is too general to answer it sufficiently, hence, a set of sub-questions have been assembled to give a more detailed focus on the matter. Firstly, it is necessary to understand which of the elements are important in the discovery processes when entrepreneurs are still developing their business ideas and creating suitable platforms for new venture formation. Based on that, the first sub-question is derived:

*1. Which ecosystem elements are most important for launching Born Global startups?*

Secondly, when the startup has been launched, it moves to the next phase of its life-cycle, where the business proposal is verified through market exposure, and additional growth and traction is added. Hence, the second sub-question is derived:

*2. Which ecosystem elements are most important for growing Born Global startups?*

Furthermore, it is necessary to understand which ecosystem elements are performing well in the local context indicating that some elements might have more relevance in creating a successful environment than others. Taking into account the assumption that every ecosystem is unique, the third sub-question is derived:

*3. Which systemic elements can be considered as ecosystem's strengths and weaknesses?*

Next, as the overview of the local ecosystem elements and their performance has been covered in the first sub-questions, it is important to understand the main features of the local new ventures. Thus, the fourth sub-question is derived:

*4. What are the general features of the Estonian-founded Born Global startups?*

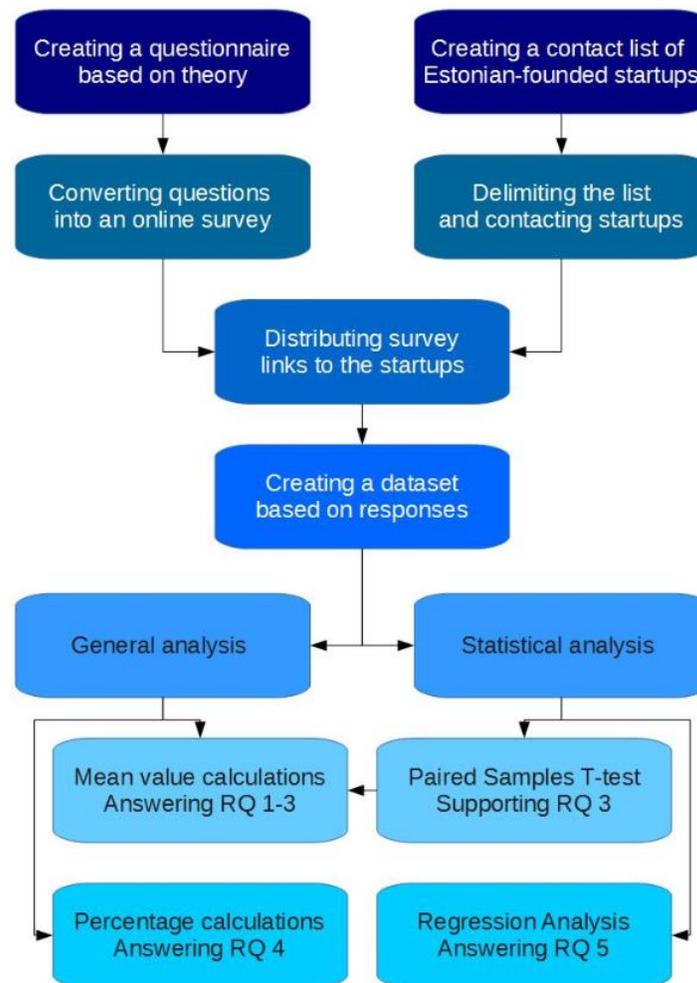
Lastly, as both sides of the ecosystem, input elements and output startups, have been observed, it is crucial to take them both into account and uncover the causal relationships between the different groups of startups and their perception of the local Estonian entrepreneurial ecosystem. Thus, the fifth sub-question is derived:

*5. How are systemic elements perceived differently based on company profiles?*

As a result, all of the above sub-questions have been integrated in a logical manner to supplement one another and ensure consistency to answer the main research question. Henceforth, the first stages are observed to distinguish structural changes between the elements based on their perceived importance. This is further complemented with the availability levels to create a set of relativity ratios to detect fundamental performance issues and thus, reveal ecosystem's strengths and weaknesses. Furthermore, the company profiles are specified which would be used to examine startup perspectives regarding their different views on the importance and availability of the ecosystem elements.

### 1.3 Research Methodology

The chosen research methodology is based on the assumptions that ecosystem elements have somewhat dynamic relationship between one another and with the startups whose development they support. Hence, as these assumptions are based on the research questions, it could be argued that the quantitative approach is most suitable investigating these subsequent relationships (see [Chapter 3.](#)). A structure of the research methodology and data collection is illustrated below (see [Figure 1.](#)).



*Figure 1 - Structure of the Research Methodology*

In summary, theoretical findings are transformed into an online survey questionnaire and sent out to the appropriate startups. Based on the responses, a dataset is developed with MS Excel and STATA14. Former is used mainly in the General analysis to answer the 1-4 RQs and the latter is used to support the 3<sup>rd</sup> question using t-test and answer the 5<sup>th</sup> question with the regression analysis.

## 1.4 Outline of the Thesis

The structural outline of the thesis (see Figure 2.) begins with the introductory part where the main essence of the study is laid out. Thereafter, a comprehensive literature review is done in three parts, defining the origins, concept and the structure of the entrepreneurial ecosystem, and the Born Global phenomenon. Both of these notional foundations are synthesized into a theoretical framework. Next, the research methodology is described including arguments about the approach selection, data collection activities and usage of the two-level analysis techniques.



*Figure 2 - Outline of the Thesis*

Moreover, the results from the general and statistical analysis are displayed in detail which are further integrated in a way that each of the elements could be discussed separately merging their respective results. Then, in the conclusion, the research questions are answered, followed by theoretical contributions and managerial implications, ending with the recommendations for the future.

## 2 LITERATURE REVIEW

The relationship between the high-growth entrepreneurial ventures and the entrepreneurial ecosystem is multifaceted and there are many aspects that should be considered. Thus, it is essential to understand how these phenomena interact with each other in creating value for the local society. In the first section, a detailed review of the entrepreneurial ecosystem is carried out and structural aspects and their functions are exposed. In the second section, the same is done with the organizational context to uncover the characteristics that define these firms and what connects them to the surrounding environment. Also, the life-cycle of the organization is taken into account, to show in which stages the relational connections are the strongest. In the final section, the gaps and limitations are revealed to argue for the importance and novelty of this study, followed by the underlying research framework composed on the aforementioned theoretical underpinnings.

### 2.1 Entrepreneurial Ecosystem

In this section, firstly the entrepreneurial ecosystem literature is reviewed to depict the main essence and origins of such a phenomenon. Secondly, the ecosystem concept is elaborated to capture the theoretical foundations of the system and its structure. Lastly, the systemic elements of the ecosystem are uncovered and updated with the latest advances in research domains to uncover their role in creating such a dynamic environment.

#### 2.1.1 *Origins of the Entrepreneurial Ecosystem*

Entrepreneurial ecosystem as a concept is still in its early stages of research and has yet to become a concise term in the Entrepreneurship literature. Van de Ven (1993) suggested that historical focus on individual entrepreneur(s) has enabled the creation of successful entrepreneurial ecosystems that evolve through a set of interdependent elements which cooperate with one another to generate and support the establishment of new ventures over time.

Spilling's research further emphasized those interacting elements and stated that: "*economic development is a result of complex entrepreneurial processes. Many things are linked together; many ventures develop in close interaction with each other and with environmental factors. Furthermore,*

*the development of communities requires more than just the development of a number of businesses; it is also about infrastructure, public institutions, and about firms that can match together in advanced production systems”* (Spilling, 1996, p. 91). This leads to an understanding that the entrepreneurial process and the dynamics of the surrounding environment should be researched together. This has coined into a concept of “entrepreneurial ecosystem”. Towards understanding its origins, both – entrepreneurial and ecosystem, should be further elaborated.

On the one hand, entrepreneurial has been derived from the term entrepreneurship which is defined as a process that includes the discovery, enactment, evaluation, and exploitation of opportunities to create future goods and services (Oviatt and McDougall, 2005; Shane and Venkataraman, 2000). In general form, it includes the process by which individuals exploit opportunities for innovation (Schumpeter, 1934). These entrepreneurial individuals tend to be good at perceiving new business opportunities and usually display positive biases in their perception and pro-risk-taking attitude making them more likely to exploit the opportunities (Zhang, 2015). The entrepreneurial ecosystem approach regularly constricts this entrepreneurship to high-growth ventures, saying that this is a vital source of innovation, productivity growth and employment (Foster et al., 2013; Mason and Brown, 2014).

On the other hand, the term ecosystem, used by scholars and business practitioners, has its roots in biology. According to the Henderson’s dictionary of biological terms, the ecosystem is specified as: *“a community of different species interdependent on each other, together with their non-living environment, which is relatively self-contained in terms of energy flow, and is distinct from neighboring communities. Different types of ecosystem were defined by the collection of organisms found within them”* (Lawrence, 2008). In addition to, some researchers began to use the ecosystem concept in the business context. Moore (1993) and Iansiti and Levien (2004a) developed business ecosystem theories to make the phenomenon more formal and applicable in terms of business activities, life-cycles, role types, key strategies and its evolution.

The term ecosystem in business context was formally proposed by Moore (1993) in his influential article “Predators and Prey: a new ecology of competition” to explore and explain the coeffect and coevolution among firms and their external environment. He visualized ecosystem as: *“an economic community supported by a foundation of interacting organizations and individuals - the*

*organisms of the business world. This economic community produces goods and services of value to customers, who are themselves members of the ecosystem. The member organizations also include suppliers, lead producers, competitors, and other stakeholders. Over time, they co-evolve their capabilities and roles, and tend to align themselves with the directions set by one or more central companies. Those companies holding leadership roles may change over time, but the function of ecosystem leader is valued by the community because it enables members to move toward shared visions to align their investments and to find mutually supportive roles” (Moore, 1997, p. 26).*

In their research, Iansiti and Levien (2004b, p. 69) described the ecosystem as a “*loose networks of suppliers, distributors, outsourcing firms, makers of related products or services, technology providers, and a host of other organizations – affect, and are affected by, the creation and delivery of firms own offerings*”. Even more generally, an ecosystem can be considered to include the community of organizations, institutions and individuals that impact the focal organization, such as customers, competitors, complementors, suppliers, regulatory authorities, standard-setting bodies, the judiciary, and educational and research institutions (Teece, 2007).

In summary, understanding core notions and their characteristics, it can be argued that environments where entrepreneurial processes function are archetypally called entrepreneurial ecosystems. Therefore, understanding the ecosystem concept and emphasizing the dimensional role of the entrepreneurial entity, it can be stated that entrepreneurial ecosystem nurtures dynamic relationships between the entrepreneurial actors and the environment they exist in. Thus, the concept highlights that entrepreneurship takes place in a community of symbiotic associations.

### ***2.1.2 Concept of the Entrepreneurial Ecosystem***

The preliminary conceptual ideas of the entrepreneurial ecosystem have been around for the past 20 years (Bahrami and Evans, 1995; Moore, 1993; Spilling, 1996; Van de Ven, 1993), but the focus of the research has added momentum during the past 6 years (Acs et al., 2014; Audretsch and Belitski, 2016; Autio and Levie, 2015; Feld, 2012; Foster et al., 2013; Isenberg, 2010; Kantis and Federico, 2012, 2012; Mack and Mayer, 2016; Malecki, 2011; Mason and Brown, 2014; Napier and Hansen, 2011; Stam, 2014; Szerb et al., 2013) and has gained more political attention, focusing

on the role of the entrepreneurial ecosystem and how it has been established, adapted and cherished. Unfortunately, commonly shared definition of the entrepreneurial ecosystem is still in process and in practice, the term is quite ambiguous.

The main focus in economic development initiative for encouraging entrepreneurship, is the entrepreneurial ecosystem (Isenberg, 2014) and its role in enabling and constraining entrepreneurial activity (Stam, 2014). It involves a mix of players and their interlinkages that function in an efficient and sustainable way. Thus, the primary objective of the ecosystem is to develop synergies between the various members by ensuring their convergence on a common level of economic efficiency. To achieve this, sources for local performance should be identified and organized, and interlinkages between the elements must be enabled (Boutillier et al., 2016).

Moreover, Boutillier et al. (2016) underlined three important aspects. Firstly, there should be a strong presence of entrepreneurial activity that enhances the upbringing of new ventures. Secondly, the local environment and favorable conditions are the key in creating and sustaining a striving entrepreneurial action. Thirdly, linking these two previous factors into one integrated, dynamic and vibrant community that depends on systemic and framework conditions.

Bahrami and Evans's (1995) study on the entrepreneurial ecosystem in Silicon Valley, was one of the first ones to create attraction and interest in understanding the dynamic nature of the ecosystem and its influential factors. They argued that *"the ecosystem provides an anchor of stability within which incumbent firms and new start-ups can flourish and become a source of innovation and employment, and yet remain sufficiently flexible to accommodate the constant stream of kaleidoscopic changes"* (p. 63). Likewise, Prahalad (2006) elaborated that individuals, enterprises and the surrounding society are driven by different goals and expectations. These stakeholders should be blended together into an ecosystem to effectively generate economic wealth and prosperity.

Moreover, Cohen (2006) and Neck et al. (2004) studied entrepreneurial ecosystems in Victoria (Canada) and Boulder (US), respectively. They argued that the main objective of the ecosystem was to create social, environmental and economic value in a community of new ventures. This support in development would benefit regional economic growth and higher employment rates that in turn would reduce poverty and vagrancy, and enhance ecological conditions and health. Cohen

(2006) defined it as a unified set of players in a local geographic community dedicated to sustainable growth via the support and assistance of new sustainable ventures.

For the most part, the prior research was heading to the right direction, but no integrated view were established until professor Isenberg's (2010) inspirational article "How to Start an Entrepreneurial Revolution" shaped the ground by prescribing which principles should be considered when creating an entrepreneurial ecosystem. These principles included: (1) stop emulating Silicon Valley, (2) shape the ecosystem around local conditions, (3) engage the private sector from the start, (4) favor the high potentials, (5) get a big win on the board, (6) tackle cultural change head-on, (7) stress the roots, (8) don't overengineer clusters; help them grow organically, and (9) reform legal, bureaucratic, and regulatory frameworks. Afterwards, Isenberg (2011) analyzed different ecosystems situated throughout the world and based from his own work and prior research, compiled a set of factors essential for a renewable ecosystem. These factors evolved and thrived in a unique way in each of the underlying ecosystems and were not transformative in their nature and therefore couldn't be used as best practices among other regions. Hence, successful ecosystems consist of resources that are requisite for venture existence and of environment which is developed in line with favorable policies which inspire and protect entrepreneurial processes. This seminal work drew descriptive borders of the ecosystem and its factors, so it could be further investigated in detail to create a more specific theoretical and practical implications for the future.

In comparison to, Foster's et al. (2014, 2013) research for the World Economic Forum rearranged and specified the pillars that was a build-up from the Isenberg's framework. This global review of ecosystems was based on the paths of successful ventures that were in their early phases of launching and growth. In their definition, the entrepreneurial ecosystems included a system of interconnected pillars that influence the capabilities and haste with which entrepreneurs create and grow startups in a sustainable manner. The focus was on entrepreneurs and their venture creation as the heart of the system and their bilateral relations to other actors. This comprehensive study verified previous findings and further supported the foundation of the ecosystem concept in the realm of entrepreneurship studies.

Subsequently, many well-respected authors have advanced their research of the entrepreneurial ecosystem and benefitted the stream of literature with multitude of insights and views by adding new knowledge to supplement the phenomenon. The renowned works of Feld (2012), Isenberg (2011), and Napier and Hansen (2011) were observation-based and practice led, focusing on regional agglomeration and local resources, while uncovering the structural frames of the entrepreneurial ecosystems. These steered others in search for proper explanation of the entrepreneurial ecosystem towards emphasizing the importance of the entrepreneurial activity placing high-growth ventures in the center of the stage (Feld, 2012; Mason and Brown, 2014; Stam, 2014).

For instance, Stam (2014, p. 1) described the ecosystem as *“an interdependent set of actors that is governed in such a way that it enables entrepreneurial action”*. As this was somewhat narrow and lack of depth, Mason and Brown (2014, p. 5) derived from the previous literature a more inclusive definition stated that it is: *“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”*. This definition contained structural, dynamic and institutional elements of entrepreneurial ecosystems, but was missing a link towards understanding the ecosystem outcomes (Autio and Levie, 2015).

Furthermore, the lack of good definition extenuated the effort of many others, researchers and practitioners alike, who actively pursued their work in measuring (Strangler and Bell-Masterson, 2015), assessing (Mack and Mayer, 2016; Spigel, 2015), enabling (Auerswald, 2015), comparing (Kshetri, 2014) and linking (Thomas et al., 2015) entrepreneurial ecosystems or in some cases gathering insights from the development and progress of regulatory policies (Acs et al., 2014; Kantis and Federico, 2012; Stam, 2015) .

As a result of it, Acs et al. (2014) understood that there is a misconception in the development of entrepreneurial ecosystems and incessant lack of focus on how the value was created by the individual entrepreneur. In their definition, “a National System of Entrepreneurship”, was: *“a dynamic,*

*institutionally embedded interaction between entrepreneurial attitudes, ability, and aspirations, by individuals, which drives the allocation of resources through the creation and operation of new ventures”* (p. 479). They emphasized that these complex socioeconomic systems were driven by individual-level action in revealing opportunities (Spigel, 2015) and in order to pursue those opportunities certain kind of resources were required and employed (Acs et al., 2016, 2014). In other words, the outcome of the dynamics of entrepreneurial ecosystem is based on the system-level resource allocation, rather than new venture creation. The latter is just the mechanism that drives the resource allocation. This entrepreneurial action is driven by individuals who mobilize resources to pursue opportunities they observe (Acs et al., 2016; Autio and Levie, 2015). Acs et al.'s (2014) definition does not elaborate specific elements of the ecosystem, but it somewhat implies on the presence of attitudes, culture, institutions, finance, technology transfer and infrastructure.

In addition to, Audretsch and Belitski (2016) continued a holistic approach of the entrepreneurial ecosystem and defined it as *“an institutional and organizational as well as other systemic factors that interact and influence identification and commercialization of entrepreneurial opportunities”* (p. 2) and concluded that it was *“a complex system of interactions between agents within various socioeconomic, institutional and informational contexts which generate more new businesses and growth”*(p. 16). Hence, other studies have shown that ecosystems are geographically bounded to cities and regions and have applied framework conditions (Stam, 2015) and Regional Entrepreneurship Development Index (REDI) (Szerb et al., 2013) to capture these socioeconomic, institutional and informational features of the environment, and collinearities between them.

In summary, different authors have different perspectives and definitions of the same concept of an entrepreneurial ecosystem. Prior revision has shown that this is not an easy matter to comprehend. Research is still in its early phases and more integrated and explicit studies are needed to further understand the phenomenon. Therefore, the author of this study, is not going to develop his own version of a more fine-grained definition, rather uphold and find support in the more recent and well-assembled conceptualization. Acs et al. (2014) view of the ecosystem appears to be most appropriate. This is also the only peer-reviewed definition of the entrepreneurial ecosystems (Autio and Levie, 2015). Hence, it would be used a guiding principle and the main notion of the concept, while looking at the different angles of this socioeconomic system. As it lacked to mention structural aspects of the ecosystem, it would be something that is elaborated further in the next section.

### 2.1.3 Structure of the Entrepreneurial Ecosystem

#### Ecosystem Elements

In the context of the entrepreneurial ecosystem, the entrepreneurs with strong interconnectivity and high perceptibility, and constant need to search and create new opportunities, is the predominant and main driver of a successful and sustainable ecosystem. As it is a complex socioeconomic setup, other stakeholders are essential in developing and nurturing this entrepreneurial action as well as sustaining its success across its life span. Therefore, it is the utmost importance to understand the structure of this economic community, its nature, relations and borders. The underlying definition of entrepreneurial ecosystem is starting to come together as the essence of it has already been captured. But comprehending and mapping the diverse set of elements embraced by the system, is still something that needs a closer look. In the recent literature, some scholars have concentrate on the actors themselves while the others are focused on the relationships between them. Thus, it is important to differentiate and elaborate the main keystone studies about the entrepreneurial ecosystems' structure and its elements.

Thereby, the work of Bahrami and Evans (1995) was the first one of its kind to explicitly show the constituents of the entrepreneurial ecosystem. Based on Silicon Valley, the study managed to detect mutually supportive elements which played diverse role in the ecosystem (see Figure 3.)

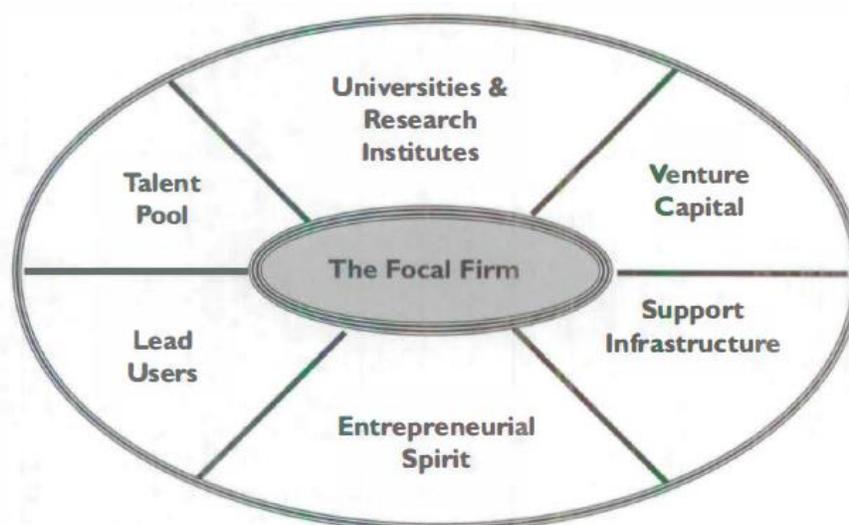
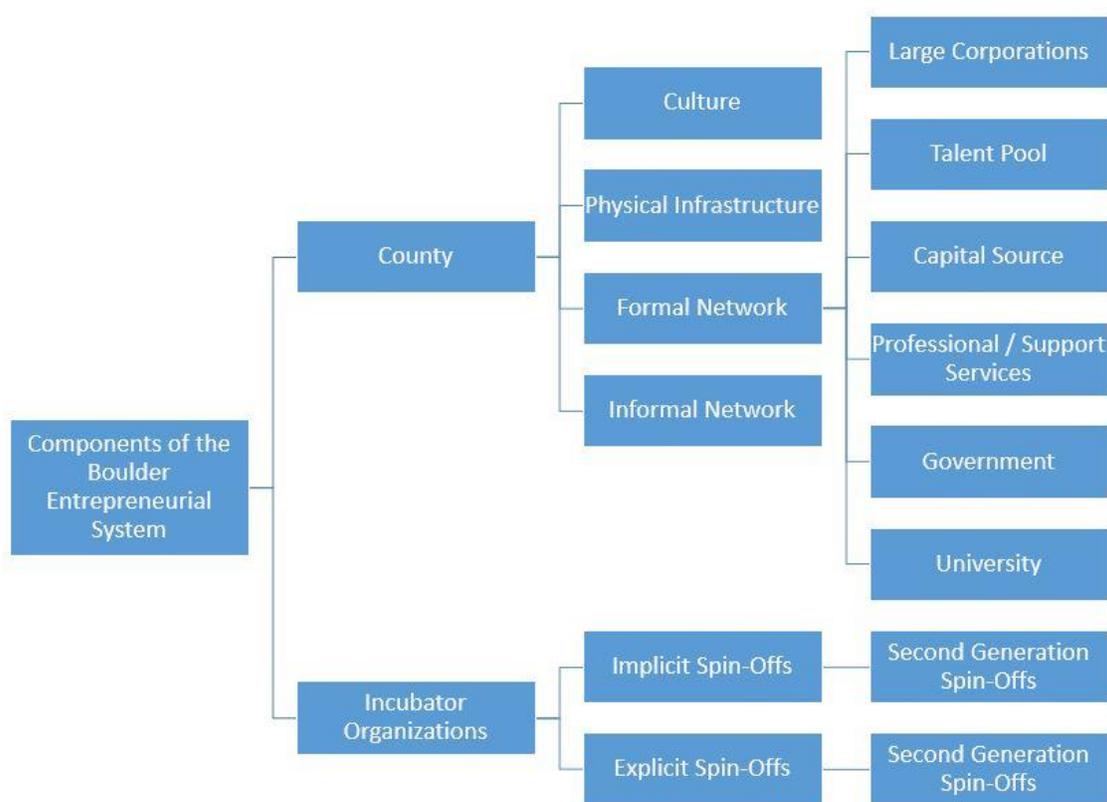


Figure 3. - Constituents of the Ecosystem.

The focal firm was in the centre of this versatile ecosystem and was affected by universities and research institutes, venture capital firms, support infrastructure, entrepreneurial spirit, lead users, and talent pool. All of them together created a healthy and dynamic environment for growth.

A decade later, Neck et al. (2004) developed a classification that described the relationship between the ecosystem elements (see Figure 4.). Information was gathered from a sample of founders from the Boulder County ecosystem. The research emphasized the interactions between the elements and the taxonomy was divided in two: the incubator organizations and county level elements.



*Figure 4 - Components of the Boulder Entrepreneurial System.*

On the one hand, the incubator spin-off relationship was the starting point for the entrepreneurial activity, in terms providing the assets for starting up. These relations were divided into “implicit” where the incubator organizations were not aware of the entrepreneur nesting process, or “explicit” where they knew the intentions and helped in establishing the spin-off. On the other hand, the relational importance of informal and formal networks, physical infrastructure and culture shaped the environment. Informal networks (e.g. friends, families, colleagues, and with other firms) and

formal networks (e.g. university, government, professional and support services, capital sources, talent, and large corporations) contributed to the growth and evolution of the new ventures in the ecosystem. Physical infrastructure (e.g. roads, traffic, office space, housing, and real estate) had a limiting power to the growth of the system (e.g. by shaping the cost of living). Cultural aspects showed the uniqueness, tolerance and attractiveness of the system. All of them have an impact on the ecosystem's development.

In addition, Cohen (2006) took the next step and customized the framework to fit focal region in Victoria, Canada. The study showed how a geographic location contributes to the development of a sustainable entrepreneurial ecosystem. The goal was to know which structural elements were important and what was their role in supporting and facilitating entrepreneurship in the region. Hence, the focus was on social networks (informal and formal networks), physical infrastructure and local culture. Formal networks included research universities, government, professional and support services, capital sources, talent pool, large corporations and technology parks. The study elaborated key challenges (e.g. scarcity in factor endowments or niche markets leading to technology lock-in) disturbing the development of a sustainable ecosystems.

Moreover, Isenberg (2011) focused on the Babson Entrepreneurship Ecosystem Project. The study implied that uniquely evolved environmental systems tend to surrounded societies with high-levels of entrepreneurship. Also, additionally six domains of those exclusive environments (see Figure 5.) were identified: supportive government policy and leadership, access to proper finance, encouraging culture, variety of support systems and infrastructure, appropriate human capital, and hospitable markets for new ventures. These general domains consisted of various other elements interacting with one another in multi-layered way and were always present if entrepreneurial activities became solid and self-sustaining.

The below diagram shows the business environment seen by the entrepreneurs' themselves and how it stimulates individuals' decision making process and success. All of the elements have causal relationships and affect one another through dynamic interactions. Hence, celebrating and upholding every single occurrence of success in the local ecosystem, would in turn incentivize and provoke the next generation of individuals to become entrepreneurs.

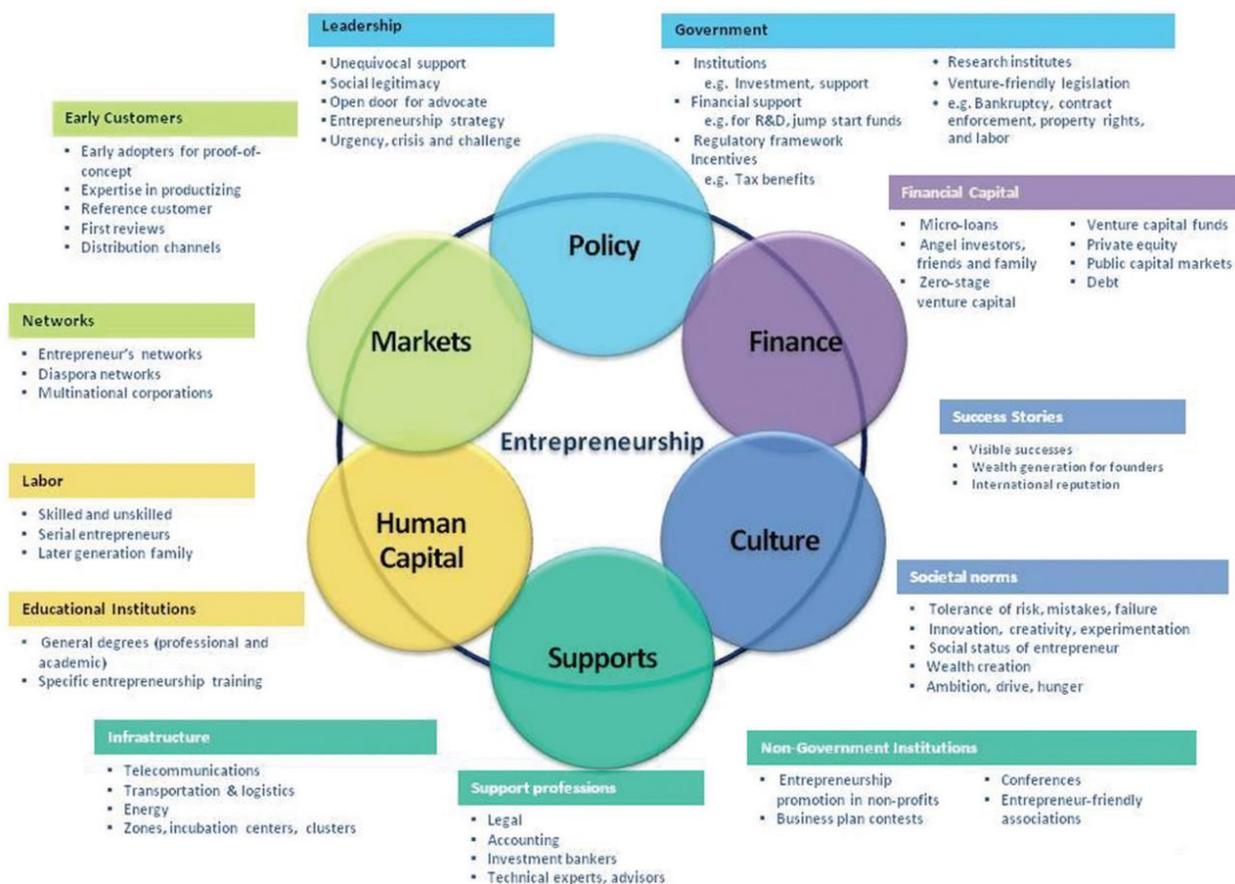


Figure 5 - Domains of the Entrepreneurial Ecosystem.

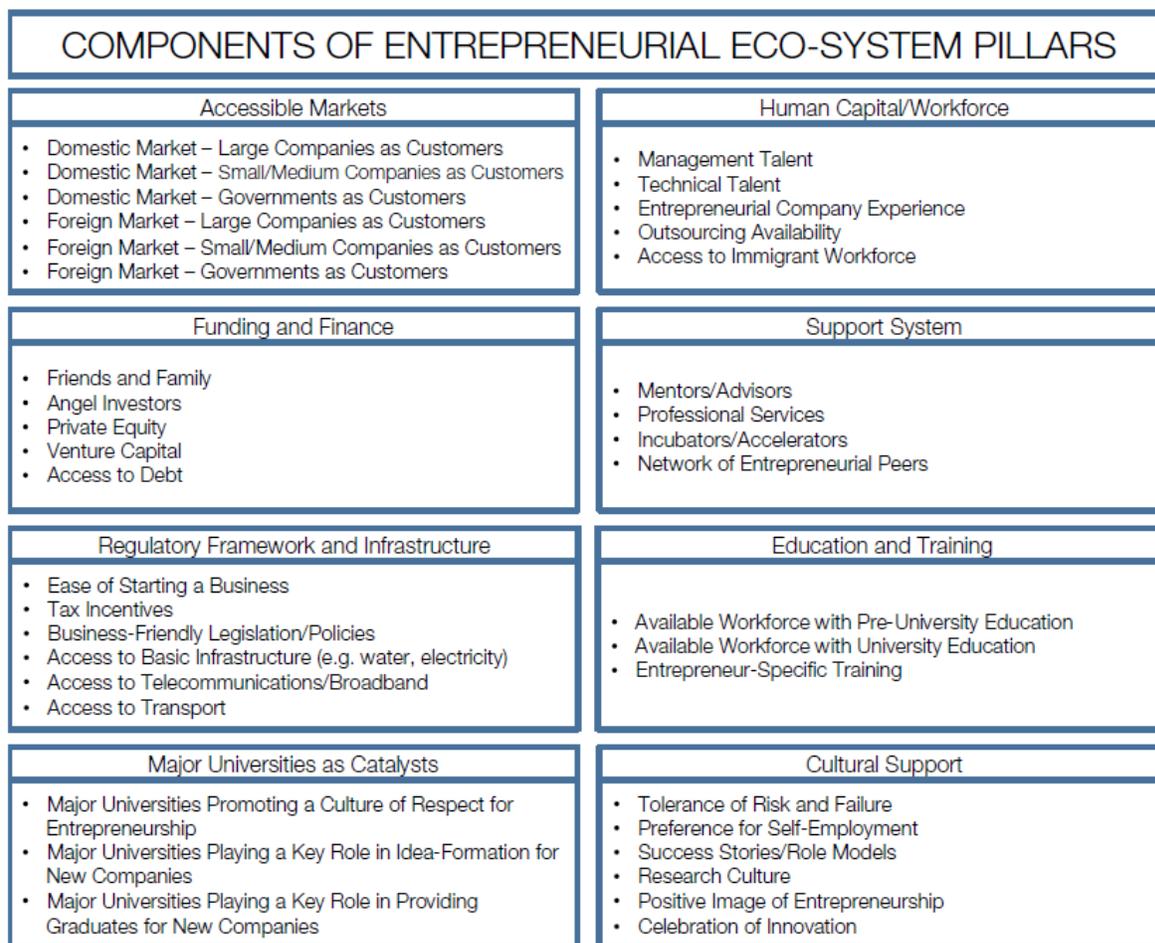
Furthermore, Feld (2012) wrote about how to build an entrepreneurial ecosystem and what attributes (see Figure 6.) should be included for its triumph. The book “the Boulder Thesis” was written based on the Boulder startup community (similarly to Neck et al., 2004). The main notation was that the entrepreneurial ecosystem should be led by the entrepreneurial “leaders” that show the way and work together with “feeders” that assist along that journey. Thus, the ecosystem was an evolving organism embodied as a successful community consisting of layers of loosely organized far-reaching networks of people. From the latter, leaders would emerge and take the role of entrepreneurs which were used to economic uncertainty and continuous change in the community. Entrepreneurs were the central players in the creation of the community and maintaining its health. By taking a long-term commitment, they were best positioned to identify opportunities and boundaries of their environment, in a close cooperation with the feeders. Feeders were other essential participants including the government, universities, investors, mentors, service providers, and large companies. (Feld, 2012)



*Figure 6 - Nine Attributes of Successful Start-Up Community.*

Hence, successful entrepreneurial ecosystems have nine attributes that accentuate (a) the interactions between the players of the ecosystem (e.g. with high network density, multitude engagement events and large companies cooperating with local ventures), and (b) access to varieties of appropriate resources (e.g. talent, services and capital), with (c) government behind the stage pulling the strings. (Feld, 2012)

In comparison, the last two views of the entrepreneurial ecosystem structure and attributes principally overlap with the framework used by Foster et al. (2014, 2013), but with slight modifications to suit the research for the 2013. and 2014. World Economic Forum. This work was the first large-scale systematic study observing the ecosystem and its pillars affecting the firm growth for early-stage ventures. The analysis was completed in the entrepreneurs' perspective and structure (see Figure 7.) included 8 pillars: human capital, finance, support systems, government and regulatory framework, education, universities, culture and accessible markets.

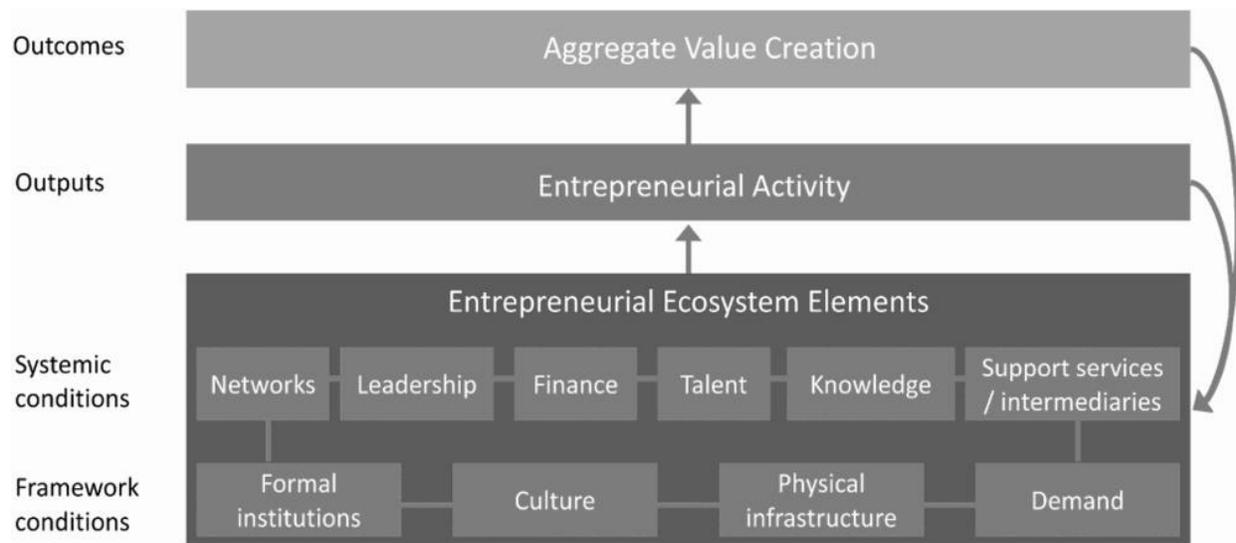


*Figure 7 - Components of Entrepreneurial Ecosystem Pillars.*

The main takeaway of the study was that the three pillars, i.e. accessible markets, human capital and finance, were fundamentals to a healthy ecosystem. Early-stage companies require liquidity (revenues or financing) to grow and workforce to produce and deliver products and services that markets find attractive and are willing to buy. The other pillars were important for the whole system to function in a sustainable manner. (Foster et al., 2014)

All of the above components, domains, attributes and pillars show that the entrepreneurial ecosystem approach shifts the focus from traditional economic rational of businesses and markets to a new perspective of individuals, networks and surrounding formal and informal institutions. Individuals are creating new value that is organized by governance forms, i.e. businesses and markets, and are enabled and limited by institutional context. All participating factors of the ecosystem are relevant for value creation in this imperfect economic setting. (Stam, 2014)

Coupled with the insights from the influential works of earlier scholars and practitioners, Stam (2015) devised a constructive synthesis and developed a new model (see Figure 6.) to assess the entrepreneurial ecosystem (case studies in the Netherlands). The importance of the new model was its holistic view which introduced entrepreneurial activity and aggregate value creation to the ecosystem and emphasized the causality between those four ontological layers: framework conditions, systemic conditions, outputs and outcomes.



*Figure 8 - Key Elements, Outputs and Outcomes of Entrepreneurial Ecosystem.*

Firstly, the ascendant relationships between the layers of the model exhibited the value creation process where entrepreneurial entities were supported and nurtured by the viable environment to create new value as an outcome of the entrepreneurial activity. The descending relationships described how entrepreneurial action and new societal value inversely affected the ecosystem in the time-being. Also, intra-tier dimensions displayed association within the layers of outputs and outcomes, and how elements of the entrepreneurial ecosystem interacted. (Stam, 2015)

Secondly, the entrepreneurial activity was a process in which individuals generated opportunities for innovation that in turn led to the creation of new values for the whole society. These new values were the principal outcomes of the entrepreneurial ecosystem. According to Morris (1998, p. 121), Neck et al. (2004) and Stam (2014), value can be seen in the productivity improvements (e.g. new production techniques and technologies), income enhancements (e.g. higher paid tech jobs), higher

employment (e.g. new possibility frontiers create new jobs) and in overall increase in well-being (e.g. improved health and environment, automatization of production). Thirdly, entrepreneurial action was a transitional output and appeared in different forms, i.e. sustainable ventures, young innovative ventures and high-growth ventures. Also, it consisted of residues from unsuccessful ventures which had a positive impact on the next generation of entrepreneurs. (Boutillier et al., 2016; Stam, 2014)

Lastly, ecosystem elements have direct impact towards empowering the entrepreneurial output. They can be divided into systemic conditions and framework conditions. On the one hand, systemic conditions were the core of the entrepreneurial environment and drove the entrepreneurial activity by enabling and constraining human interactions. These elements were networks, leadership, finance, talent, new knowledge, and support services/intermediaries. The success of the ecosystem mainly depended on their existence and how well they interacted with each other. On the other hand, framework conditions enhanced and controlled systemic conditions and entrepreneurial activity, and therefore, were viewed as the essentials for the overall value creation in the ecosystem. It consisted of the formal (government) and informal (culture) institutions, physical settings which regulate the spectrums of the entrepreneurship, and availability of demand for new value products and services. Intelligibly, the government took the lead role in enabling the framework conditions through policy guidance. It should be noted that both, framework and systemic conditions, were intertwined and complementary in their behavior by enabling the ecosystem to reach higher levels of productivity and self-sustainability. (Stam, 2015, 2014)

Thereby, Stam's (2015, 2014) approach combines the ecosystem elements, outputs and outcomes into a self-explanatory model, so the causal relationships of the system would be much clearer. There aren't any new insights compared to the earlier literature in terms of definition and structure. But it is still valuable approach uncovering important aspects of the causal relationships in the system, leading to fairly important contributions. Firstly, it takes the entrepreneur as a focal point, so the entrepreneurial processes would be more elaborated as a vital part of the ecosystem. This would lead to the detection of bottlenecks that inherently restrict the productivity of the ecosystem (Acs et al., 2014). Secondly, there is a strong emphasis on the entrepreneur as a factor that shapes and maintains the ecosystem, guided by other stakeholders.

In conclusion, the theoretical foundations and concept formulation of the entrepreneurial ecosystem and the holistic views of the ecosystem structure and elements are converging. Based on the literature review, it can be stated that there is an overall consensus about the defining form of the entrepreneurial ecosystem and the key elements creating the structure. In particular, Stam (2015) was the first one to model the causal relationships in the ecosystem concept, but many other researchers (Acs et al., 2014; Autio et al., 2014; Autio and Levie, 2015; Bahrami and Evans, 1995; Foster et al., 2014; Gustafsson and Autio, 2011; Mason and Brown, 2014; Qian et al., 2012; Spigel, 2015; Stenholm et al., 2013; Szerb et al., 2013) have played the pathfinder role and have mentioned the importance of the causality between the ecosystem and the entrepreneurial activity (leading to innovative discoveries and thus creating new value in the society).

Hence, as the research about the causal relationship between the entrepreneurial ecosystem and the entrepreneurial activity is still relatively scarce, this will make a good focal point of this study without a doubt. The attention will be on the local level where the decision making process and individual characteristics count the most (Acs et al., 2016; Audretsch and Belitski, 2016; Szerb et al., 2013). Furthermore, it is necessary to understand the ecosystem construct in detail and the dynamics that lie between them. The author of this study will make a major delimitation and focus only on the local systemic elements of the ecosystem that control human interactions. Arguably, because they are defined as the central driving forces of the entrepreneurial activity and their interaction is the key in determining the success of the ecosystem.

### **Features of the Elements**

Entrepreneurial ecosystem elements play an important role in the development and success of an entrepreneurial venture. They are somewhat complementary to each other and act like a well-organized system to nurture entrepreneurial activity in pursuit of innovative value creation. There are six systemic elements: leadership, finance, talent, knowledge, networks and support systems. In-depth view of the elements is needed to understand each of them and what is their role and contribution in enhancing and benefitting the entrepreneurial activities in new venture creation and the entrepreneurial ecosystem in large.

## Leadership

In the research literature, there are many different directional views of the leadership function as they depend on the contextual side of the research. In the milieu of entrepreneurial ecosystems, the correct term to be used is “entrepreneurial leadership”. In their book, “The New Entrepreneurial Leader”, Greenberg et al. (2011, p. 2) defined entrepreneurial leaders as: “*individuals who, through an understanding of themselves and the contexts in which they work, act on and shape opportunities that create value for their organizations, their stakeholders, and the wider society*”. Next, a more holistic perspective was taken by Renko et al. (2015, p. 55) who reviewed prior research of entrepreneurial leadership literature and specified it as: “*influencing and directing the performance of group members toward the achievement of organizational goals that involve recognizing and exploring entrepreneurial opportunities*”. Both definitions are to some extent overlapping, but the core notion remains that entrepreneurial leaders are influential individuals who share their experience in discovering and exploiting opportunities for value creation with their community and indirectly with the rest of the world.

Renko et al. (2015) emphasized that entrepreneurial leaders recognize the importance of individuals in the entrepreneurial processes and that their success depends on the interactions amongst leaders, followers, and the setting. Therefore, leaders to achieve their goals of value creation (among other things), should encourage followers by becoming their role models (Kuratko et al., 2001; McGrath and MacMillan, 2013), to inspire them to work towards entrepreneurial goals (Gupta et al., 2004; Hunt, 2004; Ireland et al., 2003; Yukl, 2008), to ignite their positive feelings towards creativity (Cardon et al., 2009) and in overall to challenge them to think and act in more innovative ways (Thornberry, 2006). In organizational perspective, entrepreneurial leaders should nurture innovation and implement it in a changing environment. Also, it is fundamentally important that entrepreneurs behave and act as leaders when launching and developing new ventures (Baumol, 1968; Cogliser and Brigham, 2004) as archetypally newly formed startups lack of management practices and operating procedures, nor are there any other safety nets available (Hmieleski and Ensley, 2007).

In relation to, Isenberg (2011) argued that every fruitful entrepreneurial ecosystem tend to have at least one or more successful entrepreneurial leader(s) which become(s) a powerful source for inspiration in the eyes of their peer entrepreneurs. It is called the “law of small numbers” which is a

way of upholding and glorifying even the slightest of the accomplishments, even those bounded by pure luck had positive effect for the entire ecosystem. Furthermore, entrepreneurs with a proven track record and economic independence would continue their entrepreneurial activities by inspiring and advising others, based on prior expertise, and investing their time and money. These “*venture junkies*” would become serial entrepreneurs, mentors and board members, angel investors and venture capitalists, or even public speakers and lecturers. This cyclical process is called “*entrepreneurial recycling*” (Bahrami and Evans, 1995; Mason and Harrison, 2006).

Lastly, Feld (2012) argues that the quality of the entrepreneurial leadership is critical and should be led in terms of “*meritocracy, not patriarchy*”. Leaders need to be builders of the entrepreneurial community and embrace everyone else who want to participate in it. There are only “*leaders*” taking charge as the rest are “*feeders*” of the system (e.g. governments created on electoral cycle cannot be relied upon). In general, entrepreneurial leaders who are committed to the region, play a crucial role in developing and sustaining a strong ecosystem by creating an unsoiled environment for others to launch and grow ventures in (Feld, 2012; Stam, 2015, 2014).

## **Finance**

Entrepreneurial finance is a research area focused on new ventures and how they obtain and allocate financial capital. Taking into account causal relationships of the entrepreneurial ecosystem (Stam, 2015), it is known that entrepreneurs recognize opportunities that lead to value creation via new innovations. Entrepreneurs discover and generate inventions that need to be transformed into marketable products and services (Burgelman and Hitt, 2007). This commercialization process is time constrained (Suddaby et al., 2015), and requires vast amounts of financial resource to be allocated (Ebben and Johnson, 2006) making financial capital as a foundational resource for entrepreneurs’ success in pursuing value creation and is arguably a crucial part of a strong and supportive entrepreneurial community (Feld, 2012).

Moreover, new entrepreneurs are put in a disadvantageous position as they lack of proven track record, collateral, status and legitimacy in the eyes of the debtors (Arthur L. Stinchcombe, 2000; Zott and Huy, 2007). This limits their capital allocation and investment efforts into machinery, real estate, work force, sales and marketing, and other factor inputs and processes (Foster et al., 2013)

leading to a negative impact on company's long-term performance, sustainable development and increased risk of failure and default (Denis, 2004; Hall et al., 2010; Sirmon et al., 2007).

In their research, Wu et al. (2016) divided entrepreneurial finances into four main sources: formal debt and equity, and informal debt and equity. The main difference is that formal lenders and investors require a high quality business plans with all necessary chapters (e.g. planning, budgeting, strategies) before reaching a decision (Mason and Harrison, 1996). Also, it varies how they perceive and assess risks and draw provisions in the contracts to reduce risks (Chemmanur and Fulghieri, 2014), but still consequently face imperfect information and enforcement issues (Hoff and Stiglitz, 1990; Zhang, 2015). Thus, Lam (2010) argued that formal funding was central in launching, developing and growing new entrepreneurial firms. In general, adequate supply of finance from formal and informal, is an inevitable component of a successful entrepreneurial performance.

Formal sources include access to debt (e.g. banks and credit unions), venture capital, angel investors, corporate venture capital, whereas informal sources include gifts from family or friends, relatives, crowdfunding (Chua et al., 2011; Cohen, 2006; Feld, 2012; Foster et al., 2013; Mason and Brown, 2014; Mollick, 2014; Neck et al., 2004; Spigel, 2015; Stam, 2014; Suresh and Ramraj, 2012). Bootstrapping as a part of a financial resource form should also be included (Lam, 2010). All of the above listed funding sources create a good foundation for this study.

### Bootstrapping

According to Merriam-Webster dictionary, bootstrapping is *“to promote or develop by initiative and effort with little or no assistance”*. It is a financial concept that Winborg and Landström (2001, p. 235) defined as *“the use of methods for meeting the need for resources without relying on long-term external finance from debt holders and/or new owners”*. Bhide (1991) argued that the biggest hurdle is not raising capital itself but rather entrepreneurs should *“have the wits and hustle to do without it”*. Harrison et al. (2004, p. 308) stated that it *“involves creative ways of acquiring finance without recourse to banks or raising equity from traditional sources”* and *“includes strategies for minimizing or eliminating the need for finance by securing resources at little or no cost”*. Thus, bootstrapping indicates to finding other ways to require funding or minimizing the resources needed (Harrison et al., 2004). In the wider scope, bootstrapping in the entrepreneurial finance

context leads to an understanding that novice entrepreneurs perceive it as one of the individuals' options to tackle the funding gap that challenges the new venture funding.

### Formal Debt

Beginner entrepreneurs are usually not the focus group of the banking system, as the banks concentrate on lending money out to those more well-established companies that are better suited for the standard loans as they own collateral and have proven track record (Ebben and Johnson, 2006; Zott and Huy, 2007). However, if a new venture is given a green light and get further funding, banks can be a solid partner. Firstly, because banks are less intrusive (e.g. compared to venture capital firms) and usually limit themselves with only monitoring overall violations, performance backfires and collateral value fluctuations (Winton and Yerramilli, 2008). Secondly, banks themselves are closely supervised due to their size and importance in the financial system (Satta, 2004). Thirdly, loans are debt based, not equity based, and usually the interest rates are quite feasible, even for starting firms. There is always a ceiling for the interest rate and how high it can go. This is because of institutional regulations and laws that are set in place to prohibit the system to “*over charge*”. This will result in better performance for new ventures as the financial burden is under control (Winton and Yerramilli, 2008; Wu et al., 2016). Fourthly, application process to receive the loan is quite multifaceted and during the assessment of the innovation project many of the bottlenecks would arise and could be mitigated (e.g. through feasibility analysis, market simulations, technology appropriateness tests, field investigations) (Anthony, 2005; Wu et al., 2016). Lastly, banks run due diligence and provide neutral objective assessments on the investment projects, so the entrepreneur will be more aware and prepared for potential drawbacks and defaults as innovative projects are quite complex (Wu et al., 2016).

### Informal Debt

Most of the newly established innovative firms don't have sufficient funds to independently open up shop and too risky for formal lenders, so the only capital they can access is from family, friends, relatives and other informal sources in the community (Birley, 1985; Chua et al., 2011; Conning, 1999; Szerb et al., 2013). Wu et al. (2016) stated that informal debt had much lower transaction cost compared to formal debt, i.e. lower initial transaction fees, the capital decisions are made faster as there was less bureaucracy, and usually no collateral or guarantor requirements. These have

positive impacts on innovation creation as they smoothen the process of accessing the needed resource and enable its acquisition in less time. However, informal loans without guarantees involve high uncertainty making creditors more eager to ask higher interest rates and lend only on short-term basis. These lending terms could drive to a significant financial burden and disruptions in entrepreneurial activities, or even make entrepreneurs burn out while servicing those loans. (Buckley, 1997; Wu et al., 2016)

Incidentally, lending terms reflect the relationship between the lender and entrepreneurial venture, but also society at large. Arregle et al. (2007) and Lorenzen (2007) argued that access to such a debt is improved by social capital as it embodies mutual trust in the relationship between the individual and the organization. This coincides with the network theory. Chua et al. (2011) further elaborated that information transfer and social obligations help to build up the relationship for the loan. Information is gathered through observation of borrower's attitude and decisions that bond trust, and social obligation is influenced by borrowers' perception of loyalty and reciprocal treatment. This entails into a strong or weak relationship and underlines the terms of the loan. It is essentially important for the entrepreneur to consider taking loans from informal sources and realize their suitability with the business processes, as it might assist in short-run, but gets complicated when the process is repeated.

### Formal Equity

#### *Venture Capital (VC)*

Formal equity represents the source of finance that can be received from venture capitalist. These firms or groups invest and nurture high potential young ventures. Not only do they supply financial capital for business processes, but via thorough monitoring and consulting, they help to develop first-class managerial practices and recruit top-of-the-line talent to back the capital allocation. Investors use their extensive networks to help new ventures to gain market access, and contacts and credibility with potential partners and customers outside and inside the entrepreneurial ecosystem. (Chemmanur and Fulghieri, 2014; Denis, 2004; Gompers et al., 2005; Kannianen and Keuschnigg, 2004; Napier and Hansen, 2011; Szerb et al., 2013)

VC funds are limited partnership where managing partner has the lead role of making portfolio investments on behalf of other limited partners (Denis, 2004). These investments involve high risk

with only a small likelihood of tremendously high returns (Fenn et al., 1997; Sahlman, 1990; Winton and Yerramilli, 2008). There are several roles that VCs play in the life of new ventures. Firstly, the financial capital invested into cash flow will help to continue with everyday business activities. This investment is backed by a collateral which is converted into securities or a combination of equity and debt (Kaplan and Strömberg, 2003).

Secondly, after the investment has followed through, VCs are able to monitor new ventures as they gain permission to access company's proprietary knowledge. Also, they receive voting rights and a seat in the company's board, and can replace founding owners from management positions to add value or if any of the contracts have been breached. This gives them a lot of power and enables them to make essential decisions on the firms behalf and about its future. (Denis, 2004; Hellmann and Puri, 2002; Kaplan and Strömberg, 2003; Sahlman, 1990)

Thirdly, after VC has successfully integrated, they support firms by helping them to develop valid business strategies (e.g. acquisitions, partnerships, compensation plans) (Kaplan and Strömberg, 2000). Hellmann and Puri (2002) found out that VC backed companies were better in building an effective internal organization and had higher outcomes of professionalization (e.g. talent acquisition policies, and hiring and compensations practices). (Denis, 2004; Winton and Yerramilli, 2008)

Lastly, VC investments give firms more validity and act as a credential of quality, so firms can engage in further investment rounds or could even end with going public. All VC investment are highly expensive, but getting backed by the right one could further enhance the value of the company itself (Denis, 2004).

#### *Angel Investors (AI)*

Researchers have named angel investors as informal venture capitalists, as they are much less visible compared to VC firms (Lam, 2010; Mason and Harrison, 1996). AIs represent a small network of high net worth individuals that risk only with their own money when investing into new growth companies (Chemmanur and Fulghieri, 2014; Denis, 2004; Wong et al., 2009). They are usually represented in the early stages of funding as they invest "seed capital" to new firm development. These are private investments and not available for wider public (Chemmanur and Fulghieri, 2014; Denis, 2004; Fenn et al., 1997; Wong et al., 2009).

Wong et al.'s (2009) study added that business angels don't rely on the same control mechanisms compared to venture capital, but rather use more informal methods. These include investments to companies that are geographically close by and combine investments with other angels in a consortium to mitigate risks. AIs seem to provide bridge investments until the stage is ready for VC entry. Moreover, Kerr et al. (2014) stated that angel investments power the new ventures by improving their likelihood of survival. Also, lead to higher levels of employment, better online traction and even helping to reach a successful exit. Interestingly, they have a hands-on approach in directly advising founders and widening their networks.

### *Corporate Venture Capital (CVC)*

Corporations have long-term financial and strategic objectives and incentives that has led them to form corporate venture firms as their subsidiaries. These corporate entities differ from other VC firms in some ways. Firstly, they have long investment plans. Secondly, they do not only look for high-returns, but are more aligned with the corporate level strategies and financial objectives. Thirdly, managers use corporate resources to finance investments and therefore, are compensated with their base salary and corporate bonuses, based on performance outcomes. But the absence of clearly stated mission and lack of commitment might lead to potential conflicts with the focal company. (Chemmanur and Fulghieri, 2014; Denis, 2004; Wu et al., 2016)

### *Informal Equity*

#### *Crowdfunding*

The sources of entrepreneurial financing have included a newer, understudied and more unconventional approach – crowdfunding. There are many different ways crowdfunding is used and therefore too narrow definition could exclude many of the important usages. Most comprehensive definition in terms of entrepreneurial financing was coined by Mollick (2014, p. 2) as: “*crowdfunding refers to the efforts by entrepreneurial individuals and groups – cultural, social, and for-profit – to fund their ventures by drawing on relatively small contributions from a relatively large number of individuals using the internet, without standard financial intermediaries.*”

Moreover, the type of the crowdfunding depends on the ultimate goal of the project. These can be: (1) patronage model, where art and humanitarian projects funders act as philanthropist and invest as part of a donation, (2) funds are paid out as loans with interest rates (e.g. form of factoring or

construction investment) or microfinance lending, where social benefit dimension is included (e.g. social apps), (3) reward-based funding as funders get a reward after successful backing (e.g. meeting authors or named in a movie credits) or get treated as early customers (e.g. better price or pre-launch access to a product), and (4) funders as investors who receive equity stakes when helping startup's launch. (Mollick, 2014)

However, there are some pitfalls. Firstly, investors are usually relatively under informed and as risks are high in those projects, funders may lose substantial amounts of money. Secondly, it is missing the monitoring and advising services that accompany VCs and AIs, directly impacting the success of the new venture. (Chemmanur and Fulghieri, 2014)

## **Talent**

According to Merriam-Webster dictionary, talent is “*a person or group of people with a special ability to do something well*”. These skilled individuals make up the talent pool of the local region. Access to this crucial resource plays a vital role in new venture launch and its imminent success, and thereof affects the wider entrepreneurial ecosystem (Cohen, 2006; Neck et al., 2004; Stam, 2014). Moreover, Jacobs (1961) in Lee et al. (2004) argued that talented people were a fundamental force leading to entrepreneurial action and were highly visible in more diverse and welcoming regions. These regions with high levels of talent (e.g. Silicon Valley) further attracted other highly qualified workers who were pursuing new challenges and wealth (Bahrami and Evans, 1995; Cohen, 2006). This led to a “*broad, deep talent pool for all levels of employees in all sectors and areas of expertise*” (Feld, 2012, p. 186) in the community. A well-endowed and open environment is principal to improve launching and scaling of new ventures (Thomas et al., 2015) and without the availability of such a workforce, potential entrepreneurs would move on to other more attractive regions to establish their companies (Neck et al., 2004). Therefore, the availability of talent has direct consequences on the entrepreneurial ecosystem and the development of new ventures (Foster et al., 2014; Napier and Hansen, 2011).

Furthermore, there is a “*cross-pollination*” effect as workforce moves between ventures or employees leave their positions to become entrepreneurs themselves to follow their own aspirations (Cohen, 2006; Klepper and Thompson, 2005; Neck et al., 2004). This leads to an assumption that

human capital can be divided based on talent: (1) entrepreneurial talent (Baumol, 1990) that is defined as *“the ability to discover, select, process, interpret and use the data necessary to take decisions in an uncertain world and, then, to exploit market opportunities”* (Ferrante, 2005, p. 169), and (2) worker talent, (Bahrami and Evans, 1995) who are comfortable and eager to use their expertise in developing new ventures (Spigel, 2015).

Moreover, research has shown that talented people play a decisive role in developing well-performing new ventures (Cooper et al., 1994; Rauch and Rijsdijk, 2013; Talaia et al., 2016) by appropriately using their education, experience and skillsets, i.e. tacit knowledge (Mayer-Haug et al., 2013). Firstly, the performance and survival of a new venture is directly affected by the individuals' experience to tackle a multitude of tasks (e.g. managerial, technical, financial, sourcing), through the enhancement of knowledge and skills (Foster et al., 2014; Mayer-Haug et al., 2013). Secondly, knowledge and skills are based on prior educational achievements which also builds-up discipline, self-assurance and inspiration (Cooper et al., 1994; Talaia et al., 2016). Formal education leads to a better understanding and handling the surrounding environment while recognizing and utilizing new opportunities (Ferrante, 2005; Foster et al., 2014). Also, educated talent can be attained from well-established business networks, but also from universities and research institutions that are strongly rooted into the local community (Bahrami and Evans, 1995; Feld, 2012; Neck et al., 2004).

## **Knowledge**

Knowledge was defined as: *“information that changes something or somebody, either by becoming grounds for action or by making an organisation capable of different or more effective action”* (Drucker (1989) in Huggins and Thompson (2015) pp. 110–111) and is created and collected through dynamic innovation processes, thus making it the underlying resource and driver of the contemporary economy (Acs et al., 2016).

Furthermore, knowledge can be explicit and tacit. In the one hand, explicit knowledge is codified and formalized (e.g. documents, memos, notes) and can be easily communicated between individuals. It can be referred to as know-what. On the other hand, tacit knowledge is more intuitive based on individuals' experience (e.g. values, beliefs, attitudes, skills, competences) and is harder to communicate through verbal interactions. It can be referred to as know-how. Knowledge is not just one certain type but rather a combination of both and can be seen in a spectrum between them (Botha

et al., 2014; Brown and Duguid, 1998; Nonaka, 1994). In addition to, Brown and Duguid (2001) put knowledge in the network context and defined “*sticky*” and “*leaky*” variations. The “*sticky*” knowledge is harder to move in the network, even inside the organization, while “*leaky*” knowledge flows to external sources which is not intended to happen. This “*leaky*” knowledge can also be referred to as “*spillovers*”.

Consequently, this leakiness has lead researchers to develop knowledge spillover theory of entrepreneurship (Audretsch and Lehmann, 2005) and argue that if organizations (e.g. incumbents, R&D institutions) were unsuccessful in commercializing or exploiting new knowledge, then this knowledge had a tendency to spill over to other economic entities (e.g. entrepreneurs and other firms) which instead utilize this newly required resource (Acs et al., 2013, 2009). Access to such a knowledge has become quite an important endowment for innovative ventures that are resource constrained from their inception (Oviatt and McDougall, 1994) and can’t by themselves develop such an essential new knowledge (Huggins and Thompson, 2015). Thus, new venture captures the knowledge spillovers by externally screening for innovations (Katila, 2002). In entrepreneurial perspective, entrepreneurs recognize the opportunities for exploiting spillovers and thus create new ventures to convert this exposed knowledge into economic knowledge. This will in turn enable entry to new markets and create value for the entire economy in the long-run (Acs et al., 2013). Thereby, the emphasis of the theoretical analysis is on the individual entrepreneur(s), not firm level, to signify a strong interaction between entrepreneurial action and knowledge spillovers (Ibid).

Moreover, knowledge spillover theory of entrepreneurship’s general argument is that knowledge is somewhat localized and access to it happens in a spatial proximity as knowledge spills are more easily incorporated in regional context compared to outer distance (Jaffe et al., 1993). This suggests that the source of untapped knowledge and entrepreneurial activity in recognizing it, are geographically concentrated and close by (Acs et al., 2013; Audretsch et al., 2006). However, new ventures are driven by innovation pursuit and need up-to-date knowledge to maintain competitiveness, hence local first-hand knowledge might be unsuitable. Thus, new ventures need to develop cross-border “*pipelines*” to gain access to appropriate sources of spillovers (Bathelt et al., 2004; Davenport, 2005). Thereby, if knowledge is located inside or outside the region, new ventures source it accordingly (Drejer and Vinding, 2007).

Lastly, Acs et al. (2013, p. 758) proposed that new knowledge was spilled by “*knowledge incubator*” and defined it as “*a private firm, non-profit organization, government, university, or research institution which has, through its own labor and resources, developed new knowledge with potential in the commercial markets but has, for various reasons such as uncertainty, opted not to commercialize and exploit said knowledge*”. Prior research primarily mentions universities as the main contributor in developing new knowledge in the entrepreneurial ecosystem context and creating an attractive breeding ground for new ventures (Audretsch et al., 2012; Audretsch and Lehmann, 2005; Bahrami and Evans, 1995; Foster et al., 2014, 2013; Leslie and Kargon, 1996; Neck et al., 2004; Spigel, 2015). Universities develop talented people who create new knowledge and technologies that spill over. These spillovers are caught by entrepreneurs who combine acquired knowledge and talented workforce into new ventures to further create innovation and value (Audretsch et al., 2012). Universities can act as a role model, as other institutions use similar approaches to create new knowledge (Cohen, 2006; Neck et al., 2004). For example, private firms establish corporate R&D laboratories to develop new knowledge and innovations (Lerner, 2012, p. 28). Likewise, all types of knowledge incubators can form spin-outs that are commonly high-tech new ventures equipped with latest know-how (Napier and Hansen, 2011) and thus can be defined as a vehicles of knowledge spillover with a complete set of resources.

## **Networks**

In the research literature, networks are a common way of discussing complex relationships among network participants. “*In very broad terms, networks are defined by the enduring exchange relations established between organizations, individuals, and groups*” (Weber and Khademian, 2008, p. 334). In a more detailed level, there are a multitude of definitions for networks, solely based on the context of the research. Provan et al. (2007, p. 480) stated that “*many who study business, community, and other organizational networks prefer to talk about partnerships, strategic alliances, inter-organizational relationships, coalitions, cooperative arrangements, or collaborative agreements.*” Furthermore, Bryson et al. (2006, p. 44) defined networks: “*cross-sector collaboration as the linking or sharing of information, resources, activities, and capabilities by organizations in two or more sectors to achieve jointly an outcome that could not be achieved by organiza-*

*tions in one sector separately*". This could be reformulated in a way to suit entrepreneurship context, where entrepreneurs and other ecosystem participants collaborate through networks by linking and sharing information, resources, activities, and capabilities.

In addition to, entrepreneurial ecosystem consists of layers of networks, so for further understanding of relations between the actors, the structure should be elaborated. Ahuja et al. (2012, p. 435) defined network structure as "*the nodes that comprise the network, the ties that connect the nodes and the patterns or structures that result from these connections*". Putting it in the context of entrepreneurial networks, each node represents an actor, individuals and organizations, in the network.

According to Birley (1985) social networks were separated into two: informal networks, i.e. family, friends, colleagues, former employers, and informal relations with other entrepreneurs, and formal networks, i.e. universities, government, professional and support services, capital sources, talent, and large corporations. But, it is important to emphasize the distinction between them. The informal networks are between the entrepreneurs and individuals suggesting social ties, whereas formal networks are between the entrepreneurial venture and organizations suggesting business ties. The difference between the individual and organization level networks is that former is a social network (Wasserman and Faust, 1994) and the latter is an inter-organizational network (Bergenholtz and Waldstrøm, 2011). Common theme and cause of confusion in the literature is that social network analysis is used to study both of the types, only the level varies. Moreover, based on prior research, Huggins and Thompson (2015) and Westlund (1999) suggested that network links are investments in "*interaction capability*" and as "*intangible capital structures*" should be examined as "*capital objects*". In other words, relationships between actors can be assessed as movements of capital. In contrast, they are called "*social capital*" and "*network capital*".

On the one hand, social networks consist of social interactions and mechanisms that lead to entrepreneurial activities (Ulhøi, 2005) and are prerequisites for starting a successful new venture (Reynolds, 1991). Social networks are used to link and share social capital. Social capital is a set of resources that could be accumulated from the interpersonal relationships surrounding the entrepreneur who need capital, skills, labour and similar to launch a knowledge-intensive venture (Chua et al., 2011; Ulhøi, 2005). Also, social capital can be referred to as a social governance instrument

based on trust (Arregle et al., 2007; Lorenzen, 2007). In other words, social network facilitates the transfer of trust based social capital by bridging early entrepreneurial activities with informal individuals. Whereas, social networks are an important element of the entrepreneurial ecosystem by helping or deterring the lift-off of the entrepreneurial venture by providing the initial resources, advice and moral support needed to pursue innovation (Cohen, 2006; Suresh and Ramraj, 2012).

On the other hand, inter-organizational networks consist of relations and interactions between organizations that deliberately invest in strategic ties in order to gain access to network capital that could lead to innovation creation (Huggins et al., 2012; Huggins and Thompson, 2015). Network capital is a form of investment flow that relates to access and leverage of resources, learning and capacity building, knowledge generation and information exchange, while contributing to the search for innovation opportunities. These functions are intricately connected and critical to networks (Popp et al., 2014). Hence, inter-organizational networks benefit participants by creating access to certain desired resources, or can stretch, build or strengthen those limited resources. Also, (tacit) knowledge generation and information exchange can power learning processes and capacity building by spreading new ideas and practices in the network and in the whole community. Networks also enable and contribute to better problem solving, more effective service distribution and boost, grasp and share innovations. (Bryson et al., 2006; Gulati et al., 2011; Hoberecht et al., 2011; Isett et al., 2011; Popp et al., 2014; Provan and Lemaire, 2012)

Last important aspect is the network effect. Economist say that value of a good or service to one user rests on how many others use the same good or service (Shapiro and Varian, 2013). In entrepreneurial perspective, adding an additional venture to a network increases the value for existing ventures. This leads to a better understanding how agglomeration yields further advantage. Feld (2012) pointed out online social networks as a good example because the value grows as the user base grows, as hundred million is much better than hundred thousand. In the entrepreneurial ecosystem, bigger the pool of talent ventures can choose from, the more valuable it becomes, or high fraction of leaders in the ecosystem mirrors the quality and vitality of the environment leading to increase in sharing best practices and more mutual inspiration towards becoming entrepreneurs. Network effect makes agglomeration more valuable and scale effect lowers transaction cost. But there is also a negative side, as network effect leads to high cost of living (Dewey, 2015) which creates barriers in becoming an entrepreneur and starting a new venture, or lock-in effects that lock

ventures in a low value and non-productive networks which smother entrepreneurial input in creating innovations (Huggins and Thompson, 2015).

### **Support Systems**

Entrepreneurs need plentiful of resources to launch and grow their new ventures, but as early companies are resource constrained (Knight and Cavusgil, 2004), access to necessary inputs should be supported. Hence, new ventures have a tendency to accumulate in a certain location where such resources are readily available and relatively inexpensive due to a large user base (Feld, 2012). Researchers have mainly studied service providers (e.g. legal, accounting) and intermediaries (e.g. incubators, accelerators), but have less focused on networking (e.g. trade associations, alumni) and engagement services (e.g. boot camps, hackathons). All of the above mentioned actors help to lower the barriers in launching new venture startups and speeding up their time-to-market processes and growth (Zhang and Li, 2010).

#### Professional Services

Bahrami and Evans (1995, p. 63) stated that *“a sophisticated service infrastructure allows start up firms to focus on their chosen steeple of expertise, rather than dissipate their energies across a broad range of peripheral or supporting activities”*. This means that entrepreneurs should stay with their core activities and outsource the rest from professional service providers. Furthermore, (Zhang and Li, 2010, p. 105) validated that new venture innovation capability is directly related to service providers as *“through close ties with service intermediaries, new ventures can visualize new opportunities, new ideas, and best practices for doing businesses synthesized from information and insights provided by these intermediaries”*. Thereby, these suppliers can inform new ventures about available information, knowledge and innovations as they interact with other industries and organizations in the ecosystem (Wolpert, 2002), while also reducing the cost of such an effort (McEvily and Zaheer, 1999) and mitigating the risk of interruptions in the innovation process (Saxenian, 1990).

In relation to, service providers act as network facilitators for the new venture that searches for novel information. Based on Zhang and Li's (2010) research, there are three key ways how interconnections with service providers support new venture exploration for innovation. Firstly, availability of information about competitors' research and development efforts can stand as exemplary

for the new venture (Ahuja, 2000). Secondly, it enhances venture's knowledge base and offers more solutions to tackle risen issues, as access to broader information and proven examples lead to more choices and variety of new products (Katila and Ahuja, 2002). Thirdly, availability of outside complementary inputs and necessary capabilities would be easier to recognize (Porter, 1998; Wolpert, 2002).

Moreover, professionals provide different industry specific advisory services that new ventures require during their development phases (Cohen, 2006) and are "*integrated, accessible, effective and appropriately priced*" (Feld, 2012, p. 186). These advisors are primarily legal support, accounting and financial services, recruitment agencies and technology services (Bahrami and Evans, 1995; Cohen, 2006; Feld, 2012; Foster et al., 2014, 2013; Isenberg, 2011; Napier and Hansen, 2011; Neck et al., 2004; Spigel, 2015; Stam, 2014; Zhang and Li, 2010), but also real estate, insurance and other consulting services (Feld, 2012). Neck et al. (2004) identified that these services play a major role in the entrepreneurial ecosystem and are highly acknowledged in the entrepreneurs' perspective.

For example, legal support can help not only with legal matters, but also consult in business issues and negotiate agreements (Suchman, 2000). Atwell (2000) noted that accounting firms can also structure deals for new ventures while handling their taxes and audits, and financial services can acquaint new ventures with other financial firms (Schoonhoven et al., 1990). According to Bahrami and Evans (1995), recruitment agencies were widely used to attract fresh talent and build up management teams. This relocation of human capital plays an important role in building social networks and thus, enables firms to accumulate knowledge and strategic information from other industry players (Boeker, 1997). Furthermore, technology consultants help new ventures to commercialize their inventions to ensure further funding for new innovations. But also, mediate untapped knowledge between players to create opportunities (Bessant and Rush, 1995; Hargadon and Sutton, 1997) and detect necessary know-how and complementarities to introduce new inventions in shorter notice (Howells, 2006). (Zhang and Li, 2010)

### Intermediaries

Many of the researchers and practitioners have found that intermediaries play an important role by incubating and supporting entrepreneurs and their new ventures from their inception to later stages (Bahrami and Evans, 1995; Barbero et al., 2013; Cohen and Hochberg, 2014; Feld, 2012; Foster et al., 2014, 2013; Isabelle, 2013; Napier and Hansen, 2011; Neck et al., 2004; Pauwels et al., 2016; Spigel, 2015; Stagars, 2015; Stam, 2014). Thus, a healthy entrepreneurial ecosystem has “*a solid presence of effective, visible, well-integrated accelerators and incubators*” (Feld, 2012, p. 187) which provides “*support to start-ups to improve the probability of survival of the portfolio companies and accelerate their development*” (Pauwels et al., 2016, p. 14).

Moreover, there are many ways to categorize incubating entities (Barbero et al., 2013). The principal way is to separate non-profit and for-profit models. Non-profit incubators aim to cut the initial expenses of starting up, but for-profit incubators obtain rent from ventures in return for specific knowledge over resources, customers, suppliers, technological and managerial expertise (Becker and Gassmann, 2006a; Grimaldi and Grandi, 2005). Next, entrepreneurship literature focuses on academic view where universities launch and nurture spin-offs into successful ventures (Clarysse et al., 2005; Neck et al., 2004) and on corporate view where large corporation develop in-house incubation capabilities (Becker and Gassmann, 2006b; Grimaldi and Grandi, 2005). Lastly, Barbero et al. (2013) separated four types based on innovation: (1) business innovation centers (regional economic development), (2) university incubators (technology commercialization), (3) research incubators (realization of research institute output), and (4) private incubators (nurturing high-potential ventures).

Furthermore, different perspectives still have similarities in terms of core services they provide: (1) access to physical resources, (2) office support services, (3) access to finance, (4) support in launching new ventures, and (5) access to networks (Carayannis and von Zedtwitz, 2005). Hence, incubation can play a complementary role when compared to networks (Bøllingtoft and Ulhøi, 2005). Based on those underlying resemblances, recent research divides incubation entities broadly into incubators and accelerators (Cohen and Hochberg, 2014; Isabelle, 2013; Stagars, 2015). Hence, they have many similarities, but also differences, and some researchers even suggest that there is a generational shift ongoing from incubators to accelerators (Pauwels et al., 2016; Wise and Valliere, 2014).

On the one hand, incubators are mostly not-for-profit organizations that target very-early-stage firms in their launch, often novice entrepreneurs with viable ideas and feasible business plans (Isabelle, 2013; Stagars, 2015), and provide breeding ground for growth and shelter from imminent market exposure (Cohen and Hochberg, 2014). Firms that incubate are called tenants who receive office space and obtain access to professional support services with lowered costs (Cohen and Hochberg, 2014). Thus, incubators mediate professional services that help its new wards (Hackett and Dilts, 2004) with business education, networking, bookkeeping and financials, access to loans, guarantee programs and investors, patent lawyers, advisors and mentors (Stagars, 2015). But also accessing to particular explicit and tacit knowledge, aiding in market research and product development, and getting into networks with other entrepreneurs to create strong ties and communal identity (Feld, 2012; Pauwels et al., 2016). Incubation is a long term process characterized by slow growth and interruptions that could take years to graduate from initial accession (Amezcuca, 2010; Isabelle, 2013).

On the other hand, accelerators are usually described as a newer form of for-profit incubating organization that earn returns for their stakeholders (Isabelle, 2013). They focus on accelerating and growing knowledge intensive high-growth new ventures (Bosma and Stam, 2012; Pauwels et al., 2016) by putting them through a short term intensive validation process (Isabelle, 2013). This process includes educating and mentoring cohorts of startups (Cohen and Hochberg, 2014), until the strongest will stand out and get funding from potential investors (Radojevich-Kelley and Hoffman, 2012). They select ventures based on team potential, the feasibility of the idea, market evaluation and proof of concept, size of the business and growth potential (Albats and Fiegenbaum, 2016). Isabelle (2013) emphasized that accelerators were oriented on offering physical resources and working spaces for their portfolio companies only on the duration of the programme. They also brokered pre-seed investments from angel and small-time private investors (less from venture capitalists) in turn for an equity stake in the venture. Furthermore, accelerator programs focus on scalable early-stage tech companies, rather than capital-intensive hardware firms. This focus includes the rapid business development processes equipped with networking, monitoring, educational and mentoring opportunities backed by cohort based collective support (Cohen and Hochberg, 2014).

In addition to, Pauwels et al. (2016) recent work has revealed three distinct themes characterizing the types of accelerators, namely “*ecosystem builder*”, “*deal-flow maker*” and “*welfare stimulator*”. The “*ecosystem builder*” is an accelerator developed on corporate interests to connect participating new ventures with corporate customers and other stakeholders. This accelerator contributes to the development of a strong platform based ecosystem (Rong and Shi, 2014). The “*deal-flow maker*” mediates more experienced ventures and their need for capital with investors (AI, VC, CVC) that are willing to make risky investments in exchange for equity stakes. This accelerator is most common and has close ties to the first accelerators in US. The “*welfare stimulator*” involves government agencies in pursuit of economic growth. They involve very early-stage ventures to take part in a well-developed courses and training programs to enhance regional or industry wide employment growth. Pauwels et al. (2016) concluded that there also existed in-between types that were unique to a certain location and could thrive as much as others.

### Networking Services

Saxenian (1990) pointed out that regional institutions provide networking services that help to gather necessary resources used in new venture development. They acted as network intermediaries which facilitated information exchange and other interactions (Howells, 2006; McEvily and Zaheer, 1999). These institutions provide networking support and are commonly represented as trade and industry associations, supply chain networks, alumni associations and online social networks (Saxenian, 1990; Suresh and Ramraj, 2012). They all commonly facilitate close and active relations between new ventures and other market stakeholders and their representatives, and at the same time create a supporting environment to gain access to necessary resources for further development.

### Engagement Services

Feld (2012, p. 186) emphasized that engagement services also played an important role in the new venture launch and development. He defined them as events where local entrepreneurs and community came together to meet and collaborate by initiating, pursuing and combining new innovative ideas. These events could be meet-ups and pitching days, start-up weekends and boot camps, but also hackathons and other kind of competitions. These engagement events can play a preliminary crucial role for new startups’ launch and its acceptance to incubators and accelerators.

In summary, entrepreneurial ecosystem construct has been an interesting topic for the past decades as many academics and researchers have concentrated on a set of vibrant environments which sustain entrepreneurship to create new innovation frontiers. During that time, many authors have investigated the ecosystem elements and their relationship which has led into framing the construct of this system. The ecosystem components vary between six to ten elements depending on the studies. The recent research has shown that there are ten elements: 6 systemic conditions, i.e. leadership, finance, talent, knowledge, networks and support service/intermediaries, and 4 framework conditions, i.e. formal institutions, culture, physical infrastructure and demand. All of them play an important role in developing a sustainable ecosystem, but systemic elements directly control human interaction and nurture entrepreneurial activities to launch and grow new startup ventures. Thus, it is primary to focus on them. These driving forces give an overview of the ecosystem's moral and motivational aspects (leadership) and show the availability and quality of required resources (finance, talent) essential in developing and growing businesses based on innovation and newest technology advancements (knowledge). These forces are accessed, enhanced, maintained and facilitated through the relationships (networks) between the stakeholders which have been supported (intermediaries) early on to reach sustainable growth and development.

## 2.2 Born Globals

In this section, firstly the Born Global literature is studied to depict the main concepts of the phenomenon, followed by its description of features based on different theoretical perspective. Secondly, theories about life-cycle models are used to further elaborate the born global phenomenon and what it stands for.

### 2.2.1 *Concept and Features of Born Globals*

International Entrepreneurship (IE) as a research arena arose from the intersection of International Business and Entrepreneurship fields (Coombs et al., 2009) to further enhance our knowledge about a new phenomenon that traditional internationalization frameworks (Johanson and Vahlne, 1977; Luostarinen, 1979) were unable to comprehend. This phenomenon highlights the presence of firms that rapidly internationalize soon after their foundation (Oviatt and McDougall, 1994).

Oviatt and McDougall (2005, p. 540) defined IE as a *“discovery, enactment, evaluation, and exploitation of opportunities – across national borders – to create future goods and services”*. After studying two decades of prior IE research, Peiris et al. (2012, p. 296) coined the term as *“the cognitive and behavioural processes associated with the creation and exchange of value through the identification and exploitation of opportunities that cross national borders”*. This broader view allowed future researchers to include a diverse group of firms (e.g. born globals, traditional firms) that differ in their type, size and stages of development into the research arena (Peiris et al., 2012).

The term *“born global”* was firstly introduced to the IE literature by Rennie (1993) and was further developed by Oviatt and McDougall (1994, p. 49) in their seminal paper, where they defined it as *“a business organization that, from inception, seeks to derive significant competitive advantage from the use of resources and the sale of outputs in multiple countries”*. Knight and Cavusgil (1996) made further steps in explaining born globals and their tendency in early internationalization activities and performance. They argued that *“the strongly innovative natures of born globals supports these businesses in developing particular types of knowledge, which drives the development of organizational capabilities that support early internationalization and superior performance in diverse international markets”* (Knight and Cavusgil, 2004, p. 135).

In comparison to, throughout the decades of studies, academics and researchers had been pursuing the same phenomenon, but using different terms interchangeably when referring to those astonishing ventures. Born globals (Knight and Cavusgil, 1996; Rennie, 1993) and international new ventures (Oviatt and McDougall, 1994) have remained as the main terms of the concept. Other alternatives having found their way in the literature are *high-technology start-ups* (Jolly et al., 1992), *global start-ups* (Oviatt and McDougall, 1994), *instant internationals* (Preece et al., 1999), *instant exporters* (McAuley, 1999), *micromultinationals* (Dimitratos et al., 2003), *entrepreneurial start-ups* (Sorensen and Sorenson, 2003), *born-internationals* (Kundu and Katz, 2003), *international entrepreneurs* (Jones and Coviello, 2005), *early internationals* (Aspelund and Moen, 2005; Rialp et al., 2005), *high-growth start-ups/entrepreneurial firms* (Acs et al., 2016; Bosma and Stam, 2012; Cohen, 2006; Feld, 2012; Foster et al., 2014, 2013; Isenberg, 2011; Mason and Brown, 2014; Napier and Hansen, 2011; Stam, 2014; Szerb et al., 2013) or *rapidly internationalizing ventures* (Ribeiro Soriano et al., 2012). All of the above mentioned terms refer to the same concept of “*young, entrepreneurial start-ups that initiate international business soon after their inception*” (Cavusgil and Knight, 2015, p. 3). Therefore, author of this study will use the terms born globals (BG) from theoretical and startups from practical perspectives interchangeably, as they both have clear sound to them and best captures the essence of the phenomenon.

However, early and rapid internationalization is just one feature of the BGs. In their retrospective paper about early and rapid internationalization, Cavusgil and Knight (2015, p. 4) conceptualized that born global founders “*explicitly or implicitly view the world as their marketplace*” and thus “*derive a significant portion of their revenue from international sales. Born globals exhibit a high degree of international entrepreneurial orientation. Their founding and growth are supported by distinctive entrepreneurial prowess, typically championed by founders or managers. Although relatively small in scale and limited in tangible resources, born globals usually are endowed with distinctive intangible resources and capabilities. These firms appear especially adept at allocating their resources under asset parsimony*”. In other words, this suggest that these entities possess exceptional characteristics, capabilities and organizational assets that lead to such impressive outcomes.

For the most part, IE research concludes that BGs are distinctively:

- (1) governed by superior leadership,
- (2) entrepreneurially talented and risk-prone,
- (3) inventive, vanguard and exclusive, and base their offerings on the recent developments in technology, design and science,
- (4) driven by global demand and feasibility of reaching worldwide clientele,
- (5) collaborate with dense networks of value-chain actors,
- (6) cultivated with high proportions in countries with small national markets.

Hence, above mentioned factors and features are derived from various advanced themes in the IE domain, namely entrepreneurial orientation, resource capabilities, dynamic capabilities, knowledge orientation, network competencies, and support availability. All of them describe BGs in their own respective view and draw out the main characteristics of the entities for further review. (Cavusgil and Knight, 2015; Knight and Cavusgil, 2004)

### **Entrepreneurial Orientation**

Entrepreneurial orientation focuses on the importance of the individual or entrepreneur(s) and how they affect the success of BGs. Entrepreneurs play a significant role in the conception, launch and growth phases, but also in developing ventures' behaviors, strategies, and managerial philosophies that benefit the internationalization process (Anderson et al., 2009; Knight and Cavusgil, 2004; Lumpkin and Dess, 1996; Wiklund and Shepherd, 2003). Alarape (2013, p. 556) argued that entrepreneurial orientation is a behavioral construct that clarifies "*processes, practices, and decision activities that lead to new entry in the quest of exploiting opportunities in the marketplace or shape its environment*". This construct is three-dimensional and includes (1) proactiveness, (2) innovativeness, and (3) risk-taking (Alarape, 2013; Dimitratos et al., 2010; Zhou, 2007). In addition, entrepreneurs' prior international experience, education, knowledge, capabilities, motivations, open-mindedness, alertness, skills, ambitions, leadership style, personal networks, creativity and cognition also benefit the early internationalization and overall success of BGs (Acedo and Jones, 2007; Butler et al., 2010; Mudambi and Zahra, 2007; Styles and Seymour, 2006; Weerawardena et al., 2007; Zahra et al., 2005; Zucchella and Scabini, 2007).

Furthermore, effectuation logic introduced by Sarasvathy (2001) took another perspective to understand the influence of the founding entrepreneur(s). It examined the reasoning and logic behind entrepreneurial opportunity identification and BG conception. It included a set of decision making principles which entrepreneurs use when there's a lot of uncertainty and the future is unknowable. Andersson (2011) showed that effectuation theory can be used to assess internationalization patterns of BGs by looking at entrepreneurs proactiveness in individual, firm and network level, and was confirmed to be important feature to overcome growth phases (Gabrielsson and Gabrielsson, 2014, 2010). Harms and Schiele (2012) further solidified the logic to be true as entrepreneurs with years of experience tend to use effectuation principles in their decision-making process when entering new markets, compared to causal thinking.

### **Resource Capabilities**

BGs are distinctively characterized as being resource deficient, new to the markets, rather small in size and lacking information. Resources are acknowledged to be an important requirement for internationalization and performance of BGs (Hughes and Morgan, 2007; Laanti et al., 2007; Morgan et al., 2004). Even though the presence of resource constraints, the performance is maintained as available resources and capabilities are exerted in the most efficient way under asset parsimony (Cavusgil and Knight, 2015; Knight and Cavusgil, 2004). Also, BGs accumulate specific resources and capabilities from the experience of the founding entrepreneur(s) or exhaust them from local and global networks (Laanti et al., 2007; Oviatt and McDougall, 2005), that further enable them to recognize opportunities (Mathews and Zander, 2007). This "*liability of smallness*" can be exhibited by limited financial resources (e.g. liquidity, loan credit), unavailability of suitable human capital (with e.g. skills, know-how), and incomplete process resources (e.g. material, control systems) (Botha et al., 2014; Časas and Dambrauskaitė, 2011; Knight and Cavusgil, 2004; Lewis and Churchill, 1983; Luostarinen and Gabrielsson, 2006; Oviatt and McDougall, 1994; Sapienza et al., 2006; Valentini, 2015).

Moreover, the shortages of development resources can be described by the "*liability of newness*" and "*liability of foreignness*" (Gabrielsson and Gabrielsson, 2014; Knight and Cavusgil, 2004, 1996; Mudambi and Zahra, 2007; Partanen et al., 2014). Liability of newness notes that when BGs enter new markets they lack of reputation and legitimacy in the eyes of customers and partners, as they are inexperienced without track record and challenged when establishing internal management

systems and network relations (Baum et al., 2000; Li, 2007; Lu and Beamish, 2004; Stinchcombe, 2000; Stuart, 2000). Liability of foreignness entails lack of information about international business environments and culture, but also discrimination by foreign actors (Li, 2007; Zaheer, 1995; Zaheer and Mosakowski, 1997).

Therefore, BGs need appropriate amounts of resources to grow and succeed, as otherwise disproportionate levels would lead to unsuccessful undertakings, loss of focus from revenue generation and what really matters (Gabrielsson and Gabrielsson, 2014, 2010). All of the impeding factors above, can be tackled by gradual learning-by-doing (Minniti and Bygrave, 2001) process while being represented in foreign markets. This is in line with the resource-based view of the firm (Penrose, 1959).

### **Dynamic Capabilities**

Dynamic capabilities are closely related to firms' resource base as they transform and combine resources in a way that enables BGs to achieve predetermined objectives and goals (Sapienza et al., 2006), and thus are essential to early internationalization and development (Knight and Cavusgil, 2004). Hence, dynamic capabilities allow BGs to identify and capture opportunities (Teece, 2007) and make corresponding changes (Winter, 2003) to create sources of competitive advantage (Teece, 2007; Teece et al., 1997). Furthermore, Galunic and Eisenhardt (2001, p. 1229) broadly define dynamic capabilities as *"the organizational and strategic processes by which managers manipulate resources into new productive assets in the context of changing markets"*. Zahra et al. (2006, p. 918) define it as *"the abilities to reconfigure a firm's resources and routines in the manner envisioned and deemed appropriate by its principal decision-maker(s)"*. Thus, these academic studies highlight entrepreneurs' role in creating and organizing dynamic capabilities, contrary to the mainstream view that predominantly considers firms behind it (Stefano et al., 2014).

Moreover, researchers argue that dynamic capabilities can be different dependent on their nature. On the one hand, they are unique abilities solely based on firm competences and cannot be measured by their type or their existence, as uniqueness cannot be quantified (e.g. R&D capability) (Teece et al., 1997). On the other hand, they can be relatively similar among firms and are used routinely as best practices (e.g. acquisitions, internal communication) (Eisenhardt and Martin,

2000). Those can't be quantified either, rather their presence is stated in the binary form. In addition, availability of dynamic capabilities don't automatically lead to any special benefits or improvements, rather utilizing them correctly will enable their ability to provide positive performance changes (Laaksonen and Peltoniemi, 2016) and enhance the possibility of survival (Gabrielsson and Gabrielsson, 2014, 2010).

### **Knowledge Orientation**

Innovation and knowledge appear to be closely related as some prior knowledge is predominant factor for innovation creation and without innovation there is no new knowledge to be obtained. This was understood by Knight and Cavusgil (2004) as they argued that innovation helps to create certain types of knowledge that enhance organizational capabilities that in turn support early internationalization, new product development, new market entries and greater performance. But, also optimizes BGs' operational capabilities to flourish in those markets (Cavusgil and Knight, 2015). Hence, knowledge is a central concept and a significant factor endowment for early internationalization of young (technologically) innovative ventures (Autio et al., 2000; Conner and Prahalad, 1996; Knight and Cavusgil, 1996; Oviatt and McDougall, 2005) leading to increased competitiveness, profitability, growth and endurance (Fernández Olmos and Díez-Vial, 2015; Gabrielsson et al., 2016; Gabrielsson and Gabrielsson, 2014; Lu and Beamish, 2001; McDougall and Oviatt, 1996).

Knowledge can be explicit or tacit and the process of obtaining such a knowledge is called learning (Harrison and Leitch, 2005). Both are essential and influence the internationalization process of the new venture (Autio et al., 2000; Oviatt and McDougall, 2005; Weerawardena et al., 2007). BGs are proficient in learning from their networks in regional and international markets, but also should develop internal and market-oriented learning capabilities to further enhance the opportunity recognition (Spence and Crick, 2006; Weerawardena et al., 2007). Hence, opportunity recognition in itself is an interactive process that is based on learning (Johanson and Vahlne, 2009) and can be attributed to the entrepreneurs' experience (Madsen and Servais, 1997; McDougall et al., 1994; Shrader et al., 2000). Grant (1996) explicitly states that individuals in the organization are the ones that create and facilitate the knowledge. This entrepreneurial learning can be nurtured by direct observations or via leaning-by-doing (Minniti and Bygrave, 2001) and thus influence the interna-

tionalization path of the firm (Huber, 1991). Cohen and Levinthal (1990) called this process “*absorptive capacity*” to explain how entrepreneurs are able to realize and evaluate the new knowledge gained from markets, and how to exploit and commercialize it (Qian and Acs, 2013).

Furthermore, Huber (1991) elaborated five learning processes that help in obtaining new knowledge:

- (1) congenital learning involves knowledge that entrepreneurs’ have gained from previous work experience and what they gain during the idea conceptualization phase until forming the new venture,
- (2) experiential learning includes knowledge gained from the entrepreneur’ first-hand experience and can be intentional or unintentional as well as systematic or unsystematic,
- (3) vicarious learning relates to second-hand experience that entrepreneurs gain by familiarizing themselves with other firms’ technologies, practices and strategies through consulting firms, suppliers, trade fairs and professional networks,
- (4) grafting is when firms gain specialized previously unavailable knowledge when hiring new talent, cooperating with other firms or acquiring them. This takes less time than experiential learning and is more comprehensive than vicarious form,
- (5) searching and noticing happens when knowledge is acquired via broader scanning of the environment to find answers to specific issues or by comparing firms’ own performance towards the pre-defined goals and opportunities.

Consequently, the importance of knowledge development and acquisition is a central part of BGs’ internationalization and survival (Oviatt and McDougall, 2005). The emphasis on knowledge as a strategical factor is in line with the aspects and notions of the knowledge-based view stating that (tacit) knowledge is most important resource for firm development (Fuerst and Zettinig, 2015; Prashantham, 2005; Rialp et al., 2005).

### **Networking Competencies**

Research on BGs have shown that network competencies are one of the most important factors in enabling early and rapid internationalization (Andersson et al., 2013; Colovic and Lamotte, 2014; Evers and O’Gorman, 2011; Fuerst and Zettinig, 2015). As BGs are resource and capability constrained (Lu and Beamish, 2001; McDougall et al., 1994; Oviatt and McDougall, 1994; Sharma

and Blomstermo, 2003) access to external resources through networks can tackle those limitations and allow firms to internationalize (Mort and Weerawardena, 2006; Zahra et al., 2003). Thus, entrepreneurial networks are considered as a critical aspect in the launch, growth and survival of BGs (Andersson and Wictor, 2003; Gabrielsson and Gabrielsson, 2014, 2010; Oviatt and McDougall, 1994) as they improve firms' performance by allowing them to acquire competitive advantages (Gulati et al., 2011; Zaheer et al., 2000), access new opportunities (Ellis, 2011; Sharma and Blomstermo, 2003), manage and mitigate risks (Freeman et al., 2006; Oviatt et al., 2004) and influence their overall speed to do so (Oviatt and McDougall, 2005).

Hence, networks can be leveraged as a strategic resource (Andersson et al., 2015) to access beneficial information, various knowledge, and social capital (Nahapiet and Ghoshal, 1998; Partanen et al., 2008; Sharma and Blomstermo, 2003; Yli-Renko et al., 2002). In addition to, networks provide access to new markets, distribution channels, referrals and contacts (Coviello, 2006), but also connect with appropriate human, financial, physical and organizational capital (Coviello and Cox, 2006). Moreover, BGs implement their networking competencies by creating alliances with supply chain partners, joint-ventures and other collective partnerships (Baum et al., 2000; Freeman et al., 2006; Oviatt and McDougall, 1994) to suspend resource limits that inherently hinder early and rapid internationalization.

Additional perspective is the strength of the ties of network participants, but as Peiris et al. (2012) showed that different studies have different outcomes, referring to both of the weak and strong ties to be important for internationalization and growth processes, and thus only varying in-between stages. Furthermore, social networks and business networks are important, as social networks are entrepreneurs' interpersonal ties to uncover knowledge about international market opportunities, know-how and increase cohesion and trust between the entrepreneurs and external actors home and abroad (Fuerst and Zettinig, 2015; Yiu et al., 2007; Zhou et al., 2007). Whereas inter-organizational networks are between organizations to enhance, reinforce and facilitate global ties (Ellis, 2011; Freeman et al., 2010; Yiu et al., 2007; Zhou et al., 2007)

### **Support Setting**

In the International Entrepreneurship literature, it is not easy to find research studies concentrating on the perspective of the local environment and how it affects BGs in their internationalization and

growth processes, both on the governmental and lower institutional level. Hence, Andersson et al. (2015) and Cavusgil and Knight (2015) agreed that government policies and support were seldom seen in the studies. Knight and Cavusgil (2005) had emphasized the role of government in resource acquisition, training, financial backing and information, but also marketing activities (Luostarinen and Gabrielsson, 2006). Thus, government support has a positive influence on BG development during growth stages, but is negatively affecting its survivability assuming that less competitive firms that should extinguish prolong their life using freely available support (Gabrielsson and Gabrielsson, 2014, 2010).

Furthermore, Wright et al.'s (2007) study on public policy showed that the influence of the domestic environment was pertinent for young or small company internationalization process, and such public policies have an important place in developing supportive systems. Fernhaber and Prashantham (2014) elaborated that these supportive institutional environments facilitate support networks that was imbedded in incubators, accelerators and industry clusters, among others. Hence, incubators are the most commonly referred support entities in the literature as they directly assist BGs in business and technical development, mediate support services between client firms and professional service providers, and thus directly boost and stimulate internationalization (Aernoudt, 2004; Bergek and Norrman, 2008; Engelman et al., 2015; Grimaldi and Grandi, 2005; Scillitoe and Chakrabarti, 2010). Under these circumstances, the support setting should become more of a focal point for researchers as this is in an important part in capturing the holistic view on how BGs are nurtured by these systems.

In summary, BGs are an important concept in describing how some new ventures outperform others early on and sustain international growth by moving to foreign markets looking for new opportunities to capture. Also, understanding the essence of the BGs mode has inspired a wide range of studies and theories that could depict and characterize such entities. Those spheres include entrepreneurial orientation and effectuation logic, resource-, dynamic- and networking capabilities, knowledge orientation and overall support setting in the local context. Elaboration of the phenomenon can be further enhanced by looking at the stages of BG life-cycle to describe the development processes and structural changes in each consecutive stage.

### 2.2.2 *Life Cycle Models of Born Globals*

Organizational life-cycle perspective has been around for decades to describe the development and growth of organizations (Adizes, 1979; Chandler, 1962; Hanks, 1990; Kimberly and Miles, 1980; Lewis and Churchill, 1983; Miller and Friesen, 1984; Penrose, 1952; Quinn and Cameron, 1983). The incremental growth of ventures are dependent on the interplay between (resource) capabilities and external environment, enabling opportunity recognition that drives the development (Penrose, 1952). Chandler (1962) showed that organizations commonly evolve through the life cycle stages while their structure and strategy coincide with each stage. Deriving from other authors' work, Hanks (1990, p. 27) defined the organizational life cycle as a “*unique configuration of variables related to organizational context, strategy, and structure*” that was cyclical in nature, as companies arise, grow and decline (Kimberly and Miles, 1980) while dealing with crises attributed to each stage (Kazanjian and Drazin, 1989).

Subsequently, Miller and Friesen (1984) concluded from their longitudinal study of development stages that firms can skip some of the them or revert back to. This finding was in line with parallel research that explored why some young ventures internationalize quite early in their life after inception. Freeman and Cavusgil (2007) and Hedlund and Kverneland (1985) termed the phenomenon as “*leapfrogging*”. This led researcher to converge organizational life cycle, internationalization and BG studies to further understand the aspects of development challenges and corresponding activities of BGs (Gabrielsson and Gabrielsson, 2014, 2010; Laanti et al., 2007; Luostarinen and Gabrielsson, 2006; Mudambi and Zahra, 2007; Sapienza et al., 2006).

Furthermore, congregating decades of research, it can be seen that there is a variety of names and features of stages as there are different studies and frameworks focusing on apprehending them. Fortunately, the underlying notions tend to be comparable and thus generally divide life cycles into four key development stages (see table 1.). In other words, regardless of the name of the stage, the primary principles have strong similarities. Also, the fifth stage has usually been the decline phase, but as it has received only slight empirical support (Lester et al., 2003) or no support at all (Drazin and Kazanjian, 1990) it has been left out.

Thereby, these life cycle models were chosen due to their appropriateness for this study to best suit the BG phenomenon in entrepreneurial ecosystem context. Selection is a combination of stage models that are empirically tested and used in prior academic research to study the launch and internationalization of BGs, high-technology start-ups and new ventures.

*Table 1 - Stages of Born Globals. Source: Author's view.*

<b>Author</b>	<b>Stage 1</b>	<b>Stage 2</b>	<b>Stage 3</b>	<b>Stage 4</b>
Kazanjian (1988)	Conception and Development	Commerzcialization	Growth	Stability
Lester et al. (2003)	Existence	Survival	Success	Renewal
Gabrielsson & Gabrielsson (2010)	Introductory	Commercialization and Foreign Entries	Rapid Growth and Foreign Expansion	Rationalization and Foreign Maturity
Berman et al. (2011)	Discovery	Validation	Efficiency	Scale
Evers et al. (2014)	Inception	Growth	Expansion	Maturity
Hanks (2015)	Start-Up	Expansion	Consolidation	Revival

In the broadest terms, (1) the first stage mainly includes the formation and launch of the ventures, (2) the second stage facilitates adequate international presence and growth to foreign markets (Autio et al., 2000; Johanson and Vahlne, 1977), (3) the third stage includes rapid growth and expansion, and (4) the fourth stage reaches stability and matureness. According to Andersson et al. (2013), Coviello (2006), Evers and O’Gorman (2011) local networks played a crucial role starting from the venture’s inception until its internationalization activities. Thus, it could be argued that local networks have the strongest effect on the first two stages, from launch to foreign entry. In contrast, international networks are prerequisite for rapid internationalization, thus it can be argued that international networks become more important in the next stages leading BGs to expand internationally until operational stability, while the standing of local networks diminish. But it cannot be a straight cut between the stages from one to the other, rather it is a somewhat a power play between local and international network forces pulling and pushing while fostering the current relative needs of the ventures. Both types are available in all stages, but the applicable strength varies. Therefore, continuing the same train of thought, it is reasonable to focus on the first two stages where local entrepreneurial ecosystem and its systemic elements (e.g. local networks) have the strongest positive influence towards BG development, as these stages prepare for growth and test the validity of the firm into becoming a BG. This step acts as the second major delimitation of this study to reach a more concentrated perspective of the phenomenon.

Moreover, as seen in the table, the life cycle stages can be characterized through different approaches and scopes. As this study emphasizes the connection between the environment and its influence towards the early development and internationalization of BGs', a general description would be sufficient to have a good overview. Hence, the selected life cycle models are used to bring out the main notions of the first two stages.

As mentioned, the first stage in a broad sense includes the formation and launch of the BGs, but it can also show other important features and aspects in the stage:

- (1) the venture itself is newly established and very small in terms of employees and revenues,
- (2) the organizational structure and systems are underdeveloped, almost non-existent, rather simple, informal and intuitive without functional specialization,
- (3) knowledge is the key driver as other resources are limited,
- (4) funding is acquired from founders, friends and family, angels and directly invested into R&D, working capital and equipment,
- (5) high centralization as the founding entrepreneur(s) play the dominant role in managing the entity and supervising only few employees,
- (6) entrepreneurs are creative hands-on visionaries, committed to pre-set goals, and risk-prone,
- (7) employees are R&D, marketing and sales oriented, and equity motivated,
- (8) the main focus is on innovation and development of the underlying product/technology,
- (9) there is a constant search for market opportunities and clientele to ensure adequate revenue inflows to cover wide range of expenses and sustain viability,
- (10) global presence is in nearby countries and international sales account for 0%-25%.

Moreover, the second stage is characterized by internationalization process and growth to foreign markets and can be further elaborated:

- (1) BGs have matured in some level and have gained in size by including formal operating systems and functional structures that facilitate delegation of authority,
- (2) continuous development of venture learning capabilities to gather knowledge and accumulate resources from networks,
- (3) funding is acquired from venture capitalist, angels, accelerators, crowdfunding and mostly invested into R&D, production capacity and staff training,

- (4) founders' need to think stage wise as venture and process complexity grows in parallel,
- (5) working environment becomes less centralized as the division of labour is endorsed and managers receive more accountability in decision making,
- (6) wider scope of expertise is included in the company processes,
- (7) larger sales, broader reach and vast growth in diverse segments of customers,
- (8) the focus is on commercialization process to reach new markets and economies of scale,
- (9) reaching levels of secured revenue streams to sustain development and market growth,
- (10) existential crisis and growth hindrances might arise before stronger market presence is reached,
- (11) international presence is reached in 3 years from inception by being active in more markets than there are nearby countries,
- (12) international sales revenues stand between 25%-50%.

In summary, life cycle studies are derived from the biological research domain and transformed into business context as there are parallels that can be taken into account when assessing the development of organizations. Life cycles are in most studies divided into four stages and each of them include sequential central processes. These processes are used to further show the structural, strategic and contextual changes occurring inside the entities in solving crises arising from each of the steps. In the context of this study, it is correct to focus on the first two stages as their importance is implicit on the early development of BGs and could therefore shed more light on how the local environment stimulates the launch and growth of born global firms.

## 2.3 Synthesis of the Theoretical Framework

Taking into account the underlying research questions and insights gathered from the literature review, the limitations and research gaps can be distinguished further, followed by the structure of the theoretical framework.

### 2.3.1 *Justification for the Theoretical Framework*

The view of the entrepreneurial ecosystem facilitating and nurturing BGs' early development is the main research topic for this study. Thus, it is important to understand the critical observations and deficiencies of theoretical underpinnings to further advance the relationship between those fascinating concepts. Elaborating the research gaps would confirm the necessity and novelty of this research, and justify the construct of the theoretical framework.

On the side of the Entrepreneurship studies, the entrepreneurial ecosystem research is still theoretically immature. The topic has gained worldwide recognition in the past decade, but the main development has happened in recent years and thus a lot more is needed to really understand the complexities and outcomes of the concept.

For the most part, there is limited evidence and lack of causal depth in the research of ecosystem elements that facilitates entrepreneurial activities in creating new innovation and contributing to the livelihood of the entrepreneurial environment. The research about individual elements of the ecosystem has gained momentum, but there are substantial differences in the division of focus as authors highlight some actors more (e.g. networks, knowledge) than others (e.g. talent, leadership). Also, this higher concentration might overemphasize the relative importance of that particular element and its role in the structure. Thus, the future research concentrating and assessing the underlying dynamism, relational strength, influence and performance of the ecosystem would be inherently crippled and thus misleading. Hence, Mack and Mayer (2016) note that many studies focusing on the elements are often inflexible, retrospective in nature and concentrate on already successful ecosystems.

Furthermore, the cause and effect of the relationships and dynamic interactions among the ecosystem actors influencing new venture creation does not completely answer the fundamental theoretical and empirical questions on how the overall value is created (Malecki, 2011; Spigel, 2015;

Stam, 2015) while taking into account that not all new ventures survive and fruitfully create synergies with ecosystem elements (Boutillier et al., 2016). Also, there is a lack of guidance how to develop entrepreneurially successful environments (Kshetri, 2014) that inherently determine the type of venture launched and the velocity of its growth (Acs et al., 2016). Hence, the context where BGs develop are important to their internationalization performance and there is a wide difference on the geographical stage as those contexts vary across countries (Zander et al., 2015), making studies that include venture creation and local territory quite rare (Boutillier et al., 2016). Thus, as the domain of entrepreneurial ecosystem evolves, new theoretical frameworks are essential in understanding the intricacies of the ecosystem construct and its impact on the BG success.

On the side of the International Entrepreneurship studies, the BG phenomenon research has established a strong presence. The concept has gained worldwide recognition in the past twenty years and has been a focal stream of research for many recognized authors. Still, it is a young field in terms of definitions and terminology, and lacks more common views on the defining parameters (Coviello, 2015).

In their retrospective article assessing the last ten years of the born global research, Cavusgil and Knight (2015) point the direction towards the missing link between the ecosystem and its role in developing BG firms. In other words, the importance of the entrepreneurial environment and its principal elements assisting in launching and achieving international growth targets of the BGs. Thus, there is a constant need to develop intertwined theories, models and frameworks to assess the ecosystem elements on one side, and internationalization models, network-, resource-, knowledge- and dynamic capabilities, and central constraints of the venture on the other side (Fernhaber and Prashantham, 2014, p. 45). This has also been a concerning point for many authors studying particular features of BGs as they signify the importance of external factors affecting the development processes (Fuerst and Zettinig, 2015). Hence, it could even be argued that the nurturing ecosystem enables BG phenomenon and in turn the presence of BG reflects on a healthy ecosystem, so this is a two-way relationship as one cannot be fully studied without considering the other.

Moreover, the role of the entrepreneurs should not be undervalued as they initiate new ventures that become BGs, reckoning with the supporting role of the local ecosystem. Firstly, complexities arise when entrepreneurial input and proactive behavior is underestimated and thought of as being just an individualistic practice (Cooke 2016). Secondly, entrepreneurial characteristics (e.g. logic,

experience, knowledge) directly spur into the success of the BGs (Ghannad and Andersson, 2012). Thirdly, these entrepreneurial ventures drive, direct and improve the entrepreneurial ecosystem (Foster et al., 2014). Thus, not including these opinion leaders to the development of the ecosystem, is short-sighted. The importance of such an administrative actor is imperative and should formally be incorporated to the models to further understand their role in transformation processes (Coviello, 2015; Qian et al., 2012).

Thereby, recent empirical studies are mostly devoted on profiling the entrepreneurial ecosystem by comparing entrepreneurship in national levels and their assessments are based on combination of indices derived from local statistical indicators (Acs et al., 2015; Szerb et al., 2013, 2015). These studies are suited to give policy suggestions to improve local entrepreneurship, resource allocation, benchmarking and show the overall development differences, but it can be argued that they are reluctant to take into account the individual level activities and entrepreneurial processes, and rather constitute on framework conditions than systemic conditions. Thus, information received from the grassroots is best suited to make implications and conclude how local policies should be developed to best shape dynamic entrepreneurial ecosystems. Drawing policy suggestions from “one-size-fits-all” studies are relative in terms and disregard the context of being unique in historical, cultural and geographical facets that all contribute to the system.

Furthermore, studies that include firm and entrepreneurial perspective (e.g. Foster et al., 2014, 2013) are better in elaborating central constructs of a good ecosystem, but their results are disputable showing that some ecosystem elements are most important for venture development, neglecting others. Hence, they might be shallow causes at best, not principal (Stam, 2015). Also, these studies are concentrated on large usually developed western countries, consequently discounting the rest. This implies to a sample bias that can be misleading in terms of results. Therefore, studies that combine ecosystem’s systemic constructs, firm level and entrepreneurial perspectives, and concentrate on transitional countries, should give a better perspective to comprehend the fundamentals of the system.

To summarize, there are many limitations and imbalances in the existing theoretical and empirical advancements that should be addressed. This has led the author to combine all of the above-mentioned aspects into one framework to fill-in the gaps. In apprehending the dynamic and multilateral

connections between the entrepreneurial ecosystem and BG development, the firm's and individual's perspective would be considered as one. The focus is on the relationships between the meso-level ecosystem and the cyclical development of micro-level BGs, further complemented with the insights from the entrepreneurs' perspective.

### 2.3.2 The Structure of the Theoretical Framework

The theoretical framework consists of three main parts: (1) the entrepreneurial ecosystem's systemic elements, (2) the BGs' features, and (3) the development stages of launching and growing born globals (see Figure 7.). Drawing from the entrepreneurial ecosystem and born global literature, author matched systemic elements with features of BGs. As this amalgamation includes both views, it can be used to further explore their influence on the development processes in the stages.

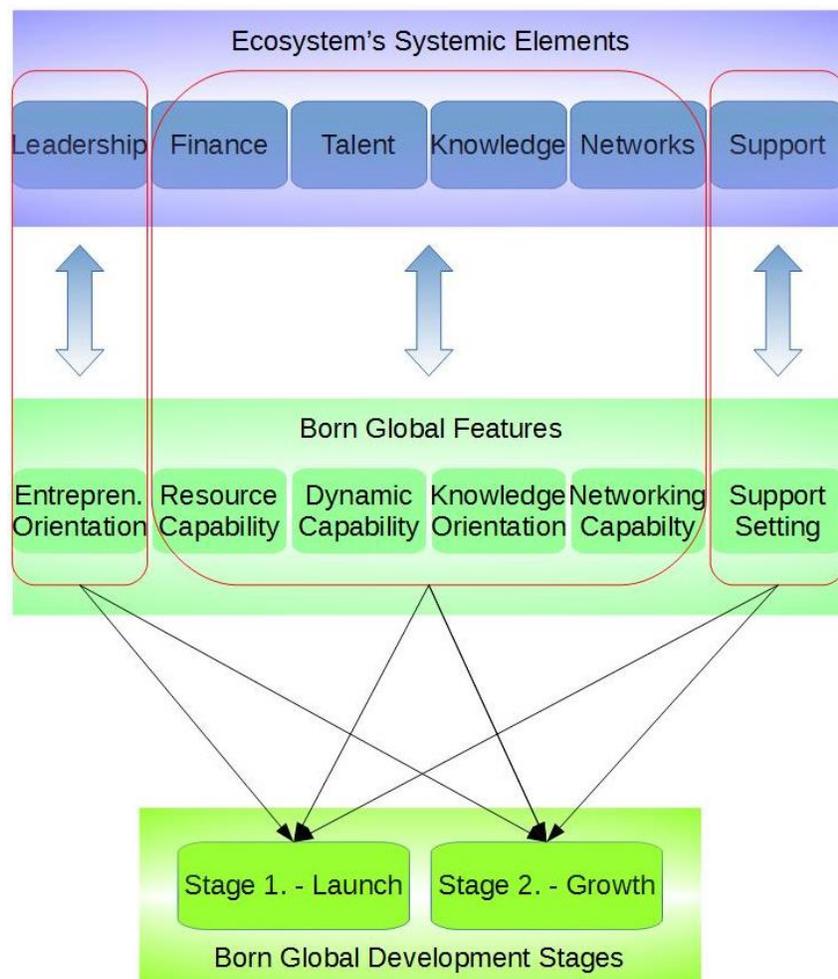


Figure 9 - Theoretical Framework. Source: Made by Author.

Firstly, leadership element is directly connected with the entrepreneurial orientation. Both concepts emphasize the role of the leader entrepreneur(s) that are essential to born global development and internationalization. On the one hand, entrepreneurial leaders are the ones discovering and exploiting opportunities, and their success is dependent on their characteristics, knowledge and effectuation principles. On the other hand, leaders are role models for others, inside the organization and outside. This also relates to the talent element suggesting that there is a continuous need for entrepreneurial talent to successfully develop given environments.

Secondly, capabilities and resource constraints dictate the direction that new ventures take in becoming BGs and are highly influenced by not only their own abilities to tackle the limitations, but can be assisted by the local ecosystem elements. Hence, finance is a fundamental resource needed to launch, grow and internationalize, and network relationships enable access to funding from formal and informal debt and equity. Similarly, human capital is acquired from the networks and is directly connected to the workforce part of the talent that own and exploit appropriate and leverageable knowledge. Moreover, dynamic capabilities that BGs possess are used in the transformation process to combine resources in a way to achieve previously approved objectives and goals. These capabilities are inherently attached to the entrepreneurial leaders and talent. Knowledge as a resource for innovation helps BGs to create demand and gain market position among other things. Knowledge is preserved by the individuals and enhanced by continuous learning. Further, networks are like a well-suited web in-between that facilitates the movements of resources, promotes learning and knowledge accumulation, and advances dynamic capabilities. All to enable further opportunity recognition that would drive the development and internationalization.

Thirdly, support setting is constructed to directly sustain and mediate support systems to help born globals along the way. As they have particular needs compared to other small ventures due to their rapid development, catering those needs accurately and on time is essential not to lose out in speed and performance. The main actors in the support systems are incubators and accelerators that behave somewhat as networks surrounded by special environment. Their role is to help entrepreneurs to prove and solidify the business concept to prepare ventures to launch. They also facilitate professional services for everyday business activities, use engagement services as official brainstorming events to search for new ideas and incubates, and also bridge successful ventures with networking services to create an interactive layer of players that benefits the ecosystem by attracting others.

Finally, all of the above-mentioned elements and born global features are intertwined and should be viewed as mutually inclusive principals to comprehend how BGs achieve to internationalize so early in their development, and rapidly reach its superior performance. Thus, the focus should be placed on the first two stages of the lifecycle where local ecosystem has the strongest influence, to unveil the circumstances behind this intriguing development process. In addition, as entrepreneurs are the ones operating BGs, their valuable input is central to deliver objective results in trying to fill-in the gaps. Thus, the study concentrates on the perspectives and opinions of the entrepreneurs that are currently developing such firms in pursuit of reaching BG pathways.

### **3 RESEARCH METHODOLOGY**

In this chapter, the chosen research approach would be described in detail followed by the data collection process which includes the delimitation reasoning. Lastly, the data analysis techniques are discussed and elaborated.

#### **3.1 Research Approach**

Quantitative approach enables the study to examine (1) the performance levels of entrepreneurial ecosystem elements, (2) the relationships in-between those elements, (3) the characteristics of Born Global startups, and (4) the relationship between the elements and those characteristics. The data needed for this approach is gathered via questionnaire using online survey method. Hence, it could be argued that the quantitative approach is most helpful in detecting statistical relationships deemed to be present by the research questions.

#### **3.2 Data Collection and Delimitations**

In this section, the overview of the sample selection is discussed and further complemented with the overview of the online survey.

##### ***3.2.1 Sample Selection***

Author of the study extracted and combined available startup lists from secondary sources of Startup Estonia, Tehnopol Incubator and Garage48. The list provided around 400 startups in total, from which majority of them were in the discovery and validation stages. As the research is focused to enhance our understanding on how entrepreneurial ecosystem influences startup development in their initial stages, respondents like startup founders and key employees should have prior experience in both of the them. Thus, this led author to make emendatory changes to the list by introducing a major delimitation, followed by a second one and another practical delimitation.

Firstly, it was imperative to exclude startups that were still in their first stage of discovery as the entrepreneurs and founders running the companies would lack the consecutive experience from the second validation stage (except serial entrepreneurs). This would guarantee that survey participants

had finished the first phase and were already involved in the validation stage processes. This would constitute towards more objective experiential opinions, rather than overall theoretical views. This delimitation cut the startup list in half, from around 400 to 185 startups that were currently validating their business propositions.

Secondly, startups older than 7 years and established before 2010 were excluded from the population. The main argumentation behind this was that the veteran companies were already well-established in their international markets and have gone through many changes in their staffing. Therefore, 1) contacting the correct person would be much more complicated or they're less motivated to answer the survey, 2) they lack local knowledge of the ecosystem due to the changes in management and global presence, 3) their experience in the first stages were replaced with more recent views because of their maturity, and/or 4) their understanding of the ecosystem was based on outdated knowledge from time when the ecosystem was less established. All of the above issues were verified with preliminary cold calls. Introducing this delimitation saved time to conduct the study and ensures that the ecosystem was assessed by more objective and unbiased sample group. After the second major delimitation, 154 startups remained on the list.

Thirdly, the practical delimitation was made due to the lack of contact information for some of the companies. The main reason for not being able to attain their contact information was that they are fading away towards default or were just left on the shelf to wait for better market and business circumstances. This was observed and verified by their level of online presence and inactiveness.

In conclusion, the remainder 143 startups were contacted by the author via direct phone calls and emails, from which 62 (43,4%) of the respondents started the survey or activated their personal survey links. By the end of the survey period, 33 founders/CEOs and 1 key employee completed their questionnaires and were included into a sample group. Therefore, taking into account the population of 143 qualified startups and the sample size of 34, author concluded that 23,8% of the response rate was adequate to represent the overall population of the local startup community and stated that data gathering was successfully completed.

### 3.2.2 *Survey Overview*

The survey was created and directed with the professional Qualtrics.com interface which is specifically tailored for researchers to conduct their studies online. The survey was constructed in English and in Estonian and its conformity was cleared by a test group. The survey links were active during four weeks, between the months of November and December in 2016 and were sent out in a mobile friendly format to correspond to the lifestyle of the respondents.

The survey (see [Appendix 1.](#)) took around 15 minutes on average for the respondents to be completed and was composed of four blocks: (1) the Introduction, (2) the Company Profile, (3) the Ecosystem Elements, and (4) the Conclusion. In the first block, the potential respondents were given the overview of the study, its purpose, feedback, language option, time limits and confidentiality. In the second block, questions about company features were asked that would further compile the company profile variables. There were 16 questions about startups' age, employees, revenues, ownership, among others. The questions types used were about multiple choice, numerical text entry and constant sum percentage.

Moreover, in the third block, the 16 ecosystem elements were revealed along with the life-cycle stages and their notional underpinnings. Thereafter, each of the element included a theoretical explanation and were followed by 3 questions about its importance in the discovery and validation stages, and its availability (and access) levels. Altogether, 48 questions were asked. The questions were based on a slider format, from 0 to 100, to make it easier for the respondents to confirm their perceived values about the specific context. In the stage questions, the slider was valued between not important and important whereas availability and access questions were depicted as very poor (0), average (50) and excellent (100).

Finally, in the fourth block, successfully finished respondents were thanked and asked if they would volunteer for the follow up session if it would occur. As there were no follow-up interview session, respondents gladly gave their feedback on the survey process and their other thoughts on the research topic.

### **3.3 Data Analysis Techniques**

In this section, the general analysis and statistical analysis are described in detail.

#### **3.3.1 General Analysis**

The general analysis is carried out to answer most of the research questions. Firstly, mean averages of the perceived importance are calculated for each of the systemic element in both stages. These averages are ranked to detect which of them are most important for the discovery and validation of Estonian-founded Born Global startups. This analysis allows to depict the answers for the 1<sup>st</sup> and 2<sup>nd</sup> research questions of this study.

Secondly, systemic elements' average levels of presence in the ecosystem are calculated. Introducing such a dimension allows the author to develop a ratio system. Hence, a set of relativity ratios are calculated by dividing the average from perceived availability (and access) level with the average level of perceived importance. These relativity ratios indicate how well the elements are performing. Based on those, the 3<sup>rd</sup> research question is answered.

Lastly, the responses from the Company Profile block are analysed to describe Estonian-founded startups. This examination is done to understand how local startups differ from each other and thus, what are their main characteristics. Analysis is completed by looking at the percentage shares of the profile components complemented with the responses of qualitative nature. This profile overview lets the 4<sup>th</sup> question to be answered.

#### **3.3.2 Statistical Analysis**

The statistical analysis techniques are used to modify and improve the answers for the 3<sup>rd</sup> research question and further answer the last one of them. Firstly, to confirm which elements represent strengths and weaknesses of the ecosystem, the relationships between the systemic elements should be tested. To do that, STATA14 statistical software is used to run the paired samples t-test between all the systemic elements in both phases and their corresponding presence. The paired sample t-test takes into account each element's mean values and compares it to the others. Thus, t-test paired the elements and shows which means are statistically different from each other and which are not.

Furthermore, on the one hand, the means that are statistically different from the rest are ranked on the upper or lower tail and the elements on the lower position are further investigated. This part of the t-test is used to extend the understanding of the 3<sup>rd</sup> research question by stating that some elements are dissimilar, thus other dimensions should be involved, not just strengths and weaknesses. On the other hand, the rest of the elements which are not statistically different have more similarities in-between, which makes it possible to argue that these elements have some sort of a closer relationship. Hence, relatively highest pairs are matched for ranking purposes and these relational aspects are used in the discussion chapter to further uncover and elaborate the dynamic behaviours occurring between the systemic elements. These close dynamic relationships are realized only in stages, as it is not applicable for the availability assessment.

Secondly, a regression analysis is developed to answer the 5<sup>th</sup> research question. To receive meaningful results from the 34 respondents and their observations, it is important to divide the Company Profile block into subsequent groups. This is done by looking at the results of the survey, its response frequencies and further divide into respective groups (see table 2.). As some of the questions are complementary, indicating statistically high correlation, twelve company profile variables are created to be introduced as the independent variables. This gives a good overview how different startups perceive the dynamics of local entrepreneurial ecosystem and its influence towards startup development and internationalization.

*Table 2 - Factors of the Company Profile.*

<b>Company Profile</b>		
1. Age (age_group)	<b>older 4-7 y.</b>	<b>younger 1-3 y.</b>
	12	22
2. Team Size (team_s_group)	<b>smaller ≤9</b>	<b>larger ≥10</b>
	24	10
3. Team Allocation (team_a_group)	<b>local team</b>	<b>global team</b>
	18	16
4. Ownership Origin (owner_group)	<b>local owners</b>	<b>global owners</b>
	18	16
5. Ownership Structure (owner2_group)	<b>founders/employees</b>	<b>incl. external investors</b>
	7	27
6. Revenue (reven_group)	<b>pre-revenue</b>	<b>revenue</b>
	8	26
7. Firm Offer (offer_group)	<b>products</b>	<b>services</b>
	14	20
8. Firm Focus	<b>M&amp;S</b>	<b>R&amp;D</b>

<i>(firm_group)</i>	11	23
9. HQ Location <i>(HQ_group)</i>	<b>Estonia</b>	<b>plan/ estab. abroad</b>
10. Export Orientation <i>(export_group)</i>	<b>low</b>	<b>high</b>
11. Internationalization <i>(intrn_group)</i>	<b>slow</b>	<b>rapid</b>
12. International Commitment <i>(intrn_comm)</i>	<b>low ≤9</b>	<b>high ≥10</b>
	23	11

Moreover, as the data about the systemic elements is already available, they are introduced as dependent variables: Leadership, Bootstrapping, Formal Debt, Informal Debt, Venture Capital, Angel Investor, Corp. Venture Capital, Crowdfunding, Entrepreneurial Talent, Worker Talent, Knowledge, Networks, Professional Services, Intermediaries, Network Services, Engagement Services. Hence, as the main assumption is that startups perceive the importance and availability of the ecosystem differently, conditional on their company profiles, based on both sets, 48 regression models are applied. The base model is as follows:

$$\begin{aligned}
 element = & \beta_0 + \beta_1 age\_group + \beta_2 team\_s\_group + \beta_3 team\_a\_group + \beta_4 owner\_group \\
 & + \beta_5 owner2\_group + \beta_6 reven\_group + \beta_7 offer\_group + \beta_8 firm\_group \\
 & + \beta_9 HQ\_group + \beta_{10} export\_group + \beta_{11} intrn\_group + \beta_{12} intrn\_comm \\
 & + u_1
 \end{aligned}$$

*Equation 1 – OLS Regression Model.*

As a result, the method chosen is the Ordinary Least Squares (OLS). The main reasons for choosing particular method is that (1) the model itself is linear, (2) the dependent variables are based on the theoretical aspects and are taken into account as continuous even though they are limited within 0-100 scale, and (3) independent explanatory variables take binary form between 0 and 1 to show a difference between the groups. Moreover, the (4) focus is on the relationship, not on the magnitude, making precision of the estimators irrelevant. Also, (5) the study includes a cross-sectional dataset, (6) the samples are randomly drawn, (7) independent variables are not too collinear, and (8) small sample size composing of 34 respondents. These circumstances work best under OLS compared to other similar methods. Furthermore, to control for heteroskedasticity robust regressions are used. Regression analysis is run with STATA14 software.

## 4 RESULTS

In this chapter, the results from the general analysis about the ecosystem elements and local born global startups are depicted. Thereafter, the quantitative analyses of paired samples t-test and OLS are conducted using the ecosystem elements and startup profile variables.

### 4.1 General Results

In this section, the online survey results about the ecosystem elements and startup are described.

#### 4.1.1 Ecosystem Elements

The ecosystem elements are described in order to demonstrate which of them are most influential in the respective stages, but also what is their relative abundance in the ecosystem. It is a prerequisite to understand that all elements are required to be present for the ecosystem to be healthy, but not all of them are crucial for each of the stages. Hence, it is necessary to take into account all mean values of the elements, and analyse them according to their local accessibility. The threshold of importance starts with 60 points because it would show above average level of importance, thus only these elements will be discussed and focused on in more detail.

In the below table, the importance of the elements in the discovery stage start from 13,68 up to 88,76 points and in the validation stage from 29,26 up to 91,21 points. Availability and access are valued from 21,09 up to 68,35 points. This could be further be looked at in terms of the mean average perspective, showing that systemic elements play more crucial role in the validation stage (60,24) compared to the discovery (51,22), but their average availability is relatively scarce (44,72).

*Table 3 - Variable Means and Standard Deviations.*

Variable	Discovery		Validation		Availability		Overall Mean
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	
Leadership	69,41	24,31	61,71	25,05	58,53	24,30	131,12
Bootstrapping	71,74	26,48	61,68	25,48	54,59	25,84	133,41
Bank loans	13,68	21,00	29,26	27,89	30,18	26,50	42,94
Informal Loans	79,24	22,48	53,62	26,84	43,88	25,78	132,85
Venture Capital	32,91	27,82	68,41	27,72	35,76	21,53	101,32
Angel Investor	59,56	33,04	62,47	19,44	44,03	25,07	122,03

Corp. Venture Capital	17,35	19,64	40,15	25,66	21,09	20,49	57,50
Crowdfunding	41,15	28,47	49,82	23,72	52,24	24,79	90,97
Entrepreneurial Talent*	88,76	17,75	91,21	11,42	54,12	19,64	179,97
Worker Talent	57,29	32,77	75,85	21,54	48,74	21,75	133,15
Knowledge*	69,12	23,61	82,12	13,78	55,85	21,47	151,24
Network*	60,85	29,14	75,88	23,66	53,41	26,33	136,74
Professional Services	38,82	25,14	60,24	24,08	53,29	23,27	99,06
Intermediaries	47,68	30,01	60,03	26,25	50,82	25,16	107,71
Networking Services	40,97	24,82	54,03	22,71	49,97	22,15	95,00
Engagement Services	66,29	28,05	46,15	27,09	68,35	23,34	112,44

(\* most important factors overall)

Furthermore, the most important element in the discovery stage is talent, specifically entrepreneurial talent (88,76; 1<sup>st</sup>). This indicates that founding entrepreneurs themselves directly affect the firms' preliminary processes and define subsequent success. The second most important element is finance, i.e. informal capital acquired from family, friends and relatives (79,24; 2<sup>nd</sup>) and bootstrapping (71,74; 3<sup>rd</sup>). This shows that entrepreneurs should have strong trust based relationships to accumulate needed capital or use their own resource due to their lack of credibility in the eyes of other lenders. The fourth most influential element is leadership (69,41; 4<sup>th</sup>) indicating that in the first stage, to become an entrepreneur local motivation is important to show that entrepreneurship is not an impossible endeavour, and knowledge (69,12; 5<sup>th</sup>) regarding to the ability to accumulate information through learning and thus, recognizing business opportunities in the first place. Somewhat, less influential elements are support systems, i.e. engagement services (66,29; 6<sup>th</sup>), and network (60,85; 7<sup>th</sup>). Still, all of the above-mentioned elements are over 60-points (cut-off) indicating their substantial importance in the development phase.

Moreover, in the second stage of validation, talent is still the most influential element, including both, entrepreneurial talent (91,21; 1<sup>st</sup>) and worker talent (75,85; 4<sup>th</sup>). Hence, it is not only about founding entrepreneurs themselves, but rather integrating other key employees to create a dynamic team and appropriate working environment. Knowledge element (82,12; 2<sup>nd</sup>) has also gained more importance indicating that team composition enables higher levels of learning and knowledge acquisition. Similarly, network (75,88; 3<sup>th</sup>) playing the facilitating role for knowledge and talent acquisition, has gained more importance. In terms of finance, sub-elements of venture capital (68,41; 5<sup>th</sup>) and angel investors (62,47; 6<sup>th</sup>) have gained relevance. VC in particular have made the highest jump from discovery stage showing that financial capital combined with VCs' experiential

knowledge and extended networks are essential in validating business propositions. Bootstrapping (61,68; 8<sup>th</sup>), has lost some of its importance, but still maintains above average position. Also, leadership (61,71; 7<sup>th</sup>) has lost some of its importance indicating that leaders might have changed their value proposition from being not just role models and pathfinders for the whole community, but are directly associated with startups' development. This is somewhat attested by the support systems, as professional services (60,24; 9<sup>th</sup>) that include mentors and advisors of all sorts, have become more relevant. Similarly, intermediaries (60,03; 10<sup>th</sup>) that support early development of startups by intermediating those professional services have passed above the 60-point cut-off limit.

Likewise, looking at the cumulative levels, the entrepreneurial talent (179,97) is the most influential element by far, indicating that in the early phases, the success and development of the startup is based on the features of its founding entrepreneurs. Second element is deemed to be appropriate knowledge (151,24) with learning capabilities as its core, showing that essential understanding of relevant concepts related to the business proposition are a must. Thirdly, network (136,74) as the facilitator of resources and connector of elements is the third most important element reinforcing the structure of the local ecosystem. Other elements that have reached above average cumulative levels of importance are bootstrapping (133,41; 4<sup>th</sup>), worker talent (133,15; 5<sup>th</sup>), informal loans (132,85; 6<sup>th</sup>), leadership (131,12; 7<sup>th</sup>), angel investor (122,03; 8<sup>th</sup>), engagement services (112,44; 9<sup>th</sup>), intermediaries (107,71; 10<sup>th</sup>), and venture capital (101,32; 11<sup>th</sup>) respectively. Also, professional services (99,06; 12<sup>th</sup>) has made it above the cut-off point in the validation stage.

Hence, all of the above elements and their levels of importance can be defined in a perspective of the “demand” side, i.e. what elements are essential to develop startup companies. Thus, it is crucial to realize the perspective of the “supply” side, i.e. what is the availability and access to those elements. Hence, as the uppermost important elements have been depicted, juxtaposing their reciprocal relationship with availability would give a balanced overview and two-sided understanding of the local ecosystem setting. Hence, mean values of availability and access are good indicators when comparing ecosystems, but they can also be used as proxies to understand the ecosystem limitations.

Table 4 - Variable Means and Concurrent Ratios.

Variable	Discovery		Validation		Availability
	Mean	Ratio	Mean	Ratio	Mean
Entrepreneurial Talent*	88,76	0,61	91,21	0,59	54,12
Informal Loans	79,24	0,55	53,62	0,82	43,88
Bootstrapping	71,74	0,76	61,68	0,89	54,59
Leadership	69,41	0,84	61,71	0,95	58,53
Knowledge*	69,12	0,81	82,12	0,68	55,85
Engagement Services	66,29	1,03	46,15	1,48	68,35
Network*	60,85	0,88	75,88	0,70	53,41
Angel Investor	59,56	0,74	62,47	0,70	44,03
Worker Talent	57,29	0,85	75,85	0,64	48,74
Intermediaries	47,68	1,07	60,03	0,85	50,82
Crowdfunding	41,15	1,27	49,82	1,05	52,24
Networking Services	40,97	1,22	54,03	0,92	49,97
Professional Services	38,82	1,37	60,24	0,88	53,29
Venture Capital	32,91	1,09	68,41	0,52	35,76
Corp. Venture Capital	17,35	1,22	40,15	0,53	21,09
Bank loans	13,68	2,21	29,26	1,03	30,18

(\* most important factors overall)

Therefore, a set of relativity ratios are calculated by dividing each element's availability mean values with the mean values of perceived importance (see above table). These ratios show which elements have highest discrepancy between these average levels. In other words, higher the importance relative to the level of availability suggest how well the element performs compared to its position. The lowest ratios would refer to impeding tendencies of the elements in constraining the development processes occurring in the ecosystem. For instance, in the discovery stage, ratios of entrepreneurial talent and informal loans are 0,61 and 0,55 respectively, indicating that the two most important elements in that stage have relatively low levels of availability compared to their position of influence. As these elements are fundamental in their nature, their corresponding levels are a serious indication of development constraints in the ecosystem and its inherent weaknesses. Less drastic, but comparable signs can be seen with other essential elements of bootstrapping (0,76), leadership (0,84), knowledge (0,81) and network (0,88). Engagement services is the only element (1,03) that has a balanced level of relative abundance compared to its role, stating that this is a valid measure of strength of the local ecosystem.

Likewise, in the validation stage, entrepreneurial talent and venture capital show lowest ratios, 0,59 and 0,52 respectively, thus indicating their restrictive propensities towards venture development. Also, elements of knowledge (0,68), network (0,70), worker talent (0,64) and angel investors (0,70) play their relative constraining role in determining the success of the ecosystem. Furthermore, leadership (0,95), bootstrapping (0,89), professional services (0,88) and intermediaries (0,85) as being important elements are quite close to the balanced level and thus indicating their slight strength towards the validation processes. All other excluded elements of bank loans, corporate venture capital, crowdfunding and networking services in both stages are much less important in their overall status, so their ratios are ineligible and cannot be included.

In addition to, both of the stage ratios would be taken into account to detect which of the elements can be positioned as ecosystem strengths and weaknesses. Thus, it is necessary to find a median cut-off ratio for benchmarking purposes in both stages. In this case, a median ratio value of 0,80 is specified as the line from which above results are considered as potential strengths and below as potential weaknesses. Only the elements with above 60-point levels of importance are involved.

In summary, preliminary results show that the elements representing local entrepreneurial ecosystem's relative strengths are 1) engagement services, 2) professional services, 3) intermediaries, 4) leadership, 5) bootstrapping, and elements representing relative weaknesses are 1) entrepreneurial talent, 2) informal loans, 3) angel investors, 4) knowledge, 5) worker talent, 6) network, 7) venture capital.

#### ***4.1.2 Startup Profile***

The Estonian-founded born global startups are described in order to demonstrate which are the main features and qualities unique to the local entrepreneurial ecosystem. These results are based on independent variables and their group division using percentages to get a more detailed view of the resident composition. Hence, Estonian startups can be described as follows:

- firms that are considered as being startups with born global potential are not more than 7 years old and their average age is 3 years and 5 months.
- current 35% of startups are older (4-7 years) and 65% are younger (1-3 years).

- average startup has 6,6 people working for them in Estonia and 2,75 employees working from abroad.
- 70,6% startups have smaller teams ( $\leq 9$ ), whereas 29,4% startups have larger teams ( $\geq 10$ ).
- 52,9% of startups compose only from local Estonians, whereas 47,1% include foreign workforce in their teams.
- 52,9% of startups have only domestic ownership, while 47,1% involve foreign capital.
- startups with foreign capital, on average 79,1% is allocated to domestic origin, whereas 20,9% is foreign origin.
- 20,6% of startups belong solely to founders and key employees, while 79,4% include external investors.
- startups with external investor(s), on average 69,6% of ownership belongs to founders and key employees, while 30,4% belong to external investors.
- 23,5% of startups are in pre-revenue phase, and the rest of 76,5 earn revenues.
- 64,7% points have revenues less than €500 000 and 11,8% points between €500001-2000000.
- 26,9% of startups offer solely products, 53,9% solely services and 19,2% offer both.
- average startup's offer composes of 37% of products and 63% of services.
- 3,9% of startups invest only into M&S, while 96,1% invest into both.
- from the latter, on average startup invests 42% into M&S and 58% into R&D.
- 32,4% startups are M&S driven, while 67,6% are R&D driven.
- 55,9% of the startups see Estonia as a good base for the HQ as the rest 44,1% relocate(d). From the latter, 20,6% points plan to move abroad (UK, US, CHN, GER) and 23,5% points have already moved/established abroad (UK, US, SGP).
- the main motives to stay in Estonia: 1) no special circumstances to move, 2) key team members live in Estonia, 3) too early to think about moving, 4) business can be handled remotely without relocating, 5) Estonia is in EU.
- the main motives to relocate: 1) investments and funding opportunities, 2) to service the target market, 3) market size leverage.
- 19,2% startups receive all of their revenue from the domestic market, 19,2% sell only in export markets, and 61,6% include export revenues along with local sales.

- from the latter, on average 37,1% revenue is received from domestic market and 62,9% is received by exporting.
- 47,1% of startups have high export orientation and 52,9% have low.
- 38,5% of startups sell only on the regional market (EU), whereas 61,5% include other economic regions.
- average startup receives 45,3% of export revenues from EU (except Estonia), 35,9% from North-America, 6,9% from Asia, 3,9% from South- and Central-America, 3,8% from Middle East, 3,6% from Australia, NZ and Oceania, and 1,6% from Africa.
- on average, 17,7% of startup have not commenced international activities, whereas 82,4% have.
- from the latter, 55,9% points have internationalized rapidly during 1<sup>st</sup> year, while 17,6% points after 1 year old, 5,9% points 2 years old and 2,9% points 3 years old.
- 67,7% startups have lower international commitment, while 32,3% have higher commitment.
- startups with international customers have 20,6 customers on average.

In summary, Estonian-founded startups can be characterized based on their group division and as the results show these potential born globals are quite heterogenous. This is a good indication that the quantitative analysis had less issues with collinearity.

## 4.2 Quantitative Results

In this section, the results from the t-test are shown to grasp the close relationships between the ecosystem elements to further support results uncovered in the general analysis. Secondly, entrepreneurial ecosystem elements in the preliminary stages and its availability and access levels are compared with the company profile variables.

### 4.2.1 Paired Samples T-test

According to the theory, there are many elements deemed to be important for the ecosystem to fulfil its obligations in developing new ventures. Hence, all systemic elements should be present for the entrepreneurial ecosystem to function properly. But, as some of the elements include subdivisions, not all of the sub-elements might not play significant role in the development processes.

To realize which elements and their subs are essential, each stage should be analysed using paired samples mean-comparison t-test.

Table 5 - Paired t-test Summary in the Discovery Stage.

#	Pairs (Discovery Stage)	Mean diff.	Std. Err.	Std. Dev.	t	Sign. (2==tail.)
1.	Entrepr. Talent == Informal Debt	9.52	5.06	29.50	1.88	0.068
2.	Informal Debt == Bootstrapping	7.50	6.51	38.00	1.15	0.258
3.	Bootstrapping == Leadership	2.32	6.35	37.03	0.36	0.716
4.	Leadership == Knowledge	0.29	6.71	39.16	0.04	0.965
5.	Knowledge == Engage. Serv.	2.82	5.77	33.64	0.48	0.627
6.	Engage. Serv. == Angel Investors	6.73	7.69	44.86	0.87	0.387
7.	Angel Investors == Network	-1.29	7.61	44.39	-0.17	0.866
8.	Network == Work. Talent	3.55	6.37	37.19	0.55	0.580
9.	Work. Talent == Intermediaries	9.61	6.49	37.86	1.48	0.148
10.	Intermediaries == Network. Serv.	6.70	5.98	34.88	1.12	0.270
11.	Network. Serv. == Crowdfunding	-0.17	5.84	34.07	-0.03	0.976
12.	Crowdfunding == Prof. Serv.	2.52	5.29	30.84	0.47	0.635
13.	Prof. Serv. == Venture Capital	5.70	5.45	31.83	1.04	0.303
14.	Vent. Capital == Corp. Vent. Cap.	15.55	4.03	23.53	3.85	0.000
15.	Vent. Capital == Formal Debt	19.23	4.71	27.47	4.08	0.000

In the discovery stage, the comparatively closest pairs are displayed including the upper and lower echelon variables with no close relationship to the main group (see table 5.). Most of the pairs show no statistical difference between their means, indicating close interconnected relationships among the variables, thus making all of them important for this stage. On the upper tail, paired result of Entrepreneurial Talent and Informal Debt is statistically different from each other at any level greater than 6,8% confirming that Entrepreneurial Talent is valued by far the most important element. On the other lower tail, Corporate Venture Capital and Formal Debt are statistically different from all other systemic elements on any level at all, which can be interpreted in a way that the absence of those variables doesn't influence the development processes in the discovery stage and hence they can be considered insignificant.

Table 6 - Paired t-test Summary in the Validation Stage.

#	Pairs (Validation Stage)	Mean diff.	Std. Err.	Std. Dev.	t	Sign. (2==tail.)
1.	Entrepr. Talent == Knowledge	9.08	3.01	17.56	3.01	0.005
2.	Knowledge == Work. Talent	6.26	4.25	24.81	1.47	0.150
3.	Work. Talent == Network	-0.02	4.82	28.14	-0.00	0.995
4.	Network == Vent. Capital	7.47	5.81	33.92	1.28	0.208
5.	Vent. Capital == Bootstrapping	6.73	7.37	43.00	0.91	0.367
6.	Bootstrapping == Leadership	-0.02	6.30	36.79	-0.00	0.996
7.	Leadership == Angel Investors	-0.76	4.86	28.34	-0.15	0.876
8.	Angel Investors == Intermediaries	2.44	5.43	31.67	0.44	0.656
9.	Intermediaries == Prof. Serv.	-0.20	5.71	33.30	-0.03	0.971
10.	Prof. Serv. == Informal Debt	6.61	6.19	36.12	1.06	0.293
11.	Informal Debt == Network. Serv.	-0.41	5.85	34.15	-0.07	0.944
12.	Network. Serv.== Crowdfunding	4.20	4.68	27.34	0.89	0.376
13.	Crowdfunding == Engage. Serv.	3.67	4.90	28.57	0.75	0.458
14.	Engage. Serv. == Corp. Vent. Cap.	6.00	6.89	40.22	0.86	0.390
15.	Corp. Vent. Cap. == Formal Debt	10.88	5.17	30.18	2.10	0.043

In the validation stage, the comparative closest pairs are displayed (see table 6.). Similarly, to the first phase, most of the pairs are interconnected and show no statistical difference between the means indicating their closer relations. On the one upper tail, paired result of Entrepreneurial Talent and Knowledge is statistically different from each other at any level greater than 0,5% confirming that Entrepreneurial Talent has gained importance in this stage and is still the most important element. On the lower tail, only Formal Debt element is statistically different from all other systemic elements at any level greater than 4,3%, considering it as an element with no significant value for the venture development in this phase.

Table 7 - Paired t-test Summary on Availability &amp; Access.

#	Pair (Availability & Access)	Mean diff.	Std. Err.	Std. Dev.	t	Sign. (2-tail.)
1.	Engage. Serv. == Leadership	9.82	3.87	22.57	2.53	0.016
2.	Leadership == Knowledge	2.67	5.21	30.39	0.51	0.611
3.	Knowledge == Bootstrapping	1.26	5.79	33.78	0.21	0.828
4.	Bootstrapping == Entrepr. Talent	0.47	5.55	32.38	0.08	0.933
5.	Entrepr. Talent == Network	0.70	5.19	30.28	0.13	0.892
6.	Network == Prof. Serv.	0.11	3.51	20.52	0.03	0.973

7.	Prof. Serv. == Crowdfunding	1.05	5.21	30.39	0.20	0.840
8.	Crowdfunding == Intermediaries	1.41	4.87	28.45	0.28	0.774
9.	Intermediaries == Network. Serv.	0.85	4.46	26.03	0.19	0.849
10.	Network. Serv. == Work. Talent	1.23	4.42	25.77	0.27	0.781
11.	Work. Talent == Angel Investors	4.70	4.43	25.86	1.06	0.296
12.	Angel Investors == Informal Debt	0.14	4.51	26.30	0.03	0.974
13.	Informal Debt == Vent. Capital	8.11	4.67	27.27	1.73	0.092
14.	Informal Debt == Formal Debt	13.70	5.95	34.74	2.30	0.027
15.	Informal Debt == Corp. Vent. Cap.	22.79	4.44	25.92	5.12	0.000

Moreover, the results about the availability and access to systemic elements is analysed (see table 7.). Most of the pairs show no statistical difference, indicating that the elements are balanced in similar levels according to their availability and access in the ecosystem. On the one upper tail, paired result of Engagement Services and Knowledge is statistically different from each other at any level greater than 1,6%, showing that the best performing element in the ecosystem is the Engagement Services. This confirms ecosystem's strength in this systemic condition and its valuable role in the discovery stage. On the lower tail, Venture Capital and Formal Debt are statistically different from all other systemic elements at any level greater than 9,2% and 2,7% respectively, suggesting that these elements are underperforming and are scarcely available. Also, Corporate Venture Capital is statistically different from all other systemic elements on any level at all, confirming its very insufficient level of availability and access.

In summary, as there is statistical difference between the ecosystem elements' mean values, their relationships become more observable. These results indicate that some of the elements are not just weaknesses but can be fundamentally less central or even irrelevant. Also, elements with higher mean similarities indicated closer relationships which could further reveal ecosystem dynamics.

#### ***4.2.2 Ordinary Least Squares***

As part of the regression analysis, firstly the partial correlation tables are presented to show levels of collinearity and highlight the statistical significance in three acceptable levels (see [Appendix 2](#). for Pearson correlation tables). Thereafter, the results from the OLS regression analysis are described for each of the systemic element (see [Appendix 3](#). for OLS output). The results are discussed in more detail in the next chapter where all the analysis results are integrated.

Table 8 - Discovery Stage Pearson Correlations. Ecosystem elements &amp; Firm Profile.

Discovery Stage	Age	Team Size	Team Allocation	Ownership Origin	Ownership Structure	Revenue	Firm Offer	Firm Focus	HQ Location	Export Orientation	Internationalization	International Commitment
13. Leadership	-0.192	0.290	0.028	0.129	-0.039	-0.004	-0.020	0.127	-0.151	-0.072	-0.093	0.077
14. Bootstrapping	-0.104	-0.020	-0.031	-0.017	-0.231	-0.1093	-0.0177	0.289	-0.079	0.041	-0.224	0.026
15. Formal Debt	0.211*	-0.102	0.134	-0.045	0.009	-0.370	-0.275	0.223*	0.082	-0.193	-0.068*	0.193
16. Informal Debt	0.135	0.109	0.322*	0.274	0.245	0.084	-0.269**	0.163*	0.357	-0.039	0.028	-0.160
17. Vent. Capital	0.298	-0.078	0.101	-0.164*	0.024	-0.310	-0.074	0.158	0.264	-0.328	0.070	-0.247
18. Angel Investors	0.190	-0.054	0.137	-0.028	0.136	-0.150	-0.229	0.004	0.115	-0.097	0.160	0.127
19. Corp. Vent. Cap.	0.080	0.055*	0.138	-0.023	0.167	-0.344	-0.031	0.106	0.311*	-0.550***	-0.063	-0.139*
20. Crowdfunding	0.010	0.318	0.077	0.249	0.337	0.054	-0.144	0.086	0.054	0.089	0.158	0.180
21. Entr. Talent	0.148	-0.187*	0.090	-0.024	0.088	-0.146	-0.178	-0.030	0.384	-0.017	0.157	-0.296
22. Work. Talent	0.387	-0.081	-0.109	-0.088	0.220	-0.214	-0.170	0.018	0.268	-0.209	-0.015	-0.177
23. Knowledge	-0.279	0.271	-0.052	-0.169**	0.005	0.104	0.071	-0.015	-0.170	0.020	0.101	0.207
24. Network	-0.078	0.084	-0.062	0.185	0.405	-0.036	-0.241	0.099	0.198	-0.015	-0.045	0.196
25. Prof. Ser.	-0.227	0.335	0.245	0.183	-0.025	0.055	-0.200	0.090	0.013	0.185	0.232	0.266
26. Intermediaries	0.173	-0.043	0.074	0.072	-0.037*	-0.092*	0.019	0.239	0.226**	-0.071	0.078	-0.047***
27. Network. Ser	-0.005	0.264	0.169	0.244	0.305	0.195**	0.131**	0.194	0.333**	0.107	0.037	-0.060*
28. Engage. Ser.	-0.219	0.159	-0.103*	0.271	0.205	0.304***	0.220**	-0.029	-0.108	0.173	0.290**	0.270*

Values are significant at \*\*\* $p < 0.01$ ; \*\*  $p < 0.05$ ; \* $p < 0.10$

Table 9 - Validation Stage Pearson Correlations. Ecosystem elements &amp; Firm Profile.

Validation Stage	Age	Team Size	Team Allocation	Ownership Origin	Ownership Structure	Revenue	Firm Offer	Firm Focus	HQ Location	Export Orientation	Internationalization	International Commitment
13. Leadership	0.013	-0.052	-0.397	-0.027	0.064	-0.093	0.004	0.030	-0.121	-0.194	-0.017	0.008
14. Bootstrapping	-0.254	0.293	-0.072	0.014	0.051	-0.026	0.017	0.068	-0.184	-0.044	-0.157	0.159
15. Formal Debt	0.237	-0.330*	-0.116	-0.172	-0.106	-0.186	-0.172*	0.249	-0.086	-0.227	-0.258	0.050
16. Informal Debt	0.031	0.109	0.403	0.254	0.350	0.060	-0.333	-0.197	0.503	0.073	0.148	-0.073
17. Vent. Capital	0.337**	-0.078	0.145	0.022	-0.026	-0.182	-0.188	0.192**	0.160	-0.020	0.132	-0.042
18. Angel Investors	0.217*	0.054*	-0.235	-0.223	0.058	-0.116	-0.213*	0.007	0.036	-0.466**	-0.207	-0.158
19. Corp. Vent. Cap.	-0.015	0.080	0.048	-0.070	-0.112	-0.180	-0.101	0.220	0.182	-0.250	0.005	-0.195
20. Crowdfunding	-0.224	0.416	0.143	0.357	0.447	0.108	-0.413	-0.217	0.265	0.362	0.360	0.314
21. Entr. Talent	-0.150	0.080	0.071	0.087	0.022	-0.045	0.084	0.208	0.078	0.014	0.147	-0.074
22. Work. Talent	0.195	0.013	-0.051	-0.096	0.003	-0.216	-0.202	0.146	0.187	-0.160	-0.014	-0.075
23. Knowledge	0.078	-0.167	-0.138	-0.286**	-0.188	-0.184	0.143**	-0.100	-0.177	-0.147	-0.070	0.128*
24. Network	0.109	-0.185	-0.073	-0.025	0.153	-0.101	-0.114	0.072	0.159	-0.116	-0.182	-0.055
25. Prof. Ser.	0.004	-0.000	0.022	0.029	0.032	0.008	-0.019***	0.483***	-0.092	-0.211*	-0.111	-0.014
26. Intermediaries	0.143	-0.063	0.007	-0.148**	0.128	0.078	-0.146	-0.156	0.134**	0.021	0.289	0.088**
27. Network. Ser	-0.029	-0.104	-0.056**	0.196	0.299	0.068	0.070*	0.177	0.287**	0.096	0.019	0.010
28. Engage. Ser.	-0.162	0.202	-0.142	0.092	0.084	-0.009	-0.053	-0.271**	-0.027	-0.078	-0.115	0.172

Values are significant at \*\*\* $p < 0.01$ ; \*\*  $p < 0.05$ ; \* $p < 0.10$

Table 10 - Availability &amp; Access Pearson Correlations. Ecosystem elements &amp; Firm Profile.

Availability & Access	Age	Team Size	Team Allocation	Ownership Origin	Ownership Structure	Revenue	Firm Offer	Firm Focus	HQ Location	Export Orientation	Internationalization	International Commitment
13. Leadership	-0.227	0.330**	-0.444**	-0.023	0.157	0.023	-0.038	0.317**	-0.316	-0.013	-0.373	0.257
14. Bootstrapping	-0.183	0.038	-0.301	0.133	0.171	-0.009	0.085	-0.053	-0.297	0.098	-0.342**	0.366
15. Formal Debt	0.061	-0.268	-0.313	-0.056	0.114	-0.078	-0.040	0.016	-0.103	-0.261	-0.214	0.154
16. Informal Debt	-0.030	0.084	0.004	-0.095	0.054	-0.152*	-0.180*	-0.075	0.249	-0.248	-0.228	-0.303
17. Vent. Capital	0.125	0.058	-0.253	-0.195	-0.221	-0.192	-0.127**	0.004	-0.275	-0.361	-0.068	-0.024
18. Angel Investors	0.108	0.156	-0.125	-0.106	0.050	-0.063	-0.245***	0.000	-0.032	-0.297*	-0.068	-0.158
19. Corp. Vent. Cap.	0.116	-0.085	0.194	-0.062	-0.001	-0.323	-0.005	0.080	0.183	-0.459*	-0.145*	-0.186
20. Crowdfunding	0.163	0.112	0.082	0.099	0.415	0.0025	-0.224	-0.003	0.280*	0.000	0.042	0.070*
21. Entr. Talent	-0.052	0.019	0.161	-0.121	-0.019	-0.007*	-0.044	0.205	-0.002	-0.288***	-0.236	0.080**
22. Work. Talent	-0.201	0.300	-0.189	-0.062	0.227*	0.122	-0.027	0.146	-0.038	-0.244**	-0.240	-0.056
23. Knowledge	0.262	-0.077	0.056	-0.322*	0.120	-0.207	0.047	0.010	0.070	-0.419	-0.076	-0.221
24. Network	0.306	-0.075	0.032	0.044	0.249	-0.221	-0.092	-0.037	0.033	-0.292	0.196	0.006
25. Prof. Ser.	0.232	-0.129	-0.264	-0.143	0.035	0.0101	0.227	0.113	-0.275*	-0.318	-0.084	-0.124
26. Intermediaries	0.230	-0.039	-0.038	0.028	-0.059	-0.180	-0.063	0.058	0.023	-0.235	-0.035	-0.050
27. Network. Ser	0.173	0.024	-0.047	0.041	0.092	-0.194	0.075	0.137	-0.153	-0.176	0.096	0.185
28. Engage. Ser.	-0.018	0.175	-0.096	0.185	0.378	-0.045	0.038	-0.008	-0.049	0.036	0.060	0.200

Values are significant at \*\*\* $p < 0.01$ ; \*\*  $p < 0.05$ ; \* $p < 0.1$

Next, the results from the OLS analysis are listed. As there were 16 dependent variables and each one had 3 sets, all together 48 equations were generated to see how different groups of Estonian-founded startups perceive their surrounding community.

Table 11 - Results from the OLS regression

<b>Dependent variables</b>	<b>Results – Group Differences</b>
<b>Leadership</b>	<p>∅ startups with larger teams perceive higher availability levels of leadership in Estonian ecosystem compared to startups with smaller teams (p&lt;.05).</p> <p>∅ startups with global teams perceive lower availability levels of leadership in Estonian ecosystem compared to startups with local teams (p&lt;.05).</p> <p>∅ startups that mainly invest into R&amp;D perceive higher availability levels of leadership in Estonian ecosystem compared to startups that mainly invest into marketing and sales (p&lt;.05).</p>
<b>Bootstrapping</b>	<p>∅ startups with rapid internationalization perceive lower availability and access to bootstrapping in Estonian ecosystem compared to startups with slow internationalization (p&lt;.05).</p>
<b>Bank Loans</b>	<p>∅ in the discovery stage, startups that are younger value the role of bank loans more compared to startups that are older (p&lt;.10).</p> <p>∅ in the discovery stage, startups that mainly invest into R&amp;D value the role of bank loans more compared to startups that mainly invest into M&amp;S (p&lt;.10).</p> <p>∅ in the discovery stage, startups with rapid internationalization value the role of bank loans less compared to startups slower internationalization (p&lt;.10).</p> <p>∅ in the validation stage, startups with larger teams value the role of bank loans less compared to startups with smaller teams (p&lt;.10).</p> <p>∅ in the validation stage, startups that mainly offer services value the role of bank loans less compared to startups that mainly offer products (p&lt;.10).</p>
<b>Informal Loans</b>	<p>∅ in the discovery stage, startups with global teams value the role of informal loans more compared to startups with local teams (p&lt;.10).</p> <p>∅ in the discovery stage, startups that mainly offer services value the role of informal loans less compared to startups that mainly offer products (p&lt;.05).</p> <p>∅ in the discovery stage, startups that mainly invest into R&amp;D value the role of informal loans more compared to startups that mainly invest into M&amp;S (p&lt;.10).</p> <p>∅ startups with revenue streams perceive lower availability and access to informal loans in Estonian ecosystem compared to startups with pre-revenue status (p&lt;.10).</p> <p>∅ startups that mainly offer services perceive lower availability and access to informal loans in Estonian ecosystem compared to startups that mainly offer products (p&lt;.10).</p>

<b>Venture Capital</b>	<p>∅ in the discovery stage, startups that include foreign co-owners value the role of venture capital less compared to startups that include only Estonian owners (p&lt;.10).</p> <p>∅ in the validation stage, startups that are younger value the role of venture capital more compared to startups that are older (p&lt;.05).</p> <p>∅ in the validation stage, startups that mainly invest into R&amp;D value the role of venture capital more compared to startups that mainly invest into M&amp;S (p&lt;.05).</p> <p>∅ startups that mainly offer services perceive lower availability and access to venture capital in Estonian ecosystem compared to startups that mainly offer products (p&lt;.05).</p>
<b>Angel Investors</b>	<p>∅ in the validation stage, startups that are younger value the role of angel investors more compared to startups that are older (p&lt;.10).</p> <p>∅ in the validation stage, startups with larger teams value the role of angel investors more compared to startups with smaller teams (p&lt;.10).</p> <p>∅ in the validation stage, startups that mainly offer services value the role of angel investors less compared to startups that mainly offer products (p&lt;.10).</p> <p>∅ in the validation stage, startups that have high levels of export activity value the role of angel investors less compared to startups that have low levels of export activity (p&lt;.05).</p> <p>∅ startups that mainly offer services perceive lower availability and access to angel investors in Estonian ecosystem compared to startups that mainly offer products (p&lt;.01).</p> <p>∅ startups that have high levels of export activity perceive lower availability and access to angel investors in Estonian ecosystem compared to startups that have low levels of export activity (p&lt;.10).</p>
<b>Corporate Venture Capital</b>	<p>∅ in the discovery stage, startups with larger teams value the role of corp. venture capital more compared to startups with smaller teams (p&lt;.10).</p> <p>∅ in the discovery stage, startups that plan to move abroad or have already moved/established abroad value the role of corp. venture capital more compared to startups that stay home (p&lt;.10).</p> <p>∅ in the discovery stage, startups that have high levels of export activity value the role of corp. venture capital less compared to startups that have low levels of export activity (p&lt;.01).</p> <p>∅ in the discovery stage, startups that have higher levels (<math>\geq 10</math>) of international customers/operations value the role of corp. venture capital more compared to startups that have lower levels (<math>\leq 9</math>) of international customers/operations (p&lt;.10).</p> <p>∅ startups that have high levels of export activity perceive lower availability and access to corp. venture capital in Estonian ecosystem compared to startups that have low levels of export activity (p&lt;.10).</p>

	<p>∅ startups with rapid internationalization perceive lower availability and access to corp. venture capital in Estonian ecosystem compared to startups with slow internationalization (<math>p &lt; .05</math>).</p>
<b>Crowdfunding</b>	<p>∅ startups that plan to move abroad or have already moved/established abroad perceive higher availability and access to crowdfunding in Estonian ecosystem compared to startups that stay home (<math>p &lt; .10</math>).</p> <p>∅ startups that have higher levels (<math>\geq 10</math>) of international customers/operations perceive higher availability and access to crowdfunding in Estonian ecosystem compared to startups that have lower levels (<math>\leq 9</math>) of international customers/operations (<math>p &lt; .10</math>).</p>
<b>Entrepreneurial Talent</b>	<p>∅ in the discovery stage, startups with larger teams value the role of entrepreneurial talent less compared to startups with smaller teams (<math>p &lt; .10</math>).</p> <p>∅ startups with revenue streams perceive higher availability and access to entrepreneurial talent in Estonian ecosystem compared to startups with pre-revenue status (<math>p &lt; .10</math>).</p> <p>∅ startups that have high levels of export activity perceive lower availability and access to entrepreneurial talent in Estonian ecosystem compared to startups that have low levels of export activity (<math>p &lt; .01</math>).</p> <p>∅ startups that have higher levels (<math>\geq 10</math>) of international customers/operations perceive higher availability and access to entrepreneurial talent in Estonian ecosystem compared to startups that have lower levels (<math>\leq 9</math>) of international customers/operations (<math>p &lt; .05</math>).</p>
<b>Worker Talent</b>	<p>∅ startups that include external investors perceive higher availability and access to worker talent in Estonian ecosystem compared to startups that belong to the founders and employees (<math>p &lt; .10</math>).</p> <p>∅ startups that have high levels of export activity perceive lower availability and access to worker talent in Estonian ecosystem compared to startups that have low levels of export activity (<math>p &lt; .05</math>).</p>
<b>Knowledge</b>	<p>∅ in the discovery stage, startups that include foreign co-owners value the role of knowledge less compared to startups that include only Estonian owners (<math>p &lt; .05</math>).</p> <p>∅ in the validation stage, startups that include foreign co-owners value the role of knowledge less compared to startups that include only Estonian owners (<math>p &lt; .05</math>).</p> <p>∅ in the validation stage, startups that mainly offer services value the role of knowledge more compared to startups that mainly offer products (<math>p &lt; .05</math>).</p> <p>∅ in the validation stage, startups that have higher levels (<math>\geq 10</math>) of international customers/operations value the role of knowledge more compared to startups that have lower levels (<math>\leq 9</math>) of international customers/operations (<math>p &lt; .10</math>).</p>

	<p>Ø startups that include foreign co-owners perceive lower availability and access to knowledge in Estonian ecosystem compared to startups that include only Estonian owners (p&lt;.10).</p>
<b>Network</b>	-
<b>Professional Services</b>	<p>Ø in the validation stage, startups that mainly offer services value the role of professional services less compared to startups that mainly offer products (p&lt;.01).</p> <p>Ø in the validation stage, startups that mainly invest into R&amp;D value the role of professional services more compared to startups that mainly invest into M&amp;S (p&lt;.01).</p> <p>Ø in the validation stage, startups that have high levels of export activity value the role of professional services less compared to startups that have low levels of export activity (p&lt;.10).</p> <p>Ø startups that plan to move abroad or have already moved/established abroad perceive lower availability and access to professional services in Estonian ecosystem compared to startups that stay home (p&lt;.10).</p>
<b>Intermediaries</b>	<p>Ø in the discovery stage, startups that include external investors value the role of intermediaries less compared to startups that belong to the founders and employees (p&lt;.10).</p> <p>Ø in the discovery stage, startups with revenue streams value the role of intermediaries more compared to startups with pre-revenue status (p&lt;.10).</p> <p>Ø in the discovery stage, startups that plan to move abroad or have already moved/established abroad value the role of intermediaries more compared to startups that stay home (p&lt;.05).</p> <p>Ø in the discovery stage, startups that have higher levels (<math>\geq 10</math>) of international customers/operations value the role of intermediaries more compared to startups that have lower levels (<math>\leq 9</math>) of international customers/operations (p&lt;.01).</p> <p>Ø in the validation stage, startups that include foreign co-owners value the role of intermediaries less compared to startups that include only Estonian owners (p&lt;.05).</p> <p>Ø in the validation stage, startups that plan to move abroad or have already moved/established abroad value the role of intermediaries more compared to startups that stay home (p&lt;.05).</p> <p>Ø in the validation stage, startups that have higher levels (<math>\geq 10</math>) of international customers/operations value the role of intermediaries more compared to startups that have lower levels (<math>\leq 9</math>) of international customers/operations (p&lt;.05).</p>
<b>Networking Services</b>	<p>Ø in the discovery stage, startups with revenue streams value the role of networking services more compared to startups with pre-revenue status (p&lt;.05).</p> <p>Ø in the discovery stage, startups that mainly offer services value the role of networking services more compared to startups that mainly offer products (p&lt;.05).</p>

	<p>∅ in the discovery stage, startups that plan to move abroad or have already moved/established abroad value the role of networking services more compared to startups that stay home (<math>p &lt; .05</math>).</p> <p>∅ in the discovery stage, startups that have higher levels (<math>\geq 10</math>) of international customers/operations value the role of networking services more compared to startups that have lower levels (<math>\leq 9</math>) of international customers/operations (<math>p &lt; .10</math>).</p> <p>∅ in the validation stage, startups with global teams value the role of networking services less compared to startups with local teams (<math>p &lt; .05</math>).</p> <p>∅ in the validation stage, startups that mainly offer services value the role of networking services more compared to startups that mainly offer products (<math>p &lt; .10</math>).</p> <p>∅ in the validation stage, startups that plan to move abroad or have already moved/established abroad value the role of networking services more compared to startups that stay home (<math>p &lt; .05</math>).</p>
<p><b>Engagement Services</b></p>	<p>∅ in the discovery stage, startups with global teams value the role of engagement services less compared to startups with local teams (<math>p &lt; .10</math>).</p> <p>∅ in the discovery stage, startups with revenue streams value the role of engagement services more compared to startups with pre-revenue status (<math>p &lt; .01</math>).</p> <p>∅ in the discovery stage, startups that mainly offer services value the role of engagement services more compared to startups that mainly offer products (<math>p &lt; .05</math>).</p> <p>∅ in the discovery stage, startups with rapid internationalization value the role of engagement services more compared to startups with slow internationalization (<math>p &lt; .05</math>).</p> <p>∅ in the discovery stage, startups that have higher levels (<math>\geq 10</math>) of international customers/operations value the role of engagement services more compared to startups that have lower levels (<math>\leq 9</math>) of international customers/operations (<math>p &lt; .10</math>).</p> <p>∅ in the validation stage, startups that mainly invest into R&amp;D value the role of engagement services less compared to startups that mainly invest into M&amp;S (<math>p &lt; .05</math>).</p>

In summary, there are 67 differences in total among startup groups from which 33 on a 10% level, 27 on a 5% level and 7 on a 1% level of statistical significance. These differences accounted for about 11% out of all possible differences. This indicates that in about 89% of the occasions Estonian-founded startups perceive the local entrepreneurial ecosystem similarly. Hence, it further designates high level of validity of all of the analytical results integrated and elaborated in the next chapter.

## 5 DISCUSSION

In this chapter, all of the results and observations from the general and statistical analysis are united to prepare an integrated overview of each of the systemic element. This convergence allows the author to better argue over the fundamentals of the systemic element and its consecutive results.

### 5.1 Leadership

Entrepreneurial leaders are influential individuals who share their experience in discovering and exploiting opportunities for value creation with their community and indirectly with the rest of the world. Following the analysis focusing on the discovery stage, leadership (69,41; 4<sup>th</sup>) plays an important role in motivating others to pursue start-up initiatives. To become an entrepreneur, local motivation from role models is important to show that entrepreneurship is not an unreachable path to take. Leadership's importance to the local ecosystem is verified by the t-test, placing it between the elements of bootstrapping and knowledge. This is an indication that leadership has a motivational effect towards the entrepreneurs to bootstrap their business. Also, it is important to have sufficient knowledge to start a business and how to develop it further. According to the regression analysis, there are no differences among the groups.

Furthermore, in the validation stage, leadership's (61,71; 7<sup>th</sup>) importance deteriorates. It is still quite influential in helping startups to grow and validate their business models. This relevance points out that the value proposition of the leadership element has changed from not just being trail-blazers and role models for the community, but can be directly associated with the startups' development (and fate) through mentoring services (intermediaries) and raising investments (e.g. VC & AI). Hence, it can be argued that leadership is not losing its value but partly transitions over to other elements. This is verified by the t-test, showing strong connection with AI and its relational proximity to VC and intermediaries. Regression analysis doesn't show any differences among startups.

Moreover, taking into account the availability level (58,53; 2<sup>nd</sup>) and relativity ratios (0,85; 0,95), leadership is well-available and shows good performance, thus can be considered as a strength of the local entrepreneurial ecosystem. According to the regression analysis there are some differences. Firstly, startups with larger teams perceive higher availability levels of leadership compared

to startups with smaller teams ( $p < .05$ ). This shows that companies that are more successful and have managed to expand have had a first-hand experience with local community leadership during their development. It can be based on the motivational aspects influencing entrepreneurs' choices or have received direct mentoring and financial capital to increase business and consequently hire more people.

Secondly, startups with global teams perceive lower availability levels of leadership compared to startups with local teams ( $p < .05$ ). This could be elaborated as follows: (1) companies that include only Estonians have more exposure to local leadership, (2) foreigners have less exposure as they work abroad, (3) foreigners are not aware as they don't have enough knowledge about nor contact with local leadership, (4) there are cultural differences towards leadership role, (5) information scarcity resulted from language barriers, and (6) comparison differences between local and foreign leadership.

Lastly, startups that mainly invest into R&D perceive higher availability levels of leadership compared to startups that mainly invest into M&S ( $p < .05$ ). It can be argued that R&D focused startups are more budget-smart and knowledge intensive, thus it is important to carefully consider each decision and benchmark it with other successful people (e.g. leaders). Also, motivation, experience and knowledge derived from community leaders help R&D intensive startups to stay in course during the development as their time-to-market takes usually longer.

## **5.2 Bootstrapping**

Financial capital is one of the key resources to help startups in their development. One of the options is bootstrapping and is defined as a creative way to acquire finances without approaching traditional sources (e.g. banks), and often encourages founders to develop firms with little or no assistance from external capital. Moreover, in the discovery stage, bootstrapping (71,74; 3<sup>rd</sup>) is perceived as one of the most essential elements of the Estonian startup ecosystem. This can be related to a set of reasons. Firstly, Estonian entrepreneurs have a tendency to be led by the "I can manage" attitude and can be further characterized as strong-willed or even somewhat stubborn. In a manner of speaking, this will of the mighty has its roots from Estonia's historical inheritance

from fighting with invaders. However, in the entrepreneurship context, bootstrapping has a negative effect by constraining successful development as entrepreneurs use their own resources, but it also has a positive effect, as it makes entrepreneurs more persistent and calculative.

Secondly, Estonian entrepreneurs are more risk-averse and tend not to accept external capital so easily, only when it is deemed essential. The reasoning behind could be that financial backing is bounded with irrational expectations for an asymmetrical equity stake. Thirdly, bootstrapping can be an outcome reflecting the lack of financial support in the local ecosystem. In other words, financial instruments targeting startups are underdeveloped (e.g. seed VC, banks), do not focus on discovery stage startups or founders as they lack the credibility in the eyes of the lenders/investors, thus making entrepreneurs to start their business as sparingly as possible.

Similarly, looking at the validation stage, bootstrapping has lost its influence (61,68; 8<sup>th</sup>), giving way to other financial sources (i.e. VC and AI). This is backed by the t-test, showing bootstrapping's strong connection to VC. Still, some entrepreneurs consider it as a reliable source for their startup development. As the needs for raising capital are becoming overwhelming, bootstrapping is not enough to quench that thirst, therefore, other more erudite entities should be included.

Furthermore, considering the level of availability and access (54,59; 4<sup>th</sup>) and relativity ratios (0,76; 0,89), bootstrapping has a strong presence in the local context and is seen as a suitable method to develop and grow ones' firm(s), thus representing value (and philosophy) for the local ecosystem. In addition to, regression analysis indicates that startups with rapid internationalization perceive lower availability and access to bootstrapping compared to startups with slow internationalization ( $p < .05$ ). This can be redefined in a way that startups which internationalize relatively late, after 1<sup>st</sup> year of establishment or never, are more bootstrap-intensive compared to startups that have reduced or avoided bootstrapping. This also reflects the quality of the business idea and management levels, explaining that startups with higher quality tend to follow their demand and internationalize during the 1<sup>st</sup> year of establishment.

Above all, taking into account its perceived availability level and performance ratios, it is an essential part of the Estonian startup community. Hence, it can be considered as an element of strength, but as more successful startups demonstrate, it also hinders growth and its haste.

### 5.3 Formal Debt

Another way to gain access to financial capital is to use formal sources like the banking system and other similar institutions. Analysis shows that, in the discovery stage, loans and credit from the banking system (13,68; 16<sup>th</sup>) are the least important element of them all, stating that formal loans are not an influential factor in the first phase. Also, t-test confirms that bank loans have no connection to other elements ( $p < .01$ ) and therefore, could be excluded as a factor of influence. This can be based on the assumption that banks target companies with proven track record and that can handle the collateral requirements.

Moreover, according to the regression analysis, there are some differences based on the company profile. Firstly, in the discovery stage, startups that are younger value the role of bank loans more compared to startups that are older ( $p < .10$ ). This implies that structural changes might have occurred in the last three years in the banking system, but more probable is that collateral requirement is satisfied by someone else (e.g. government funds, EU funds). Secondly, in the discovery stage, startups that mainly invest into R&D value the role of bank loans more compared to startups that mainly invest into M&S ( $p < .10$ ). This shows that R&D intensive firms have easier access to loans and credit, assuming partly because R&D could involve assets which could cover the collateral requirements or patents which could assure revenue flows. Thirdly, in the discovery stage, startups with rapid internationalization value the role of bank loans less compared to startups with slow internationalization ( $p < .10$ ). Startups that successfully internationalize during the 1<sup>st</sup> year of their lifespan don't find bank loans as an essential part of the discovery stage, probably because they don't have time to negotiate with informal lenders and try to meet their requirements, rather get the backing from somewhere else. Also, as these rapid growers need guidance, VC and AI suite better.

Furthermore, in the validation stage, loans and credit from formal lenders (29,26; 16<sup>th</sup>) are still regarded as the lowest in terms of importance. Its average assessment level has risen more than two-fold, but according to the t-test they are still regarded as disconnected ( $p < .05$ ). Likewise, discrepancies can be seen from the regression analysis. Firstly, in the validation stage, startups with larger teams value the role of bank loans less compared to startups with smaller teams ( $p < .10$ ). This shows that startups that are more successful and have managed to grow larger in size, have experienced no significant support from the formal lenders compared to smaller startups envisioning

that their growth would be bankrolled. Secondly, in the validation stage, startups that mainly offer services value the role of bank loans less compared to startups that mainly offer products ( $p < .10$ ). This refers to the possibility that product based startups could satisfy the requirements for collateral, but firms offering services are less able to do so. Hence, looking at the significance levels and group averages, it can be stated that formal lending is not essential for both of the growth phases.

Subsequently, as the perceived levels of importance of the formal debt are below average 60-point cut-off line, their relativity ratios are disregarded. Also, as seeing that the level of availability and access (30,18, 15<sup>th</sup>) is rated second lowest, it is quite certain that formal lending institutions, like the banking system, are not considered as a valuable element in the first stages nor is it considered available for startup development. This is verified by the t-test ( $p < .05$ ) and the regression analysis shows no significant difference between the groups, thus unanimously confirming insufficient levels of presence. Based on the above, formal debt can be disregarded as a fundamental element in launching and growing startups.

#### **5.4 Informal Debt**

As on opposite to the formal debt, there is the element of informal debt which stands for the capital raised and obtained from informal sources like family, friends, relatives and others in the community. Looking at the analysis, in the discovery stage, informal sources (79,24; 2<sup>nd</sup>) is a critical element and most important financial instrument for this phase. It shows that informal sources are an essential part of the ecosystem as it has much lower transaction fees with less bureaucracy and without formal collateral requirements. This is verified by the t-test showing strong connection to bootstrapping, suggesting that both of them are the main sources of capital in this first phase. Also, it displays strong relationship to the entrepreneurial talent, indicating that founders with good social skills and openness are more successful in their endeavours. This latter part is attested by the regression analysis that shows differences among groups.

Firstly, in the discovery stage, startups with global teams value the role of informal loans more compared to startups with local teams ( $p < .10$ ). It can be argued that startups with foreign team members are socially more adequate and open, thus displaying more transparency. Also, they are more likely to be governed by entrepreneurs who show strong social skills, invest into social capital

and are oriented towards trust-based relationships. Trusting others with different cultural background and counting on other team members positioned abroad enhances mutual respect and well-being of the team, thus making it more dynamic and successful. Hence, these startups are able to raise financial capital from informal sources relatively better than others.

Secondly, in the discovery stage, startups that mainly offer services value the role of informal loans less compared to startups that mainly offer products ( $p < .05$ ). It can be further argued that startups which are developing products include physical dimension to their business proposition. Therefore, they are able to raise capital from informal source as the product can be felt out and thus creating a perception of trust and visibility where the resources are going and what is the chance to get the loans repaid (with interest).

Thirdly, in the discovery stage, startups that mainly invest into R&D value the role of informal loans more compared to startups that mainly invest into M&S ( $p < .10$ ). It can be argued that as informal lending decisions are made faster, it smoothens out the bottlenecks and allows startups to focus on the central R&D processes by improving their products' time to market position. Also, R&D intensive firms usually involve assets (e.g. patents) that make informal lenders interested.

Furthermore, in the validation stage, the importance of informal loans (53,62; 12<sup>th</sup>) is strongly diminished. The main implication is that as the startups reach a certain level of growth, the higher interest, short-term lending horizon and smaller amounts would start to restrain the development. Therefore, it becomes too expensive and time consuming and are rather excluded as a main source of capital. But as the perceived level of importance is quite significant, for some startups it is still a way to raise financial capital. T-test shows informal loans element is directly connected to the professional and networking services, indicating that as startups are growing up and formally validate their value propositions, loans from informal sources become considerably more structured and official. However, regression analysis shows no significant difference between the groups indicating no irregularities and disagreement.

Moreover, considering the level of availability and access (43,88; 13<sup>th</sup>) and relativity ratios (0,55; 0,82), incorporating informal loans as a source of capital is relatively scarce in the Estonian startup scene. This shows that informal lenders are quite risk-averse and rather not directly invest into startups or there are not many that can afford it and command such readily available resources.

Also, there might be social issues stating that there are low levels of trust among people making them withhold their investments. Also, regression analysis shows different opinions within groups.

Firstly, startups with revenue streams perceive lower availability and access to informal loans compared to startups with pre-revenue status ( $p < .10$ ). It can be argued that startups with pre-revenue status have experience in lending from informal sources and therefore, confirms it as a capital option for pre-revenue startups or the ones that cannot put out collateral. Secondly, startups that mainly offer services perceive lower availability and access to informal loans compared to startups that mainly offer products ( $p < .10$ ). This verifies the assumption in the discovery stage as startups which offer products have better access to informal sources, as lenders perceive products as less vague, tangible, traceable and instills confidence towards back payments compared to service developers.

As a conclusion, it can be stated that theoretically informal debt can be a good alternative to other methods of raising capital and help new venture to launch and validate their business proposals. But in practice, as it is the worst performing element in the discovery stage and its low level of perceived availability and access, it can be declared that informal debt represents a weakness of the Estonian entrepreneurial ecosystem.

## **5.5 Venture Capital**

Venture Capital (VC) is one of the formal equity modes of investment meaning that for their capital allocation they receive an equity stake in the focal startup. Also, VCs not just invest, they monitor processes, consult and help to improve startup's managerial processes, recruit the best talent, use their extensive networks to help startups to gain credibility, access to markets and VC's wide contact base. Resulting from the analysis, in the discovery stage, VC (32,91; 14<sup>th</sup>) is not an important source for capital neither it is considered influential in the first phase. This is in line with the results from bootstrapping and informal debt, as there is no strong availability of alternative sources (e.g. seed venture capital) in the local ecosystem. This is verified by the t-test showing VC as being the last element with connection to the main group, indicating some value for the startups. Also, it could be that VC do not target startups in this preliminary phase as the firms are not fully established and official to take them under consideration. Hence, the regression analysis shows difference among the ownership origin group stating that in the discovery stage, startups that include

foreign co-owners value the role of venture capital less compared to startups that include only Estonian owners ( $p < .10$ ). It can be argued that entrepreneurs see foreign co-owners and seed VC as substitutes, thus indicating that the input from the VC is similar to the one which a foreign co-owner holds. This further indicates that VC play a marginal role in this phase, if any.

Moreover, in the validation stage, VC (68,41; 5<sup>th</sup>) has grown into being quite indispensable for the startups. This shows that capital support combined with VCs' experiential knowledge and extended networks are essential in validating business propositions. T-test shows a strong relationship towards networks, thus reinforcing that claim. Also, VC is connected to bootstrapping and can be argued that as latter is still considered as an important (voluntary or not) source for startups, VC can behave similarly by taking over some of that responsibility and support entrepreneurs by advising and guiding them.

In addition to, regression analysis shows differences among groups. Firstly, in the validation stage, startups that are younger value the role of venture capital more compared to startups that are older ( $p < .05$ ). This is a strong indication that VC have become more important source for Estonian startups in recent years by opening up their funds. Also, it verifies that there have been structural changes in the ecosystem, stating that in the last three years, local startup community has raised its level of quality and thus gained interest from local and foreign VCs. This is a major validation step itself for the whole ecosystem to be acknowledged and credited by the VC community.

Secondly, in the validation stage, startups that mainly invest into R&D value the role of venture capital more compared to startups that mainly invest into M&S ( $p < .05$ ). It can be argued that R&D intensive startups require more smart capital and their preference to invest into firms that have much higher potential to be a billion-dollar company (a unicorn). R&D process model aligns well with the VC investment model as they not only take high-risks but they also enable continuous capital flows while ensuring its efficient use through control requirements. This is a good validation, showing that R&D insensitivity attracts more VC funding.

Above all, considering the level of availability and access (35,76, 14<sup>th</sup>) and relativity ratios (1,09; 0,52) it can be stated that the VC element is by far the worst performing element in the validation stage. Considering this faintness and VCs' role as the main source of capital in the second phase, it can be confirmed as a major weakness of the local entrepreneurial ecosystem. This is further

verified by the t-test, showing that the availability and access to VC is underperforming as it is weakly related to the other core elements ( $p < .10$ ).

Subsequently, regression analysis shows that startups which mainly offer services perceive lower availability and access to venture capital compared to startups that mainly offer products ( $p < .05$ ). In other words, startups that offer products are in a better position to get funded by the VCs compared to service firms. Similarly, to other financial entities, VCs value the physical dimension as it is more physical and the processes are also transparent and traceable, making it easier for them to follow up, monitor and give further advice.

## **5.6 Angel Investors**

Similar to VCs, angel investors (AI) can be a viable way to acquire much needed capital. AIs are called informal venture capital investors which represent a small network of high net worth individuals that risk only with their own finances while investing into new growth companies. From the discovery stage analysis, it can be seen that AI (59,56; 8<sup>th</sup>) has perceived as more important compared to VC, but still is positioned just below the above average cut-off point. But, looking at the t-test, it shows direct connection to other elements revealing it's still an influential element in the first phase indicating their involvement in seed capital investments. It could be argued that as AI's importance is closely correlated (coef. 0,49) with VC, indicating their similar behaviour, one might argue that AI is paving the way for VC access. It has a sound logic as startups that receive funding from of AI might be more eligible for funding from VC. Subsequently, there are no significant differences detected by the regression analysis indicating unanimity towards its influence.

In addition to, in the validation stage, the AI's (62,47; 6<sup>th</sup>) importance grows, positioning it just behind VC. This further affirms that AI is regarded as a similar financial instrument as VC, but as it doesn't rely on the same control mechanisms, it is less involved in validating the startup business proposition. According to the t-test, AI has a strongest connection with leadership element, thus it can be argued that in the validation stage, AI complements and takes over some of the tasks of the leadership element. This fortifies the argument of leadership's transformative capabilities.

In comparison to, looking at the regression analysis, there are some differences between groups. Firstly, in the validation stage, startups that are younger value the role of angel investors more

compared to startups that are older ( $p < .10$ ). Similar to VC, this can be interpreted in a sense that in the recent years there have been structural changes in the local ecosystem, whereas younger startups have considered to receive help from the AIs. Also, it could be that local AI element is becoming more active in the recent years and showing its growing role in the system.

Secondly, in the validation stage, startups with larger teams value the role of angel investors more compared to startups with smaller teams ( $p < .10$ ). This indicates that AI's play an important role in developing more successful startup that have managed to grow larger. Thirdly, in the validation stage, startups that mainly offer services value the role of angel investors less compared to startups that mainly offer products ( $p < .10$ ). Similar to VCs, it can be argued that AIs are more interested in startups offering products, because products include more tangible dimensions in times of high-risk-high-reward conditions and, in a sense, feel "safer" as progress is more transparent. Fourthly, in the validation stage, startups that have high levels of export activity value the role of angel investors less compared to startups that have low levels of export activity ( $p < .05$ ). In other words, startups that already have strong revenue flows are less receptive to use AI investments and become supported by them. Probably because revenue streams are comparable to what AIs could offer. Also, as exporters already gain new knowledge through the exporting process, AIs might not seem giving any new significant value for the startup.

Furthermore, looking at the level of availability and access (44,03; 12th) and relativity ratios (0,74; 0,70) it can be said that element of the AI is underperforming. It can be argued that as AI plays role in both stages, it can easily be turned from weakness to strength by motivating others to join AI movements. This closeness to the relative healthy levels are verified by the t-test. Moreover, regression analysis shows differences between groups. Firstly, startups that mainly offer services perceive lower availability and access to angel investors compared to startups that mainly offer products ( $p < .01$ ). This further enforces the argument that in the first phase as AIs are more interested in startups that offer products with tangible dimension. Secondly, startups that have high levels of export activity perceive lower availability and access to angel investors compared to startups that have low levels of export activity ( $p < .10$ ). This also shows that export intensive startups do not only see less value in the AIs, but also vice-versa, the AI's are relatively unavailable for those startups indicating that AIs don't target them.

However, AI can be considered as an influential element in both of the stages and plays a complementary role to VC, but lesser in scale. Also, AI complements leadership and takes over some of its responsibility and together with VC leads the startup financing during the validation stage. Based on those characteristics, it can be argued that AI is an intermediary that somewhat softens the startup's financial risks from one stage to the other. Unfortunately, as it is underperforming in both, it is considered as a borderline weakness for the local ecosystem.

## 5.7 Corporate Venture Capital

Corporate Venture Capital (CVC) is another way to require capital. CVC differs from VC in a sense that its capital investment plans have long time horizons. They similarly look for high returns, but are guided by the corporate strategies and financial objectives. Analysis shows that, in the discovery stage, CVC (17,35; 15<sup>th</sup>) is the second least important element, giving the impression that it's not an influential element at all in this stage. Also, t-test confirms that CVC have no connection to other elements ( $p < .01$ ) and should be excluded.

Moreover, from the regression analysis, differences can be detected. Firstly, in the discovery stage, startups with larger teams value the role of corp. venture capital more compared to startups with smaller teams ( $p < .10$ ). This shows that startups which have successfully grown could see benefits from the CVC or shows some experience with CVC backing. Secondly, in the discovery stage, startups that plan to move abroad or have already moved/established abroad value the role of corp. venture capital more compared to startups that stay home ( $p < .10$ ). This indicates that internationally minded startups perceive CVC as an important alternative to other sources. Also, startups that have moved or established abroad are more exposed to CVC opportunities and thus could value CVC more.

Thirdly, in the discovery stage, startups that have high levels of export activity value the role of corp. venture capital less compared to startups that have low levels of export activity ( $p < .01$ ). As with other sources of formal equity (VC and AI), startups with strong export sales are financially stable and more independent, so it would be contraindicated to include another equity owner. In more detail, as CVC (and VC/AI) could offer investments and advisory services to startups, then for firms which have strong export revenue streams and use learning-by-doing, the value is already neutralized, excluding the co-ownership benefits that lead to dividends and control over decisions.

Fourthly, in the discovery stage, startups that have higher levels ( $\geq 10$ ) of international customers/operations value the role of corp. venture capital more compared to startups that have lower levels ( $\leq 9$ ) of international customers/operations ( $p < .10$ ). It could be argued that in the first phase, CVC can take startups under their wing and become as a platform ecosystem which nurtures and facilitates startups' launch and growth processes, and further support their international activities.

In addition to, in the validation stage, the level of importance of CVC (40,15; 15<sup>th</sup>) has grown, but it is still second lowest. Based on the t-test, it can be seen that CVC has a strong relationship with other elements, indicating that the element has some properties that would be beneficial for startup in its validation processes, but it's still viewed as relatively less important source for financial capital. According to the regression analysis, there are now significant differences between groups.

Furthermore, as CVC averages in both stages are below 60-point cut-off line, its relativity ratios are disregarded. Also, seeing that the level of availability and access (21,09; 16<sup>th</sup>) is the lowest in the ecosystem, it is quite certain that CVC is not considered as a valuable element in the preliminary stages nor is it considered well-available in the local context. This is further verified by the t-test ( $p < .01$ ) showing no relationship to other elements.

However, according to the regression analysis there are some differences between the groups. Firstly, startups that have high levels of export activity perceive lower availability and access to corp. venture capital compared to startups that have low levels of export activity ( $p < .10$ ). This also verifies the above statement that export intensive startups do not just only see less value in the CVC, but also vice-versa, the CVC is relatively unavailable for those startups showing that CVC don't target more established startups. Secondly, startups with rapid internationalization perceive lower availability and access to corp. venture capital compared to startups with slow internationalization ( $p < .05$ ). This could indicate that startups which internationalize rapidly during their 1<sup>st</sup> year are demand driven and do not need extra help from CVC, thus the lower availability assessment.

Therefore, on the one hand, showing insignificance in the discovery stage and its overall low level of availability and access, it can be disregarded as a fundamental element. But on the other hand, it gained importance in the validation stage indicating its unexploited potential as an alternative financial source. Hence, it can be concluded that the local ecosystem doesn't include many corporations which would be interested in such an opportunity leaving it as an untapped future potential.

## 5.8 Crowdfunding

Crowdfunding is the newest form of financial backing and refers to the efforts for entrepreneurs and founders to acquire funding for their ventures by drawing on relatively small contributions from a relatively large number of individuals using online marketplaces. Analysis shows that, in the discovery stage, crowdfunding (41,15; 11<sup>th</sup>) is not an important source for capital. It could be based on the fact that startups are still being launched and just bare concepts are hard to sell to a lot of potential investors to reach the funding target. Thus, the business proposition should be top-notch to attract large masses, but when it's the opposite, other sources are considered feasible. Also, as the early startups need monitoring and advisory services, not just the money, then crowdfunding would be the last option to consider. In addition, regression analysis didn't detect any differences between groups.

Moreover, in the validation stage, the level of the perceived importance of crowdfunding (49,82; 13<sup>th</sup>) raises, but the rank drops, showing that other elements are relatively more important. This is confirmed by the t-test. Same arguments are applicable as in the discovery stage stating that other sources are more suitable with more benefits for the startups. Also, regression analysis didn't detect any significant differences between groups.

Furthermore, as crowdfunding averages in both stages are below 60-point cut-off line their relative ratios are disregarded. Only the availability and access (52,24; 8<sup>th</sup>) shows decent results stating that there's a good level of availability and access. But taking into account the perceived importance in stages, crowdfunding is regarded as not fundamentally important element in the Estonian ecosystem. Also, according to the regression analysis, there are some differences between the groups. Firstly, startups that plan to move abroad or have already moved/established abroad perceive higher availability and access to crowdfunding compared to startups that stay home ( $p < .10$ ). This could indicate that internationally motivated startups are more open to the idea to acquire funding from newer alternative sources like crowdfunding. But also, these startups can see crowdfunding as a marketing tool which could benefit their relocation activities. Others, who already have established their startups abroad, base their judgement on a comparison effect between different ecosystems.

Secondly, startups that have higher levels ( $\geq 10$ ) of international customers/operations perceive higher availability and access to crowdfunding in Estonian ecosystem compared to startups that have lower levels ( $\leq 9$ ) of international customers/operations ( $p < .10$ ). Similar arguments can be used as above, as it could be used as a tool to promote and grow startup's client base and make oneself available to a wider public. But also, internationally minded startups are more eager to use such alternative services and might see other business specific values.

In conclusion, as crowdfunding is such a new phenomenon, it is understandable that the demand might have not yet detected it as an acceptable alternative, but it is a fact that the availability and access to such a capital supply is well-available and thus possesses a great potential in it.

## **5.9 Entrepreneurial Talent**

Entrepreneurial talent (e.g. founders) are a group of people with high cognitive skills and abilities which they use to make calculated decisions to exploit market opportunities. Analysis shows that entrepreneurial talent (88,76; 1<sup>st</sup>) is by far the most important element in the discovery stage. The main suggestion is that the fate of a startup is exclusively based on the decisions of such remarkable people. This talent generate ideas, builds teams, prototype and push it all forward. T-test shows a strong connection between informal debt, thus it can be argued that without the support (other than monetary) from friends, family and community, local entrepreneurs would not be better off. On the contrary, without the stability in the social aspects of life, entrepreneurs would not be able to focus on their goals. Also, approximate relationship to bootstrapping indicates that local entrepreneurs have strong drive and determination to make things happen, otherwise they wouldn't invest their time and money. As they say "where there's a will there's a way" or as Estonians say "over the rocks and stumps" everything is possible.

According to the regression analysis, in the discovery stage, startups with larger teams value the role of entrepreneurial talent less compared to startups with smaller teams ( $p < .10$ ). This could indicate that with larger team, the role of the entrepreneurial talent is somewhat diffused, which shows that there is more equality/democracy and less of "a cult of personality" involved. The latter hinders development, but former leads to a more balanced team dynamics and atmosphere. Also, it indicates that more successful startups are built by a type of entrepreneurs that willingly delegate their responsibilities and therefore early on unite competent and trustworthy people into a team.

Furthermore, in the validations stage, the role of the entrepreneurial talent (91,21; 1<sup>st</sup>) is still perceived as the most important element but with even higher above 90-point average. This is a solid perception that the entrepreneurial talent and founders bear responsibility towards validating their business proposition. Looking at the t-test, the strongest connections are with knowledge and worker talent elements. This could show that as the responsibilities, risks and business turbulence grows in the second phase, knowledge is the key factor to help entrepreneurs to make right decisions. Also, it is strongly supported by the growing role of the rest of the team members (i.e. worker talent) that help to navigate in these conditions. Regression analysis didn't detect any differences.

Moreover, looking at the level of availability (54,12; 5<sup>th</sup>) and relativity ratios (0,61; 0,59) it can be stated that even though it has a relatively high level of availability, entrepreneurial talent element is seriously underperforming. As it is the most important element in both of the stages it could be counted as the major weakness and impeding factor of progress for the whole Estonian startup ecosystem. It can be argued, that it is not as bad as it looks as the availability of entrepreneurial talent is generally regarded as one of the highest-ranking elements, but it doesn't show only the quantity of capable founders, it can also be considered as a proxy for quality (e.g. ideas, experience and skillsets). As Estonia has one of the highest levels of startups (i.e. entrepreneurs) per capita in the world, then the perceived availability level should be much higher (ignoring self-criticism). But it is not, thus it has to be some other dimension like the quality that matters. This can be further elaborated by the regression analysis.

Firstly, startups with revenue streams perceive higher availability of entrepreneurial talent compared to startups with pre-revenue status ( $p < .10$ ). In other words, startups with proven track record perceive better quality of local entrepreneurial talent. This is an indication that reaching revenue streams can be seen as a merit of the entrepreneurs' qualities, meaning that higher the quality of talent higher are the chances to achieve sales.

Secondly, startups that have high levels of export activity perceive lower availability of entrepreneurial talent compared to startups that have low levels of export activity ( $p < .01$ ). It can be argued that local entrepreneurs don't have enough qualities (e.g. experience) in export sales or there are not enough entrepreneurs available that have qualities to export (e.g. skillset, market knowledge). Another reasoning is that continuous export revenue streams don't depend so much on the entrepreneurs themselves rather on what the startups are offering. For example, startups find a new

export lead, entrepreneur builds the relationship, but how much the customer is worth in terms of revenue flow, is correlated to offers qualities (e.g. price, quality).

Thirdly, startups that have higher levels ( $\geq 10$ ) of international customers/operations perceive higher availability of entrepreneurial talent compared to startups that have lower levels ( $\leq 9$ ) of international customers/operations ( $p < .05$ ). It can be redefined in a way that entrepreneurial talent directly influences the amount of foreign customers/operation startup has. It can be argued that entrepreneurs have qualities (e.g. skillset) to build relationships and find new customers/operations, but this talent is there to create revenue opportunities not to engage in operational upkeep.

As a concluding remark, Estonia is a small country and due to the population size and labor shortages, not everybody can be a full-time entrepreneur as some have to maintain the other jobs. Also, it should be noted that 97% of the survey participants were founders of the companies, thus element's stage averages could be biased and slightly overstated in favor of the founder importance.

## 5.10 Worker Talent

Worker talent includes individuals that team up with entrepreneurs and use their expertise and know-how to help to launch and grow new ventures, while working side-by-side with founders. Drawing from the analysis, in the discovery stage, worker talent (57,29; 9<sup>th</sup>) didn't stand above the 60-point cut-off line referring to its slightly lower level of importance. Hence, it can be argued that it is less vital for the founder(s) to add employees to their team during first phase as most of the development tasks can be handled without them. Most often, startup founders handle core development processes themselves not to risk leaking out the proprietary assets and knowledge, and usually, until there isn't a formal juridical body or patent protection, non-owner employees are not yet incorporated. When these processes are completed, first talented key employees would be targeted largely from the founder(s) network. This is verified by the t-test showing close relation between worker talent and networks element. As the regression analysis, didn't detect any group differences, it can be stated that worker talent has only partial standing in this phase, thus the perceived level of importance.

Moreover, in the validation stage, the role of the worker talent (75,85; 4<sup>th</sup>) makes a strong move upwards. This is a valid indication that the newcomers start to take over some of the responsibility

delegated by the entrepreneurial talent. This dynamic process helps startups to effectively begin to validate their business proposition. Also, as the processes need continuous development, more appropriate worker talent would be headhunted to create a well-structured team with the right qualities (e.g. skillset, experience, knowledge). Employees are attracted from founders', key employees' and VCs' social and inter-organizational networks. The above relations can be confirmed by the t-test showing worker talent element's direct connection with knowledge and network elements, and approximate connection to entrepreneurial talent and VC elements. Regression analysis didn't detect any discrepancies among the group variables, thus indicating startups' unambiguous consent.

Furthermore, looking at the availability and access level (48,74; 11<sup>th</sup>) and relativity ratios (0,85; 0,64) it can be seen that the worker talent element is strongly underperforming in the validation stage. Also, as it didn't reach above the cut-off point in the first stage and presented one of the lowest relativity ratios in the second stage, it can be confirmed as a weakness of the local ecosystem, meaning that more people with certain skills are needed for the ecosystem to become more competitive.

According to the regression analysis there are some differences. Firstly, startups that include external investors perceive higher availability and access to worker talent compared to startups that belong to the founders and employees ( $p < .10$ ). It can be argued that startups which are owned by internal players are too blindsided by their own reflection, thus the perception of worker talent and necessary skills might be one-sided. In other words, skillset demand is too narrow to find appropriate employees from the talent pool or startups are just unwilling or unable to retrain potential candidates and hope to attract the perfect ones or poach them from competitors. Also, taking into account that external investors' (e.g. VC) extended networks which might be more competent and proficient in detecting potential candidates, in comparison to internal players' curtailed networks.

Secondly, startups that have high levels of export activity perceive lower availability and access to worker talent compared to startups that have low levels of export activity ( $p < .05$ ). Similar to entrepreneurial talent, it can be argued that export intensive startups are in short for worker talent with specific qualities (e.g. skillset, knowledge) or with not enough expected qualities (e.g. experience) to be suitable for the export positions. All of the above variations lead back to the same issue of not having enough working hands in the ecosystem that fit the profile.

## 5.11 Knowledge

Knowledge can be defined as information that changes the acquirer to become the source for action or by creating a capable organization to take action. This tacit knowledge includes individuals' experience and know-how regarding to its values, beliefs, attitudes, skills, competences. Looking at the analysis, in the discovery stage, knowledge (69,12; 5<sup>th</sup>) is one of the most important elements for entrepreneurs to accumulate information from through learning and thus recognizing business opportunities in the first place. Without the tacit knowledge and appropriate acquisition, there is no entrepreneur nor startup. Furthermore, t-test shows strong connections towards leadership and engagement services which could refer to the fact that as leadership plays a motivational role in the eyes of novice entrepreneurs, it also demonstrates how to develop learning skills and where to look for new knowledge. But also, leadership can be a source of knowledge in itself by leaving ideas as breadcrumbs to be followed. Another thing is the engagement service elements that unites closeminded people to implement ideas as a team and thus use collective approach to learn from each other and create new knowledge.

In addition, according to the regression analysis, in the discovery stage, startups that include foreign co-owners value the role of knowledge less compared to startups that include only Estonian owners ( $p < .05$ ). It can be argued that it is not about that the knowledge is unimportant, rather it shows some other qualities or different knowledge should also be valued. Considering that co-owners join because they hold some value for the startup that's not available locally, it could be argued that having great education is just not enough, something else is also needed (e.g. experience, networks). Also, it indicates that Estonian entrepreneurial ecosystem is knowledge driven but it is one-sided, valuing mostly scholastic knowledge. Of course, it is an important component, but just knowing things don't make them yet appropriate and valuable. Thus, Estonian entrepreneurs need to cherish other qualities as well, not just knowledge (i.e. diploma).

Moreover, in the validation stage, knowledge (82,12; 2<sup>nd</sup>) as an ingredient for a successful development is perceived second most important. This makes sense as the business proposition that is been validated is derived and transformed from certain knowledge. Looking at the t-test, knowledge element is directly connected to entrepreneurial and worker talent elements. Hence, it can be argued that team composition enables higher levels of learning and knowledge acquisition.

Also, approximate connection to networks and VC designates to the fact that internal knowledge would be complemented with other knowledge obtained from external sources. These internal and external dynamics would make the business proposition more vigorous and would be further validated in the second stage processes.

Accordingly, the regression analysis detects group differences. Firstly, in the validation stage, startups that include foreign co-owners value the role of knowledge less compared to startups that include only Estonian owners ( $p < .05$ ). This is the same reasoning that was applied in the first phase as there is a difference in perception, thus it should be taken as a serious indication how to balance different knowledge and other qualities to enable efficient value creation.

Secondly, in the validation stage, startups that mainly offer services value the role of knowledge more compared to startups that mainly offer products ( $p < .05$ ). This further indicates that different types of knowledge should be combined and other qualities valued to create a competent startup. As the perceived importance of knowledge is much higher in the second phase, it can be argued that service providers might need more mixed knowledge and other qualities to assess their demand and customize accordingly. Also, as their time-to-market is arguably shorter compared to product providers, all appropriate knowledge should be readily available to validate. It is important for the product startups to validate as well, but it can be argued that using one-type of knowledge is more common and as validation processes take longer, other knowledge don't have to be readily present.

Thirdly, in the validation stage, startups that have higher levels ( $\geq 10$ ) of international customers/operations value the role of knowledge more compared to startups that have lower levels ( $\leq 9$ ) of international customers/operations ( $p < .10$ ). This also shows that startups with more customers and operations have to use mixed knowledge and other qualities to find and retain new customers. Thus, it is not only about the primary knowledge type used while concepting the idea, but also other types of knowledge should be included to validate the business proposition.

Furthermore, looking at the availability and access level (55,85; 3<sup>rd</sup>) and relativity ratios (0,81; 0,68) it can be seen that knowledge is performing quite well in the first phase, but as its importance grows, the ratio drops, thus it has constraining effect in the second phase. As entrepreneurs assess its availability and access level as one of the best in the local ecosystem, it could be argued that it

can be simultaneously a strength and a weakness depending on the phase. According to the regression analysis, startups that include foreign co-owners perceive lower availability and access to knowledge compared to startups that include only Estonian owners ( $p < .10$ ). This further helps to understand why startups with foreign co-owners perceive difference in valuing knowledge in stages. Knowledge has a tendency to be geographically concentrated making local region to appreciate mostly a certain type of knowledge (and qualities) as principal. Thus, it could be argued that local entrepreneurs perceive mostly that specific type of knowledge as the primary source for value creation and make assessments based on those terms. Therefore, in this case, foreign co-owners see that other types of knowledge which are also essential for development, are suppressed.

In conclusion, taking into account the latter reasoning and logic that startups evolve between stages, other types of knowledge (and qualities) should be obtained to successful develop startups. On the one hand, knowledge has an overall positive perception in the local ecosystem and it performs well in the discovery stage, but on the other hand, perception might be biased and the element is already underperforming in the validation stage, it can be decided that knowledge element is a borderline weakness of the Estonian ecosystem. Borderline in a sense that it could be overturned into a strength by promoting other types of knowledge (and qualities) in already well-receptive system.

## **5.12 Networks**

Networks is a set of connections that entrepreneurs and other ecosystem participants use to cooperate by linking and sharing information, resources, activities, and capabilities. Networks can be entrepreneurs' social networks and startups' inter-organizational networks (e.g. partnerships). Looking at the analysis, in the discovery stage, networks (60,85; 7<sup>th</sup>) have above average level of importance for the development. This level of importance in the first stage suggest that the development processes don't require substantial amounts of resources, but rather appropriate levels of resources, information and certain capabilities to put together a potential business proposal. This is an indication that founders' social ties are the main source of interaction. This is in accordance with the theory stating that social networks lead to entrepreneurial activities and create prerequisites for startup development by providing initial resources. According to the t-test network element is strongly related to AIs and worker talent in the first phase, thus it can be argued that certain inter-organizational networks are becoming available to reinforce social networks. Thus, it can be

stated that the main responsibility is placed on the latter and less on the former ties. In particular, regression analysis didn't detect any group differences.

Moreover, in the validation stage, networks (75,88; 3<sup>rd</sup>) are becoming one of the most influential elements for the startup development. As ventures start to grow and innovate, more resources are needed, thus relying on inter-organizational networks are crucial to facilitate those essential resources. According to the t-test, networks are strongly connected to the VC and worker talent element, and approximately related to knowledge. Thus, it can be argued that inter-organizational networks enable access to and leverage resources, learning and knowledge generation and information exchange. Also, by providing appropriate human capital. All of the above resources contribute to the innovation creation and vital growth. In particular, there were no group differences detected by the regression analysis.

Furthermore, the level of availability and access (53,41; 6<sup>th</sup>) of the network element indicates that networks are available, but still need to be further developed as they have the facilitating role that directly influences the development processes. Also, relativity ratios (0,88; 0,70) show that network element is performing well in the discovery stage, but less in the validation stage. As it becomes more important to obtain essential resources as quick as possible and can be the difference between viability and default, underperformance when it is most needed in the second phase depicts the network element as a borderline weakness. It can be seen that as more startups develop in the ecosystem, there is a network effect that increases the quality of the networks for each of the venture added, and while taking into account the agglomeration effect, it can be argued that as more nodes the network element includes, the more accessible and valuable it becomes for all ecosystem participant. As there were no differences in the regression analysis, it can be concluded that network element can be characterized as the cardiovascular system of the startup community which facilitates the information and resources needed for the development.

### **5.13 Professional Services**

Professional services help ventures to concentrate on core activities and less on bureaucracy. Close ties between professional services and startups would allow latter to discover new opportunities, new ideas and include best practices for business development. Professional services include legal,

accounting and financial services, recruitment agencies and technology services, but also real estate, insurance and other consulting services. Looking at the analysis, in the discovery stage, professional services (38,82; 13<sup>th</sup>) is a less influential element for the startup development. In the first phase, these can be associated with (1) the need for legal services for drafting out the ownership structure and patent applications, (2) preliminary consulting and advisory for more efficient development, and (3) finding an office space where to work at if founder's garage is not available, just naming a few. As there are not many services that are essential for the discovery stage, thus the lower level of importance. This is also attested by the t-test, but regression analysis didn't show any differences among group variables.

Furthermore, in the validation stage, professional services (60,24; 9<sup>th</sup>) importance grows and it crosses the 60-point cut-off line, indicating its above average importance towards this phase. It is a good indication as the startup development includes many other variables affecting it, hence, their relationships should be governed by (1) well-drafted agreements (e.g. capital allocation contracts, employee and supplier contracts, ownership agreements and equity options, non-disclosure), (2) recruiting agencies play their role in headhunting appropriate workforce, (3) technology services to validate prototypes and test out fundamentals of the value offered, (4) variation of services give feedback and facilitate information between startups and the industry leaders to catch up and implement best practices, and so on. It can be seen that professional service is an important element that takes over a lot of the bureaucracy that startup otherwise have to endure. This is a good thing as the it helps to concentrate on what matters. According to the t-test, professional services is strongly connected with the intermediaries, which shows that this element is quite essential for startups that are incubated or accelerated.

Also, the regression analysis shows differences among the groups. Firstly, in the validation stage, startups that mainly offer services value the role of professional services less compared to startups that mainly offer products ( $p < .01$ ). It can be argued that startups that offer services need less contribution and handling of affairs from professionals. Disregarding general everyday administration activities, startups that offer products have to deal with all the physical aspects of its development (e.g. standards, recycling), but also need to deal with other process based matters (e.g. production facilities, logistics). Therefore, it could be argued that it is more complex to deal with production than services, thus the difference.

Secondly, in the validation stage, startups that mainly invest into R&D value the role of professional services more compared to startups that mainly invest into M&S ( $p < .01$ ). This also shows that more complicated the development processes, the more startups have to jump through hoops and deal with “red tape” events. In the case of R&D intensive firms, it is more important to seal all the leakages and protect startups’ intellectual property rights.

Thirdly, in the validation stage, startups that have high levels of export activity value the role of professional services less compared to startups that have low levels of export activity ( $p < .10$ ). Without a doubt, a good legal service has an important role for startups with sales activities, thus it would be a good example to use. Hence, it could be argued that export intensive startups are using a mutually agreed legal framework as a basis for their business relationship, so they wouldn’t counter any additional legal fees. Another thing might be that the local society is inherently distrustful and all economic agents participating in the society accrue extra costs by using comparatively more legal services.

Furthermore, looking at the level of availability and access (53,29; 7<sup>th</sup>) and relativity ratios (1,37; 0,88) it can be seen that professional services element is readily accessible and is performing well in both of the phases. Also, the level could be significantly higher if some of the services would be specifically tailored for the startup community, including more affordable prices. On the one hand, it is a good indicator that there are many professional firms available to cater the needs of young startups, but on the other hand, using the legal example, high availability is a proxy for high demand, thus supporting the fact that there are strong trust issues in the society.

Moreover, according to the regression analysis, startups that plan to move abroad or have already moved/established abroad perceive lower availability and access to professional services compared to startups that stay home ( $p < .10$ ). This could mean that even though there is a good availability and access to professional services in the Estonian ecosystem, (1) their quality (or some other feature) to satisfy the needs of startups is not sufficient, (2) their value proposition is off the target or (3) the quality-price ratio is unbalanced. This is somewhat understandable taking into account Estonia’s young free-market economy and the recent interest towards innovation driven firms. Taking into account all of the above, professional services can be presented as a strength of the Estonian entrepreneurial ecosystem.

## 5.14 Intermediaries

Intermediaries provide support for startups by improving their likelihood of survival and could accelerate their development. A healthy entrepreneurial ecosystem is accompanied by a good access to effective incubators and accelerators. Looking at the analysis, in the discovery stage, intermediaries (47,68; 10<sup>th</sup>) is a mediocrely influential element. It can be argued that incubators involve entrepreneurs and their teams which are still handling the idea conceptualization, whereas accelerators invite only high-growth potential startups with a good business proposition and require assistance to excel, hence, incubators tend to take the leading supporter role in the first phase. Looking at the t-test, intermediaries show strong connection towards worker talent and networking services. Hence, it can be specified that intermediaries act somewhat as networks, assisting startups to find like-minded people and acquire some of the resource necessary for further progress.

According to the regression analysis, there are many differences between groups. Firstly, in the discovery stage, startups that include external investors value the role of intermediaries less compared to startups that belong to the founders and employees ( $p < .10$ ). It can be argued that startups which include external investors already in the first phase, indicate that these investors hold complementary abilities (e.g. access to physical resources, finance) to intermediaries.

Secondly, in the discovery stage, startups with revenue streams value the role of intermediaries more compared to startups with pre-revenue status ( $p < .10$ ). This is a strong indication that, startups which have reached revenue streams are likely to have been supported by the intermediaries, thus intermediary could directly affect sales activities. Thirdly, in the discovery stage, startups that plan to move abroad or have already moved/established abroad value the role of intermediaries more compared to startups that stay home ( $p < .05$ ). It can be argued that firms which relocate(d) or established abroad have been enabled or positively influenced by first-hand experience with local and global intermediaries. Also, it could mean that local startups which have been accepted to foreign intermediaries have relocate(d) or directly established abroad. Fourthly, in the discovery stage, startups that have higher levels ( $\geq 10$ ) of international customers/operations value the role of intermediaries more compared to startups that have lower levels ( $\leq 9$ ) of international customers/operations ( $p < .01$ ). This also indicates that startups with strong commitments to global customers/operations have been positively influenced or enabled by intermediaries in the first phase.

Furthermore, in the validation stage, intermediaries (60,03; 10<sup>th</sup>) element has retained its rank, but has reached the above average cut-off line making it more influential for the startup development. T-test shows strong connection towards AIs and professional services. This shows that intermediaries start to be more important in supporting growth and progress and is used as mediator of essential services and resources between portfolio startups and professionals. According to the regression analysis, there are some group differences. Firstly, in the validation stage, startups that include foreign co-owners value the role of intermediaries less compared to startups that include only Estonian owners ( $p < .05$ ). This further shows that foreign co-owners are more sceptical about the local intermediaries and could provide complementary support similar to the intermediaries. But as the average is still high, even those companies see extra value in this element.

Secondly, in the validation stage, startups that plan to move abroad or have already moved/established abroad value the role of intermediaries more compared to startups that stay home ( $p < .05$ ). This further verifies that in both stages, intermediaries play their role to enable or influence startups to relocate. Also, as stated before, relocation can be a part of being accepted to join an intermediary in some other location. Thirdly, in the validation stage, startups that have higher levels ( $\geq 10$ ) of international customers/operations value the role of intermediaries more compared to startups that have lower levels ( $\leq 9$ ) of international customers/operations ( $p < .05$ ). This also verifies that in both stages, intermediaries have a positive effect on acquiring and retaining global customers/operations and develops startups' skills to do so.

Moreover, looking at the level of availability and access (50,82; 9<sup>th</sup>) and relativity ratios (1,07; 0,85) it can be seen that element of intermediaries is well-available and easily accessed in the local ecosystem, and is performing well in both of the phases. As there are now differences among the groups, it can be stated that intermediaries are a strength of the local ecosystem. As an observation, it can be argued that as there were no group differences about the availability and access, startups which tend to relocate/establish abroad, also perceive them as a strength of the ecosystem, thus the quality of the local intermediaries cannot be the reason for relocation.

## 5.15 Networking Services

Networking services provide information exchange and other interactions to support startups. These services are commonly represented by trade and industry associations, supply chain networks, alumni associations and online social networks. Looking at the analysis, in the discovery stage, networking services (40,97; 12<sup>th</sup>) are depicted less influential element. It can be argued that networking services are not essential in forming startups in the first phase. Still, they can lead entrepreneurs to find business opportunities, new customers and suppliers, but also find co-founders and key employees. According to the t-test, networking services is closely connected to intermediaries and crowdfunding. It could be argued that networking services have similar properties as intermediaries, to facilitate specific resources, information and knowledge, but also networking services can be an extension for intermediaries which unites successfully graduated startups. Crowdfunding can be partially considered as a network including close minded people that want to invest into startups, thus it resembles a network or a community having similar characteristics to networking services.

In addition, taking into account the regression analysis, firstly, in the discovery stage, startups with revenue streams value the role of networking services more compared to startups with pre-revenue status ( $p < .05$ ). It shows close connection to sales and networking capabilities. Startups that are good at using all of their networks are more successful.

Secondly, in the discovery stage, startups that mainly offer services value the role of networking services more compared to startups that mainly offer products ( $p < .05$ ). It can be argued that for services it is somewhat more important to be customized with respect to the clients' needs, thus networking services might give this valuable feedback and other input to make such an effort feasible.

Thirdly, in the discovery stage, startups that plan to move abroad or have already moved/established abroad value the role of networking services more compared to startups that stay home ( $p < .05$ ). This could indicate that startups that relocate(d) or are established abroad understand that networking enables, supports and even promotes startups to find business opportunities in the global context. These services could have direct influence, when decisions are made which is the best place for the startup to open up the shop.

Fourthly, in the discovery stage, startups that have higher levels ( $\geq 10$ ) of international customers/operations value the role of networking services more compared to startups that have lower levels ( $\leq 9$ ) of international customers/operations ( $p < .10$ ). This indicates to the fact that networking services supports customer/operation acquisition and retention for startups that are more internationally present.

Furthermore, in the validation stage, networking services (54,03; 11<sup>th</sup>) is still under the above average 60-point limit indicating its rather low influence in the second phase. As startups begin to validate their business, networking becomes more essential than before as its nodes open up the world and could lead to new opportunities. Based on the t-test, it can be seen that networking services has some relationship with other elements, showing that it has properties that would be beneficial for startup validation processes, but apparently not used as a main source to acquire resources.

Also, there are some differences among the groups. Firstly, in the validation stage, startups with global teams value the role of networking services less compared to startups with local teams ( $p < .05$ ). It can be argued that startups which include foreigners in their teams consider them as a node in their own network, thus there's no need to use extra services when networking node(s) is already incorporated and can be leveraged. Secondly, in the validation stage, startups that mainly offer services value the role of networking services more compared to startups that mainly offer products ( $p < .10$ ). Similar to the first phase, networking services enable service oriented startups to get direct feedback and enable customization activities. Thirdly, in the validation stage, startups that plan to move abroad or have already moved/established abroad value the role of networking services more compared to startups that stay home ( $p < .05$ ). This could indicate that startups that relocate(d) or are established abroad perceive that networking enables and supports startups to validate their business proposals in the global context.

Furthermore, as networking service are assessed below the cut-off point, their relativity ratios are disregarded. But, the availability and access level (49,97; 10<sup>th</sup>) looks relatively satisfactory. Hence, taking into account the perceived importance in both of the stages and no group differences in the regression analysis, networking services can be regarded as not fundamentally important element in the Estonian ecosystem.

## 5.16 Engagement Services

Engagement services are usually regarded as events where local entrepreneurs and the community comes together to meet and collaborate, by initiating, pursuing and combining new innovative ideas. These events can be meet-ups, start-up weekends, hackathons, etc. Looking at the analysis, in the discovery stage, engagement services (66,29; 6<sup>th</sup>) are an important element for launching new ventures. Hence, it can be argued that successful startups represent an entrepreneurial ecosystem which manages to unite its people to collectively create long-term value. Looking at the t-test, engagement services element is strongly connected to knowledge and approximately to the network element. Thus, it is important to understand that knowledge directly affects engagement services as people that usually partake are wise in their respective areas of expertise. Also, engagement events can be considered as a growing networking event where entities interact with each other to grow their networks.

Moreover, according to the regression analysis there are many differences between groups. Firstly, in the discovery stage, startups with global teams value the role of engagement services less compared to startups with local teams ( $p < .10$ ). It can be argued that professional and well-fitted teams which are in a better position to hire foreigners don't find so much extra value in attending engagement services compared to others that are not doing so well. But it is still an important element for all startups in the first phase.

Secondly, in the discovery stage, startups with revenue streams value the role of engagement services more compared to startups with pre-revenue status ( $p < .01$ ). This is a strong indication that startups with revenue streams have first-hand experience with engagement services and have gained some value from it. Also, startups that have attended are more likely to boost up revenues.

Thirdly, in the discovery stage, startups that mainly offer services value the role of engagement services more compared to startups that mainly offer products ( $p < .05$ ). It can be argued that product development is more resource intensive and time-to-market takes longer compared to service development. Putting it on the scale of the engagement services which are inherently concise events, it is understandable that product startups find them somewhat less attractive.

Fourthly, in the discovery stage, startups with rapid internationalization value the role of engagement services more compared to startups with slow internationalization ( $p < .05$ ). It could be stated that engagement services are a place to create high-value products and services that help some of the startups to receive immediate demand allowing them to internationalize more rapidly

Fifthly, in the discovery stage, startups that have higher levels ( $\geq 10$ ) of international customers/operations value the role of engagement services more compared to startups that have lower levels ( $\leq 9$ ) of international customers/operations ( $p < .10$ ). This is an indication that engagement services have a positive track record in creating good teams that develop and offer great products/services and therefore, are able to better acquire and retain international customers/operations.

Furthermore, in the validation stage, engagement services (46,15; 14<sup>th</sup>) have a significant drop between the stages below 60-point limit indicating its relatively low influence in the second phase. This shows that engagement events are particularly important in launching new venture and less helping them to validate. But it can be still argued that it has some importance for the startup development as some of them want to be present to find new bright talent to join them but also might attend to set up a new team for a new business idea or just validate it. T-test shows strong connections to crowdfunding and CVC. Hence, it can be argued that startups which have validated their ideas in the engagement events have better changes getting financial backing from these sources. Another point to make is that from these engagement gauntlets, only the best will emerge, thus it is similar to CVC and crowdfunding as only the best ones get financed.

According to the regression analysis, in the validation stage, startups that mainly invest into R&D value the role of engagement services less compared to startups that mainly invest into M&S ( $p < .05$ ). It can be argued that R&D intensive firms have long timespans, absorb more resources and have more complex products and service compared to M&S intensive startups, thus it is understandable their lower interest and value perception of somewhat vague engagement services.

Moreover, looking at the level of availability and access (68,35; 1<sup>st</sup>) and relativity ratios (1,03; 1,48) it can be stated that engagement service is rated as the best element of them all. It is performing well in both of the phases and shows that there are plenty of events to attend to relative to their level of influence. As there are no differences between the groups, it can be stated that the element of engagement services is the flagship strength of the local ecosystem.

## 6 CONCLUSION

### 6.1 Answering the Research Questions

After conducting the general and quantitative analysis, and discussing each element's role in the local Estonian entrepreneurial ecosystem, the research questions can be answered.

#### 1. Which ecosystem elements are most important for launching Born Global startups?

In the stage of discovery, the analysis pointed out 7 systemic elements that crossed the above average cut-off level of 60 points, indicating that these elements play a central role in launching born global startups. According to their rank, these elements are as follows: (1) entrepreneurial talent, (2) informal loans, (3) bootstrapping, (4) leadership, (5) knowledge, (6) engagement services, and (7) networks.

#### 2. Which ecosystem elements are most important for growing Born Global startups?

In the stage of validation, the higher mean value and the number of elements indicate that systemic conditions become more important as startups continue to develop, signifying ecosystem's role in the development. There are 10 elements above 60-point line, still placing (1) the entrepreneurial talent as the main contributor to the startups' success. According to the rank, other elements are as follows: (2) knowledge, (3) networks, (4) worker talent, (5) venture capital, (6) angel investor, (7) leadership, (8) bootstrapping, (9) professional services, and (10) intermediaries.

In addition to finding out the most important elements per stage, the top 6 most influential elements cumulatively are as follows: (1) entrepreneurial talent, (2) knowledge, (3) networks, (4) bootstrapping, (5) worker talent, and (6) informal debt.

#### 3. Which systemic elements can be considered as ecosystem's strengths and weaknesses?

Comparing each element's availability and access level with its position of influence in both stages, a set of ratios were calculated to measure the relative performance. Hence, based on these ratios, ecosystem elements could be divided into five groups.

- (1) Elements representing relative strengths are as follows: (1) engagement services, (2) professional services, (3) intermediaries, (4) leadership, and (5) bootstrapping. In overall, these elements describe the local startup community and its mentality. Three support system elements and leadership element show that ecosystem's main strength is to nurture and motivate its potential entrepreneurs to organize, generate ideas and take risks by launching startups. Thus, bootstrapping is the accepted way to govern those risks by investing one's own finances.
- (2) Elements representing borderline weaknesses are as follows: (6) angel investors, (7) knowledge, and (8) networks. Borderline weaknesses describe which elements represent potential strengths of the ecosystem, but under the circumstances are not yet performing sufficiently. Angel investors have certain knowledge to advise and networks to guide entrepreneurs, and new knowledge could be obtained by interacting through networks. It is like a closed circle with learning as its core, whereat one element directly influences another and as one's performance raises, others would thrive. Hence, for these elements to become strengths of the ecosystem, only time should be given for entrepreneurs to raise experience through learning and the circle will evolve without assistance.
- (3) Elements representing relative weaknesses are as follows: (9) informal debt, (10) venture capital, (11) entrepreneurial talent, and (12) worker talent. Broadly, weaknesses show performance issues and drawbacks in exploiting the full potential of the local community. Thus, these are the main reasons behind low quality ideas, business failures and abandonment of the local ecosystem. Human capital is one of those reasons indicating that there's not enough talented people freely available to develop startups, as they are occupied with low-value jobs which strongly limits their risk-taking potential. This issue further constrains others to support their loved ones in becoming entrepreneurs. Hence, the society in itself is too poor for talent to freely pursue entrepreneurial activities. Also, this wage slavery suppresses talent to fully blossom, leading to inherently low quality ideas and startups, which is the main reason why venture capital is heavily underperforming.
- (4) Elements that are **less central** are as follows: (13) networking services, (14) crowdfunding, and (15) corporate venture capital. The first two are well-available, but less valuable for the development. The latter is scarcely available and partially irrelevant, but behaves as venture capital and becomes more important and available when startup quality is raised. They all can behave as complementarities or partial-substitutes in time of need, but will not be valued same as the main source.
- (5) Element that is **irrelevant** is as follows: (16) formal debt. Formal debt, i.e. banking institution is found irrelevant and can be excluded as a factor of importance in first phase of the startup progress.

#### **4. What are the general features of the Estonian-founded Born Global startups?**

Estonian startups are on average 3 years and 5 months old. They employ around 9 people on average from which 1/3 are located abroad and almost 50% include foreign workforce. Similarly, almost 50% of them include foreign capital and around 80% have raised capital from external sources outside of the startup in exchange for 30% of the equity stake on average. Moreover, 1/4 of them have reached revenue streams from which 65% are below 500 000 euros. 54% of the revenues are received from selling a mixed product-service bundles but 63% of startups are still service oriented. Likewise, 96% of them invest into both of the M&S and R&D but 68% from the aggregate are R&D oriented.

Furthermore, 56% of Estonian startups view it as a good location for the headquarters because (1) key team members live in Estonia, (2) startups are too young to move, (3) business can be handled remotely without relocating, and as (4) Estonia is a full member of the EU. The rest who are thinking to move, have moved or were established abroad usually in the UK, US, Germany, China and Singapore and have done it due to the (1) investments and funding climate, (2) to be closer to the target market, and 3) to leverage the market size. Out of those internationally minded startups, 80% receive revenues outside of Estonia and 62% export out of EU to other economic regions making North-America the most important market thereafter. Also, 82% have commenced international activities and 56% have internationalized rapidly right after inception. Lastly, 1/3 are have more than 10 operations/clients abroad accounting for 20,6 customers on average. (The detailed composition of Estonian-founded Born Global startup characteristics is found in [Section 4.1.2.](#))

#### **5. How are systemic elements perceived differently based on company profiles?**

Grouping startups based on their profiles shows that there are many differences how they perceive the elements in their phases and their local availability. Around 11% of the time, there is a difference among the groups. Firstly, the availability of the Leadership element is perceived higher by larger local and more R&D intensive firms. Hence, having a leader connected to the startup helps to grow and enables more R&D spending, but is less motivational for global startups.

Secondly, under finance all of the elements are seen differently in some sense. The availability of bootstrapping is perceived lower by rapidly internationalizing firms indicating that doing it yourself constrains internationalization processes and might reflect the quality level of the startup idea.

Next, Banks are seen differently in stage-wise. In the discovery stage, older, M&S intensive and rapidly internationalizing firms, and in the validation stage, larger and service driven firms perceive it less important. Hence, bank loans are seen not important mostly by more experienced firms and thus, favouring its irrelevance in the first phases. Also, the informal loans from social ties are seen more important by startups with global teams, offer products and are R&D intensive. This shows that open-minded startups with longer time-to-market processes see support from informal ties more indicating that moral and financial support from community is more important for such startups. This is further backed by pre-revenue and product firms, showing their higher perception on the availability of such ties. Equity based finances are divided between VC, AI and CVC. VC is important for launching stage were Estonian owned firms showing the need for external finance and advice/mentoring. For validation, younger and R&D intensive firms value it more, showing that in recent years there is more VC backing and R&D driven firms are the main target. The availability of VC is much higher for product companies, verifying VC targeting on more tangible business proposals.

Furthermore, on the AI side, younger startups with larger teams, product orientation and lower export activity view it more important for validating the startup. This shows that AI targets startups that have a lot of potential but need more time-to-market. Also, product oriented and lower export activity startups see more availability in the ecosystem backing the AI targeting efforts. Further, CVC is valued more important in the discovery stage by startups which are larger, plan to move or moved abroad, low levels of export, and have international operations/customer. This is a strong indication that there is less effect of CVC in the ecosystem, as more internationally experienced startups view its importance. This is further verified by its availability as startups with high levels of export activity and rapidly internationalizing firms perceive low levels. Hence, the negative reflection. Lastly, Crowdfunding as the newest form of capital for equity is perceived higher by startups with plans to move or have moved and firm with high levels of international commitment. This could be seen that there is local availability, but the quality level is not as good as seen by internationally motivated startups.

Thirdly, Talent element is seen differently. On the one hand, Entrepreneurial Talent is valued more in the discovery stage by smaller startups, which just reflects the divisibility of power in small firm setting. Also, its availability is seen higher by startups with revenues stream, low level of exports

and high international commitment. This indicates that entrepreneurs directly influence gaining revenues and international presence, but is less visible in maintaining export sales, rather finding leads for it. On the other hand, Worker Talent is viewed as highly available by startups with external investors and lower level of exports. Indicating that external investors allocate funds based on team feature and exports activity is less based on the team activity rather some other factor (e.g. product quality) that regulates the demand.

Fourthly, Knowledge is perceived more important in the discovery stage by startups with only Estonian owners. This shows that other who have attracter foreign capital understand that knowledge is somewhat overestimated by locals. Hence, other factors also have some significance (e.g. experience, skillset). In the validation stage, Estonian owned, service led and more internationally committed startups perceive knowledge more important. Knowledge might be slightly overestimated, but knowledge based firms are better in internationalizing. Also, startups that include foreign co-owners perceive lower availability of knowledge, thus it is not about some other qualities, rather the knowledge is not as appropriate as to be believed.

Fifthly, Networks are not seen important or its availability being different by any of the groups.

Lastly, Support Services in the system were seen differently in all of the sub-categories. The Professional Services is perceived less important by startups that offer services, are M&S oriented and export intensive. Thus, intangible startups don't need as much help and exports are based on frameworks and demand led, making it less likely to use professionals. Startups planning to move or have moved see lower level of availability, possibly because they have a comparison view, regarding to the lower amount of professional services specifically dedicated to startups. Further, Intermediaries are perceived more important in the discovery stage by startups belonging to internal founders and employees, revenue streams, plan to move or already moved, and with stronger international commitment. It suggests that intermediaries are beneficial for startup internationalization processes and don't need to include external investors as much as they receive similar support from incubators and accelerators. In the validation stage, Estonian-owned startups, the ones moving abroad and other with stronger international commitment perceive higher importance of intermediaries, indicating that intermediaries are supporting internationalization, but movers might have a comparison effect stating that there is still much to do to make it more attractive mechanism. Also, Networking Services is perceived differently in both stage. In the discovery stage, these services

are more important for startups with revenue streams, service providers, plan to move/moved and international commitment. In the validations stage, these are more important for local teams, service providers and movers. In both instances, Networking services play role for startups internationalization by enhancing and extending networks. Lastly, Engagement Services is perceived important for startups in the discovery stage which have local team, include revenues, offer services, rapid internationalization, and stronger international commitment. These all suggest that Engagement events are well-developed and considered as a prerequisite for firm internationalization. In the validation stage, R&D intensive firms perceive these events less important, possibly because the R&D dependant ideas are generated in the launching phase and these events are not used as validation platforms as such. (The perceived differences are displayed in [Section 4.2.2](#) and thoroughly discussed in [Chapter 5](#).)

## **6.2 Theoretical Contributions**

The theoretical contributions of this thesis could be divided into two main aspects, namely contributions made directly to the entrepreneurial ecosystem theories as it was the baseline topic, and the one joining other theories. The entrepreneurial ecosystem research has gained interest in the recent years, but it's still theoretically immature, indicating that every input with acceptable standard could be regarded as a contribution. Hence, the thesis was focusing on the topic and directly involved new evidence and causal depth to the research arena.

To be more precise, firstly, author presented a thorough literature review reflecting the most important theoretical underpinnings of the research stream, including balanced views about its origins, concepts and models. This in itself is nothing rare, but a profound understanding of prior research is an important cornerstone for creating a new one.

Secondly, as most of the research has dealt with the main elements of the ecosystem or have just concentrated on one of them, they have enhanced the knowledge of the concept, but not its essence. This essence is to create value through entrepreneurial activity and was firstly framed by Stam (2015), who divided the ecosystem elements into two layers, framework and systemic elements. As some researchers, have focused on the framework elements, none of them have on the systemic elements. Hence, as author was unable to find any academic advancements in this perspective, creating one had value in itself.

Thirdly, concentrating on the systemic elements was just one part, as the other was to extend them. As there were six systemic elements in its original form, current study divided them into sixteen elements. Three of them, Leadership, Knowledge and Networks, were only theoretically updated to fit the context, and Networks was not extended due to the study's focus on first phases. The other three, Finance, Talent and Support Service, were updated, but also dispensed into thirteen elements. It was quite a significant step, as it is important (1) not to emphasize one specific element, but by extending, it accounts for other features, allowing the model to implement all of the them equally in a balanced manner. For example, without the division, finance could be valued relatively more than others and it would be impossible to understand which kind of finance. Also, (2) by having one type, it would directly affect the perception of other elements and how they are seen in the system. Next, (3) differentiating helps to uncover dynamic relationships and other connections between the elements (in each stage) giving them more explanatory power. It also helps to concentrate on the hindering aspects of the elements and take necessary steps to improve the situation. In addition, (4) by elaborating context, it can be verified that the model includes all recent advancements and integrates new elements, like Crowdfunding and Engagement Services, which are usually left out from the recent studies as they are too new or less visible to be included. Hence, Engagement Services was verified to be the best performing element in the Estonian ecosystem and quite vital as well. Also, (5) giving more verified choices for the respondents to consider, makes the decisions more objective and thus, helps to create a better dataset and end results. Finally, (6) it allows to enhance our knowledge in more detail about the elements and thus update, upgrade, transform and apply the model flexibly to other ecosystems uniquely different from others.

Fourthly, author developed a ratio system to detect ecosystem's strengths and weaknesses. This was not something spectacular in itself, but complementing it with the Paired Samples T-test, borderline weaknesses, less central and irrelevant categories were added. Also, by using the latter statistical analysis in an unconventional way, author managed to see similarities in the averages, which indicated dynamic relations between the elements and thus, added more explanatory power. All of these aspects help to uncover the local constraining factors and thus gets the researchers a step closer to solve them.

Fifthly, as most of the research has been conducted on well-developed western countries, it is important to contribute to other avenues. Hence, as Estonia is a transitional country with only 25 years

of open economy, these results would give important data on how in such a short time one has made such notable progress. This also indicates, that Estonia is not west of the east, but rather east of the west and thus, further reference could be made when comparing to western countries.

Sixthly, present study intertwined Entrepreneurial Ecosystem and Born Global research streams by directly connecting systemic elements with firms' orientation-based theories. Under authors best knowledge, there were no similar research available when conducting literature review in the middle of 2016. Hence, this could be considered as a major contribution and would bring venture creation and local ecosystem development under one umbrella.

Seventhly, author added two more dimensions to the above twosome: life-cycle and entrepreneurs' perspectives. On the one hand, introducing life-cycle stages to the model showed that there were transformations between the phases as elements changed their rank and supported different sides of the Born Global startup development. On the other hand, incorporating the dimension of entrepreneurs, the data was directly received from the main source. This immediate data collection made it more valuable and trustworthy, as it accounts for the individual level activities and entrepreneurial processes in the grassroots, enabling policy changes. It is important because most other studies are made on a national level and are usually index based, making them retrospective, less detailed to clearly detect constraints, and do not account for the local uniqueness. Hence, studies that combine ecosystem's systemic constructs, firm level abilities and entrepreneurial perceptions, give a better perspective in comprehending the fundamentals of the system.

In conclusion, the main contributions were discussed above. Extending and updating the previous frameworks and matching the Entrepreneurial Ecosystem with Born Global theories were the cornerstone contributions for the theory and future research. Comparing end results and the author's input, it can be stated that a lot of work and effort has been invested into filling in some of the gaps or at least paving the way.

### **6.3 Managerial Implications**

In the local ecosystem, there are many stakeholders, but the main ones should be lectured if it is important to get the points through. On the governments side, the legislation should be more startup friendly, as a lot of entrepreneurial resources are under first stages, thus direct and indirect support are a prerequisite. It is not only about finances, special visas and tax exemptions, it is about the

overall mentality that entrepreneurs are not only there for taxing, but these tax-revenues should be employed for further growth and value creation. This implication might be too vague, but it is in the legislator's hands to create an attractive playground for everyone to thrive, otherwise there will be no one left to sell tickets to. So far it has been just sheer luck and hard work of the entrepreneurs', not government dedication and actions presented in the state marketing campaigns. Playing on the "startups per capita" card doesn't cut it as it is a measure of quantity, not quality. Only quality would open up doors for smart-capital and talent. To raise the bar, a set of direct incentives should be introduced which would promote entrepreneurship, allows the acceptance of failure and enables the community to take risks, as the value is made on the grassroots, not by pompous politicians.

On the Born Global side, startups should be more collective in working together to create platforms, promote one another's products/services were possible and launch collective initiatives to become more visible for outsiders in the global context. Hence, as Estonia is a small country, startups should be more interconnected and supportive towards one another to gain more attention and build a better presentation stage for Estonian startup ecosystem to be used as a marketing tool. This would attract new talent, knowledge, capital, extend current networks and develop more services to benefit local development. Accounting for the higher agglomeration effect, it is not just beneficial for the startups, but for everyone connected to it one way or another. This collectivism enables to launch higher quality startups which could take Born Global pathways more often and become international unicorns promoting and branding the Estonian entrepreneurial ecosystem.

On the side of the entrepreneurs, more togetherness, mutual motivation and assistance would be a starting point. Entrepreneurial recycling is the key term, but as it is hobbling in the local context, it would never achieve the full throttle needed to raise quality. Under the circumstances, the value created and knowledge gained wouldn't spill over for others to jump on the carousel. Exchanging experience and knowledge only for irrational expectations of equity cannot be a goal by itself. Trust and helpfulness are the keys in building, facilitating and boosting up a thriving startup community.

## 6.4 Recommendations/Direction for Further Research

As the entrepreneurial ecosystem research is theoretically immature, it is important to continue to develop studies which specifically target the dynamic relationship between the framework and systemic elements. It is important to understand that as framework elements do not directly affect the entrepreneurial activities, they still influence them indirectly through systemic elements. Hence, it is important to take these into account and prepare a more comprehensive statistical study.

Another recommendation is to take the extended framework model and apply it on other similar countries or different regions/cities of a larger country. It is imperative to validate the model and benchmark entrepreneurial ecosystems due to their contextual uniqueness.

Also, it is important to extend this framework to all stages of the life-cycle to map which elements are most important in later phases. As it was argued that first phases have the strongest impact on Born Global development and internationalization, later phases could uncover other potential elements which influence the entrepreneurial recycling activities.

Lastly, a future direction could be a longitudinal study. The argument is that the first phases cannot really determine which startups ended up taking the Born Global pathway. Hence, it is necessary to draw a larger sample because of the high default rate, and test the sample startups in their validation stage and after a certain time period, test the same ones again in a later stage. This could be referred to as a survival analysis and it would be fundamental to see differences between the groups.

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## **APPENDIX 1. - Preview of the Survey from Qualtrics**

### **SURVEY**

#### **Entrepreneurial Ecosystem and New Venture Development**

##### **BLOCK 1 – Introduction**

Thank you for accepting the survey invitation!

Your answers and thoughts are highly appreciated and helpful in creating practitioners view on how our local Estonian ecosystem performs. In turn of your participation and effort, author will personally send you the results of the report and give tailored advice/comments upon request.

Please, find approximately 15 minutes to answer the questions. All of the relevant explanations are included in each section, hence only common-sense and sound judgment is required. Language option can be changed from upper-right corner.

##### **NOTE!**

- The opportunity to respond to this study is limited to 2 weeks after receiving the survey link.
- The data is collected anonymously and only used in the context of this study.
- The data is gathered and processed in a way to maintain respondents' rights to confidentiality and privacy.
- The results are shared only with the participants, Startup Estonia and Lappeenranta University of Technology.

Again, thank you for your participation!

**BLOCK 2 – Company Profile**

Q1: Name of the company (leave blank if anonymity is preferred)

Q2: The main industry of your business

Q3: Position of the respondent in the company

- Founder
- Owner
- CEO
- Other key person (please specify) \_\_\_\_\_

Q4: Year of company establishment

Q5: Have you moved or are you planning to move your company's headquarters from Estonia to another country?

- Yes, we moved (which country and the main reason?) \_\_\_\_\_
- Yes, planning to move (which country and the main reason?) \_\_\_\_\_
- No (the main reason why not to move?) \_\_\_\_\_
- Company was already established abroad (which country and the main reason?)  
\_\_\_\_\_

Q6: Number of employees

- In Estonia \_\_\_\_\_
- Abroad \_\_\_\_\_

Q7: How is the ownership of your company allocated between domestic and foreign owners? (%)

- \_\_\_\_\_ Domestic
- \_\_\_\_\_ Foreign

Q8: How is the ownership of your company allocated between the following groups? (%)

- \_\_\_\_\_ Founders/directors/key employees
- \_\_\_\_\_ External investors

Q9: Turnover (€)

- less than 500 000
- 500 001 - 2 000 000
- 2 000 001 - 10 000 000
- above 10 000 000
- pre-revenue
- no turnover

Q10: Turnover consists of

- \_\_\_\_\_ % sales of products
- \_\_\_\_\_ % sales of services

Q11: Turnover received from

- \_\_\_\_\_ % domestic market
- \_\_\_\_\_ % foreign markets

Q12: Please indicate in percentages the share of turnover that your firm puts into

- \_\_\_\_\_ Marketing activities and sales
- \_\_\_\_\_ Research and development activities
- \_\_\_\_\_ Other (please specify)

Q13: How many percent of the turnover comes from each of the following areas at the moment?

- \_\_\_\_\_ Estonia
- \_\_\_\_\_ Europe (excluding Estonia)
- \_\_\_\_\_ North-America
- \_\_\_\_\_ South and Central America
- \_\_\_\_\_ Australia, New Zealand and other Oceania
- \_\_\_\_\_ Asia
- \_\_\_\_\_ Middle East
- \_\_\_\_\_ Africa

Q14: How old was the company when international activities were commenced?

- before 1 year
- 1 year old
- 2 years old
- 3 years old
- 4 years old
- 5 years old
- 6 years old
- 7 and more years
- no activities abroad

Q15: Name the first country where your company had international activity in?

Q16: How many operations/clients does your company have outside of Estonia?

### **BLOCK 3 – Systemic Elements**

Let's continue with the systemic elements of (1) leadership, (2) finance, (3) talent, (4) knowledge, (5) networks and (6) support systems, and how they influence new ventures during their launch/discovery and growth/validation stages. Please, give your fair opinion on the importance and availability of those elements.

Please, remember the main notions of the focal stages before answering next questions:

#### 1. stage of launch/discovery

- recognizing untapped potential of the idea,
- forming a founding team,
- establishing a company,
- launching initial sales and marketing activities.

#### 2. stage of growth/validation

- gaining further customer traction,
- verification of the business idea through strong sales and marketing activities,
- continuously improving products and services,
- enhancing overall market presence.

### **Firstly, Leadership**

Entrepreneurial leaders are individuals who are role models to others in the community and continuously recognize opportunities to create value for their organization, stakeholders and the wider society. For example, the Skype founders. Bearing this in mind:

Q17: How strong of a role do community leaders play in discovering and motivating others to pursue start-up initiatives? \_\_\_\_\_ 1

Q18: How strong of a role do community leaders play in validating and growing new start-up companies? \_\_\_\_\_ 1

Q19: How would you assess the presence of entrepreneurial leaders in the local ecosystem? \_\_\_\_\_ 1

### Secondly, **Finance (1/7)**

Bootstrapping is a creative way of acquiring finance without approaching banks or raising equity from traditional sources, and it includes strategies for minimizing or eliminating the need for finance by securing resources at little or no cost. Bearing this in mind:

Q20: How strong of a role does bootstrapping approach play in the discovery stage? \_\_\_\_\_ 1

Q21: How strong of a role does bootstrapping approach play in the validation stage? \_\_\_\_\_ 1

Q22: How would you assess the existence of bootstrapping opportunities in the local ecosystem? \_\_\_\_\_ 1

### **Finance (2/7)**

Financial capital can be received from formal sources like the banking system. Bearing this in mind:

Q23: How strong of a role do loans and credit from the banks play in the discovery stage? \_\_\_\_\_ 1

Q24: How strong of a role do loans and credit from the banks play in the validation stage? \_\_\_\_\_ 1

Q25: How would you assess the availability and access to bank loans and credit in the local ecosystem? \_\_\_\_\_ 1

**Finance (3/7)**

Financial capital can be received from informal sources like family, friends, relatives and others in the community. Bearing this in mind:

Q26: How strong of a role do informal sources play in the discovery stage? \_\_\_\_\_ 1

Q27: How strong of a role do informal source play in the validation stage? \_\_\_\_\_ 1

Q28: How would you assess the availability and access to informal finance in the local ecosystem? \_\_\_\_\_ 1

**Finance (4/7)**

Financial capital in turn for equity stake can be received from venture capitalists (VCs). VCs also monitor and consult ventures in developing first-class managerial practices and recruiting top-of-the-line talent to back the capital allocation. VCs use their extensive networks to help new ventures to gain market access, and contacts and credibility with potential partners and customers outside and inside the ecosystem. Bearing this in mind:

Q29: How strong of a role do venture capitalist play in the discovery stage? \_\_\_\_\_ 1

Q30: How strong of a role do venture capitalist play in the validation stage? \_\_\_\_\_ 1

Q31: How would you assess the presence of venture capitalist in the local ecosystem? \_\_\_\_\_ 1

**Finance (5/7)**

Financial capital can also be required from informal VCs like Angel Investors. Angel investors represent a small network of high net worth individuals that risk only with their own money when investing into new growth companies. Bearing this in mind:

Q32: How strong of a role do angel investors play in the discovery stage? \_\_\_\_\_ 1

Q33: How strong of a role do angel investors play in the validation stage? \_\_\_\_\_ 1

Q34: How would you assess the presence of angel investors in the local ecosystem? \_\_\_\_\_ 1

### **Finance (6/7)**

Backing can also be required from Corporate Venture Capitalists (CVC). These corporate entities differ from other VCs by having long investment plans. They commonly look for high-returns, but are more aligned with the corporate level strategies and financial objectives. Bearing this in mind:

Q35: How strong of a role do CVC play in the discovery stage? \_\_\_\_\_ 1

Q36: How strong of a role do CVC play in the validation stage? \_\_\_\_\_ 1

Q37: How would you assess the presence of CVC in the local ecosystem? \_\_\_\_\_ 1

### **Finance (7/7)**

Crowdfunding is the newest form of financial backing and refers to the efforts of entrepreneurial individuals and groups to find funding for their ventures by drawing on relatively small contributions from a relatively large number of individuals using internet. Bearing this in mind:

Q38: How strong of a role does crowdfunding play in the discovery stage? \_\_\_\_\_ 1

Q39: How strong of a role does crowdfunding play in the validation stage? \_\_\_\_\_ 1

Q40: How would you assess the availability of crowdfunding opportunities in the local ecosystem? \_\_\_\_\_ 1

### **Thirdly, Talent (1/2)**

Entrepreneurial talent (e.g. founders) includes individuals who have the ability to discover, select, process, interpret and use necessary data to make decisions and exploit market opportunities. Bearing this in mind:

Q41: How strong of a role does entrepreneurial talent have in the discovery stage? \_\_\_\_\_ 1

Q42: How strong of a role does entrepreneurial talent have in the validation stage? \_\_\_\_\_ 1

Q43: How would you assess the availability of entrepreneurial talent in the local ecosystem?  
\_\_\_\_\_ 1

### **Talent (2/2)**

Worker talent includes individuals who are comfortable and eager to use their expertise and know-how in developing new ventures, while working side-by-side with entrepreneurs. Bearing this in mind:

Q44: How strong of a role does worker talent have in the discovery stage? \_\_\_\_\_ 1

Q45: How strong of a role does worker talent have in the validation stage? \_\_\_\_\_ 1

Q46: How would you assess the availability of worker talent in the local ecosystem? \_\_\_\_\_ 1

### Fourthly, **Knowledge**

Knowledge is defined as information that changes something or somebody, either by becoming grounds for action or by making an organization capable of different or more effective action. This tacit knowledge includes individuals' experience and know-how in regarding to its values, beliefs, attitudes, skills, competences. Bearing this in mind:

Q47: How strong of a role does knowledge play in the discovery stage? \_\_\_\_\_ 1

Q48: How strong of a role does knowledge play in the validation stage? \_\_\_\_\_ 1

Q49: How would you assess the creation and access to innovative knowledge in the local ecosystem? \_\_\_\_\_ 1

### Fifthly, **Network**

Network is a set of connections that entrepreneurs and other ecosystem participants use to cooperate by linking and sharing information, resources, activities, and capabilities. Network can be

entrepreneur's social networks and organizational networks like partnerships, strategic alliances, etc. Bearing this in mind:

Q50: How strong of a role do networks play in the discovery stage? \_\_\_\_\_ 1

Q51: How strong of a role do networks play in the validation stage? \_\_\_\_\_ 1

Q52: How would you assess the availability and access to effective networks in the ecosystem?  
\_\_\_\_\_ 1

#### Lastly, **Support Systems (1/4)**

Professional services help ventures to concentrate on core activities and less on bureaucracy. With close ties, new ventures can visualize new opportunities, new ideas, and best practices for doing business. These include legal, accounting and financial services, recruitment agencies and technology services, also real estate, insurance and other consulting services. Bearing this in mind:

Q53: How strong of a role do professional services play in the discovery stage? \_\_\_\_\_ 1

Q54: How strong of a role do professional services play in the validation stage? \_\_\_\_\_ 1

Q55: How would you assess the availability and access to professional services in the ecosystem?  
\_\_\_\_\_ 1

#### **Support Systems (2/4)**

Intermediaries provide support for new ventures by improving their probability of survival and can accelerate their development. A healthy entrepreneurial ecosystem has a solid presence of effective, visible, well-integrated accelerators and incubators. Bearing this in mind:

Q56: How strong of a role do intermediaries play in the discovery stage? \_\_\_\_\_ 1

Q57: How strong of a role do intermediaries play in the validation stage? \_\_\_\_\_ 1

Q58: How would you assess the presence and access to such intermediaries in the ecosystem?  
\_\_\_\_\_ 1

### **Support Systems (3/4)**

Networking services provide networking support and are commonly represented as trade and industry associations, supply chain networks, alumni associations and online social networks. Bearing this in mind:

Q59: How strong of a role do networking services play in the discovery stage? \_\_\_\_\_ 1

Q60: How strong of a role do networking services play in the validation stage? \_\_\_\_\_ 1

Q61: How would you assess the available support and access to networking services in the ecosystem? \_\_\_\_\_ 1

### **Support Systems (4/4)**

Engagement services are events where local entrepreneurs and community come together to meet and collaborate, by initiating, pursuing and combining new innovative ideas. For example, meet-ups, start-up weekends, hackathons. Bearing this in mind:

Q62: How strong of a role do engagement services play in the discovery stage? \_\_\_\_\_ 1

Q63: How strong of a role do engagement services play in the validation stage? \_\_\_\_\_ 1

Q64: How would you assess the availability and access to engagement services in the ecosystem?  
\_\_\_\_\_ 1

**BLOCK 4 - Conclusion**

Thank you for participating in this survey. Your answers are much appreciated.

As there will be a follow-up interview session, please mark the box below if you would like to share your experience based examples to complement the survey.

Yes, name of the participant \_\_\_\_\_

No

## APPENDIX 2. - Pearson Correlation Output from STATA14

Table 12 - Pearson Correlation including all Variables in Discovery Stage

Discovery Stage	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
1. Age	1.000											
2. Team Size	-0.468	1.000										
3. Team Allocation	-0.043	0.167	1.000									
4. Ownership Origin	-0.166	0.296	0.291	1.000								
5. Ownership Structure	0.080	0.169	0.188	0.334	1.000							
6. Revenue	-0.409	0.205	-0.032	-0.032	0.232	1.000						
7. Firm Offer	0.007	-0.115	-0.049	-0.049	-0.278	-0.041	1.000					
8. Firm Focus	0.015	0.032	0.022	0.148	-0.196	-0.235	0.443	1.000				
9. HQ Location	0.284	-0.053	0.467	0.349	0.305	-0.205	-0.219	-0.018	1.000			
10. Export Orientation	-0.290	0.296	0.173	0.291	0.188	0.523	-0.288	-0.229	-0.007	1.000		
11. Internationalization	0.211	0.053	0.363	0.244	0.133	-0.213	-0.141	-0.234	0.312	0.125	1.000	
12. International Commitment	-0.410	0.243	-0.022	0.229	0.196	0.087	-0.315	-0.193	-0.487	0.355	0.108	1.000
13. Leadership	-0.192	0.290	0.028	0.129	-0.039	-0.004	-0.020	0.127	-0.151	-0.072	-0.093	0.077
14. Bootstrapping	-0.104	-0.020	-0.031	-0.017	-0.231	-0.1093	-0.0177	0.289	-0.079	0.041	-0.224	0.026
15. Formal Debt	0.211*	-0.102	0.134	-0.045	0.009	-0.370	-0.275	0.223*	0.082	-0.193	-0.068*	0.193
16. Informal Debt	0.135	0.109	0.322*	0.274	0.245	0.084	-0.269**	0.163*	0.357	-0.039	0.028	-0.160
17. Vent. Capital	0.298	-0.078	0.101	-0.164*	0.024	-0.310	-0.074	0.158	0.264	-0.328	0.070	-0.247
18. Angel Investors	0.190	-0.054	0.137	-0.028	0.136	-0.150	-0.229	0.004	0.115	-0.097	0.160	0.127
19. Corp. Vent. Cap.	0.080	0.055*	0.138	-0.023	0.167	-0.344	-0.031	0.106	0.311*	-0.550***	-0.063	-0.139*
20. Crowdfunding	0.010	0.318	0.077	0.249	0.337	0.054	-0.144	0.086	0.054	0.089	0.158	0.180
21. Entr. Talent	0.148	-0.187*	0.090	-0.024	0.088	-0.146	-0.178	-0.030	0.384	-0.017	0.157	-0.296
22. Work. Talent	0.387	-0.081	-0.109	-0.088	0.220	-0.214	-0.170	0.018	0.268	-0.209	-0.015	-0.177
23. Knowledge	-0.279	0.271	-0.052	-0.169**	0.005	0.104	0.071	-0.015	-0.170	0.020	0.101	0.207
24. Network	-0.078	0.084	-0.062	0.185	0.405	-0.036	-0.241	0.099	0.198	-0.015	-0.045	0.196
25. Prof. Ser.	-0.227	0.335	0.245	0.183	-0.025	0.055	-0.200	0.090	0.013	0.185	0.232	0.266
26. Intermediaries	0.173	-0.043	0.074	0.072	-0.037*	-0.092*	0.019	0.239	0.226**	-0.071	0.078	-0.047***
27. Network. Ser	-0.005	0.264	0.169	0.244	0.305	0.195**	0.131**	0.194	0.333**	0.107	0.037	-0.060*
28. Engage. Ser.	-0.219	0.159	-0.103*	0.271	0.205	0.304***	0.220**	-0.029	-0.108	0.173	0.290**	0.270*

	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	24.	25.	26.	27.	28.
13.	1.000															
14.	-0.061	1.000														
15.	0.157	0.126	1.000													
16.	0.213	-0.200	0.056	1.000												
17.	0.207	-0.117	0.393	0.291	1.000											
18.	0.206	-0.330	0.283	0.247	0.490	1.000										
19.	0.288	-0.183	0.172	0.285	0.554	0.327	1.000									
20.	0.189	-0.032	0.113	0.346	0.083	0.384	0.177	1.000								
21.	-0.151	0.399	-0.091	-0.063	-0.113	-0.303	-0.067	0.002	1.000							
22.	0.139	-0.063	0.333	0.151	0.472	0.477	0.214	0.385	-0.007	1.000						
23.	-0.336	-0.047	-0.174	-0.192	-0.089	-0.081	-0.207	-0.119	-0.128	-0.094	1.000					
24.	-0.181	0.225	0.106	0.059	0.086	-0.015	0.282	0.192	0.219	0.282	0.144	1.000				
25.	0.323	-0.166	0.194	0.431	0.281	0.140	0.215	0.343	-0.284	-0.006	-0.009	-0.043	1.000			
26.	0.104	-0.200	0.290	0.272	0.264	0.455	0.242	0.465	-0.032	0.275	-0.012	0.065	0.361	1.000		
27.	0.147	-0.264	0.164	0.134	0.266	0.217	0.206	0.187	-0.283	0.447	0.035	0.350	0.257	0.201	1.000	
28.	0.144	-0.098	-0.273	-0.145	-0.142	-0.072	-0.065	0.183	-0.154	-0.018	0.160	0.245	0.146	0.028	0.463	1.000

Values are significant at \*\*\* $p < 0.01$ ; \*\*  $p < 0.05$ ; \* $p < 0.10$

Table 13 - Pearson Correlation including all Variables in Validation Stage

Validation Stage	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
1. Age	1.000											
2. Team Size	-0.468	1.000										
3. Team Allocation	-0.043	0.167	1.000									
4. Ownership Origin	-0.166	0.296	0.291	1.000								
5. Ownership Structure	0.080	0.169	0.188	0.334	1.000							
6. Revenue	-0.409	0.205	-0.032	-0.032	0.232	1.000						
7. Firm Offer	0.007	-0.115	-0.049	-0.049	-0.278	-0.041	1.000					
8. Firm Focus	0.015	0.032	0.022	0.148	-0.196	-0.235	0.443	1.000				
9. HQ Location	0.284	-0.053	0.467	0.349	0.305	-0.205	-0.219	-0.018	1.000			
10. Export Orientation	-0.290	0.296	0.173	0.291	0.188	0.523	-0.288	-0.229	-0.007	1.000		
11. Internationalization	0.211	0.053	0.363	0.244	0.133	-0.213	-0.141	-0.234	0.312	0.125	1.000	
12. International Commitment	-0.410	0.243	-0.022	0.229	0.196	0.087	-0.315	-0.193	-0.487	0.355	0.108	1.000
13. Leadership	0.013	-0.052	-0.397	-0.027	0.064	-0.093	0.004	0.030	-0.121	-0.194	-0.017	0.008
14. Bootstrapping	-0.254	0.293	-0.072	0.014	0.051	-0.026	0.017	0.068	-0.184	-0.044	-0.157	0.159
15. Formal Debt	0.237	-0.330*	-0.116	-0.172	-0.106	-0.186	-0.172*	0.249	-0.086	-0.227	-0.258	0.050
16. Informal Debt	0.031	0.109	0.403	0.254	0.350	0.060	-0.333	-0.197	0.503	0.073	0.148	-0.073
17. Vent. Capital	0.337**	-0.078	0.145	0.022	-0.026	-0.182	-0.188	0.192**	0.160	-0.020	0.132	-0.042
18. Angel Investors	0.217*	0.054*	-0.235	-0.223	0.058	-0.116	-0.213*	0.007	0.036	-0.466**	-0.207	-0.158
19. Corp. Vent. Cap.	-0.015	0.080	0.048	-0.070	-0.112	-0.180	-0.101	0.220	0.182	-0.250	0.005	-0.195
20. Crowdfunding	-0.224	0.416	0.143	0.357	0.447	0.108	-0.413	-0.217	0.265	0.362	0.360	0.314
21. Entr. Talent	-0.150	0.080	0.071	0.087	0.022	-0.045	0.084	0.208	0.078	0.014	0.147	-0.074
22. Work. Talent	0.195	0.013	-0.051	-0.096	0.003	-0.216	-0.202	0.146	0.187	-0.160	-0.014	-0.075
23. Knowledge	0.078	-0.167	-0.138	-0.286**	-0.188	-0.184	0.143**	-0.100	-0.177	-0.147	-0.070	0.128*
24. Network	0.109	-0.185	-0.073	-0.025	0.153	-0.101	-0.114	0.072	0.159	-0.116	-0.182	-0.055
25. Prof. Ser.	0.004	-0.000	0.022	0.029	0.032	0.008	-0.019***	0.483***	-0.092	-0.211*	-0.111	-0.014
26. Intermediaries	0.143	-0.063	0.007	-0.148**	0.128	0.078	-0.146	-0.156	0.134**	0.021	0.289	0.088**
27. Network. Ser	-0.029	-0.104	-0.056**	0.196	0.299	0.068	0.070*	0.177	0.287**	0.096	0.019	0.010
28. Engage. Ser.	-0.162	0.202	-0.142	0.092	0.084	-0.009	-0.053	-0.271**	-0.027	-0.078	-0.115	0.172

	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	24.	25.	26.	27.	28.
13.	1.000															
14.	-0.060	1.000														
15.	0.342	-0.201	1.000													
16.	-0.334	0.176	-0.312	1.000												
17.	0.338	-0.305	0.465	-0.044	1.000											
18.	0.207	0.135	0.200	0.286	0.224	1.000										
19.	0.331	-0.251	0.366	-0.166	0.546	0.304	1.000									
20.	0.153	-0.017	-0.229	0.304	0.139	0.022	0.063	1.000								
21.	-0.142	0.025	-0.447	0.086	-0.227	-0.182	0.031	0.092	1.000							
22.	0.267	-0.031	0.236	-0.045	0.473	0.263	0.375	0.292	0.008	1.000						
23.	0.028	0.002	-0.052	-0.115	0.105	0.210	-0.012	-0.217	0.037	0.063	1.000					
24.	0.112	0.184	-0.010	0.152	0.135	0.119	0.081	-0.002	-0.008	0.227	0.347	1.000				
25.	0.253	-0.120	0.249	0.012	0.389	0.359	0.509	0.065	-0.005	0.194	-0.038	0.267	1.000			
26.	0.028	-0.229	0.067	0.119	0.137	0.104	0.134	0.318	-0.079	0.243	0.040	0.005	0.170	1.000		
27.	0.281	-0.069	0.065	0.056	0.125	-0.064	0.133	0.306	-0.003	0.381	0.099	0.596	0.210	0.252	1.000	
28.	-0.037	-0.213	-0.354	0.223	-0.098	0.170	-0.162	0.373	-0.173	0.033	0.088	0.195	-0.022	0.142	0.116	1.000

Values are significant at \*\*\* $p < 0.01$ ; \*\*  $p < 0.05$ ; \* $p < 0.10$

Table 14 - Pearson Correlation including all Variables, Availability &amp; Access

Availability & Access	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
1. Age	1.000											
2. Team Size	-0.468	1.000										
3. Team Allocation	-0.043	0.167	1.000									
4. Ownership Origin	-0.166	0.296	0.291	1.000								
5. Ownership Structure	0.080	0.169	0.188	0.334	1.000							
6. Revenue	-0.409	0.205	-0.032	-0.032	0.232	1.000						
7. Firm Offer	0.007	-0.115	-0.049	-0.049	-0.278	-0.041	1.000					
8. Firm Focus	0.015	0.032	0.022	0.148	-0.196	-0.235	0.443	1.000				
9. HQ Location	0.284	-0.053	0.467	0.349	0.305	-0.205	-0.219	-0.018	1.000			
10. Export Orientation	-0.290	0.296	0.173	0.291	0.188	0.523	-0.288	-0.229	-0.007	1.000		
11. Internationalization	0.211	0.053	0.363	0.244	0.133	-0.213	-0.141	-0.234	0.312	0.125	1.000	
12. International Commitment	-0.410	0.243	-0.022	0.229	0.196	0.087	-0.315	-0.193	-0.487	0.355	0.108	1.000
13. Leadership	-0.227	0.330**	-0.444**	-0.023	0.157	0.023	-0.038	0.317**	-0.316	-0.013	-0.373	0.257
14. Bootstrapping	-0.183	0.038	-0.301	0.133	0.171	-0.009	0.085	-0.053	-0.297	0.098	-0.342**	0.366
15. Formal Debt	0.061	-0.268	-0.313	-0.056	0.114	-0.078	-0.040	0.016	-0.103	-0.261	-0.214	0.154
16. Informal Debt	-0.030	0.084	0.004	-0.095	0.054	-0.152*	-0.180*	-0.075	0.249	-0.248	-0.228	-0.303
17. Vent. Capital	0.125	0.058	-0.253	-0.195	-0.221	-0.192	-0.127**	0.004	-0.275	-0.361	-0.068	-0.024
18. Angel Investors	0.108	0.156	-0.125	-0.106	0.050	-0.063	-0.245***	0.000	-0.032	-0.297*	-0.068	-0.158
19. Corp. Vent. Cap.	0.116	-0.085	0.194	-0.062	-0.001	-0.323	-0.005	0.080	0.183	-0.459*	-0.145*	-0.186
20. Crowdfunding	0.163	0.112	0.082	0.099	0.415	0.0025	-0.224	-0.003	0.280*	0.000	0.042	0.070*
21. Entr. Talent	-0.052	0.019	0.161	-0.121	-0.019	-0.007*	-0.044	0.205	-0.002	-0.288***	-0.236	0.080**
22. Work. Talent	-0.201	0.300	-0.189	-0.062	0.227*	0.122	-0.027	0.146	-0.038	-0.244**	-0.240	-0.056
23. Knowledge	0.262	-0.077	0.056	-0.322*	0.120	-0.207	0.047	0.010	0.070	-0.419	-0.076	-0.221
24. Network	0.306	-0.075	0.032	0.044	0.249	-0.221	-0.092	-0.037	0.033	-0.292	0.196	0.006
25. Prof. Ser.	0.232	-0.129	-0.264	-0.143	0.035	0.0101	0.227	0.113	-0.275*	-0.318	-0.084	-0.124
26. Intermediaries	0.230	-0.039	-0.038	0.028	-0.059	-0.180	-0.063	0.058	0.023	-0.235	-0.035	-0.050
27. Network. Ser	0.173	0.024	-0.047	0.041	0.092	-0.194	0.075	0.137	-0.153	-0.176	0.096	0.185
28. Engage. Ser.	-0.018	0.175	-0.096	0.185	0.378	-0.045	0.038	-0.008	-0.049	0.036	0.060	0.200

	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	24.	25.	26.	27.	28.
13.	1.000															
14.	0.476	1.000														
15.	0.281	0.507	1.000													
16.	0.158	0.203	0.116	1.000												
17.	0.278	0.334	0.441	0.346	1.000											
18.	0.402	0.060	0.320	0.464	0.689	1.000										
19.	0.147	0.333	0.474	0.390	0.579	0.500	1.000									
20.	0.206	0.033	-0.198	0.175	-0.106	0.105	0.064	1.000								
21.	0.175	0.004	-0.011	0.154	0.034	-0.018	0.283	0.476	1.000							
22.	0.523	0.117	0.030	0.383	0.312	0.396	0.317	0.299	0.438	1.000						
23.	0.122	-0.011	0.031	0.310	0.331	0.434	0.510	0.530	0.348	0.463	1.000					
24.	0.175	0.040	0.043	0.248	0.353	0.525	0.418	0.433	0.156	0.396	0.716	1.000				
25.	0.155	0.240	0.121	0.241	0.491	0.433	0.322	0.200	0.092	0.420	0.512	0.663	1.000			
26.	0.120	0.160	0.132	0.242	0.487	0.422	0.505	0.351	0.446	0.474	0.520	0.435	0.504	1.000		
27.	0.294	0.146	-0.083	0.084	0.236	0.216	0.273	0.553	0.435	0.310	0.545	0.711	0.436	0.400	1.000	
28.	0.551	0.275	-0.142	0.125	-0.062	0.099	-0.074	0.458	0.131	0.292	0.217	0.278	0.023	0.080	0.436	1.000

Values are significant at \*\*\* $p < 0.01$ ; \*\*  $p < 0.05$ ; \* $p < 0.10$

### APPENDIX 3. - Linear Regression Output from STATA14

Table 15 - Leadership & Company Profile in Discovery

Linear regression						
				Number of obs	=	34
				F(12, 21)	=	0.98
				Prob > F	=	0.4985
				R-squared	=	0.2097
				Root MSE	=	27.087
-----						
st1_ldrshp	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
-----	-----	-----	-----	-----	-----	-----
age_group	-4.864749	12.38717	-0.39	0.698	-30.62528	20.89578
team_s_group	11.52787	9.309216	1.24	0.229	-7.831704	30.88744
team_a_group	7.93834	19.58355	0.41	0.689	-32.78788	48.66456
owner_group	14.26234	11.18371	1.28	0.216	-8.99546	37.52014
owner2_group	.9761267	16.33123	0.06	0.953	-32.98653	34.93878
reven_group	-3.123588	15.31655	-0.20	0.840	-34.97609	28.72891
offer_group	-13.65857	12.44767	-1.10	0.285	-39.54492	12.22778
firm_group	3.059591	11.21868	0.27	0.788	-20.27092	26.39011
HQ_group	-25.3799	25.60948	-0.99	0.333	-78.63773	27.87793
export_group	-9.732888	10.62104	-0.92	0.370	-31.82056	12.35478
intrn_group	-1.49411	9.834011	-0.15	0.881	-21.94506	18.95684
intrn_comm	-17.25673	18.30452	-0.94	0.357	-55.32305	20.80959
_cons	88.49501	16.71873	5.29	0.000	53.72651	123.2635
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Table 16 - Leadership &amp; Company Profile in Validation

Linear regression	Number of obs	=	34
	F(12, 21)	=	1.44
	Prob > F	=	0.2241
	R-squared	=	0.2512
	Root MSE	=	27.176

st2_ldrshp	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
age_group	-11.51645	13.34634	-0.86	0.398	-39.27169	16.23879
team_s_group	-3.46958	10.50941	-0.33	0.745	-25.32509	18.38593
team_a_group	-22.58892	13.33781	-1.69	0.105	-50.32642	5.148586
owner_group	3.641831	12.44092	0.29	0.773	-22.23047	29.51413
owner2_group	16.3263	15.52885	1.05	0.305	-15.96772	48.62032
reven_group	-8.354668	19.70621	-0.42	0.676	-49.33598	32.62664
offer_group	-4.837323	12.88545	-0.38	0.711	-31.63409	21.95944
firm_group	3.857738	12.36137	0.31	0.758	-21.84913	29.56461
HQ_group	-8.866466	24.14238	-0.37	0.717	-59.07329	41.34036
export_group	-5.85485	14.52845	-0.40	0.691	-36.06841	24.35871
intrn_group	10.53528	12.44576	0.85	0.407	-15.34709	36.41764
intrn_comm	-11.54586	22.46695	-0.51	0.613	-58.26845	35.17672
_cons	77.26911	27.10905	2.85	0.010	20.89275	133.6455

Table 17 - Leadership &amp; Company Profile Availability &amp; Access

Linear regression

Number of obs	=	34
F(12, 21)	=	4.70
Prob > F	=	0.0010
R-squared	=	0.6406
Root MSE	=	18.265

	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
pres_ldrshp						
age_group	-5.782929	10.06565	-0.57	0.572	-26.7156	15.14974
team_s_group	17.02123	6.390903	2.66	0.015	3.730617	30.31184
team_a_group	-23.15175	10.09261	-2.29	0.032	-44.14049	-2.16302
owner_group	-10.22509	7.19436	-1.42	0.170	-25.18658	4.736402
owner2_group	20.22199	13.22801	1.53	0.141	-7.287167	47.73114
reven_group	-9.818253	10.38799	-0.95	0.355	-31.42126	11.78475
offer_group	-3.622883	10.01307	-0.36	0.721	-24.44621	17.20044
firm_group	21.52146	9.514329	2.26	0.034	1.73533	41.30759
HQ_group	1.486907	17.39548	0.09	0.933	-34.68898	37.66279
export_group	2.848371	7.970099	0.36	0.724	-13.72636	19.4231
intrn_group	-8.266836	9.854156	-0.84	0.411	-28.75967	12.226
intrn_comm	9.632052	14.51499	0.66	0.514	-20.55352	39.81763
_cons	51.50078	14.87818	3.46	0.002	20.55992	82.44164

Table 18 - Bootstrapping &amp; Company Profile in Discovery

Linear regression	Number of obs	=	34
	F(12, 21)	=	1.11
	Prob > F	=	0.4043
	R-squared	=	0.2166
	Root MSE	=	29.376

	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
st1_fin_bt~r						
age_group	-6.387904	14.82747	-0.43	0.671	-37.22332	24.44751
team_s_group	-5.171925	13.72049	-0.38	0.710	-33.70525	23.3614
team_a_group	2.433651	12.92972	0.19	0.853	-24.45517	29.32247
owner_group	-1.497958	14.75234	-0.10	0.920	-32.17712	29.18121
owner2_group	-9.589128	13.05357	-0.73	0.471	-36.73551	17.55725
reven_group	-12.3159	13.54402	-0.91	0.373	-40.48222	15.85042
offer_group	-10.35309	15.62184	-0.66	0.515	-42.84048	22.13431
firm_group	17.03471	13.81066	1.23	0.231	-11.68613	45.75555
HQ_group	-2.43004	20.90777	-0.12	0.909	-45.91012	41.05004
export_group	11.18269	14.45155	0.77	0.448	-18.87096	41.23634
intrn_group	-10.173	11.97689	-0.85	0.405	-35.08031	14.73431
intrn_comm	-1.428819	16.74468	-0.09	0.933	-36.25128	33.39364
_cons	90.50579	18.3082	4.94	0.000	52.43181	128.5798

Table 19 - Bootstrapping &amp; Company Profile in Validation

Linear regression	Number of obs	=	34
	F(12, 21)	=	0.64
	Prob > F	=	0.7831
	R-squared	=	0.1933
	Root MSE	=	28.69

	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
st2_fin_bt~r						
age_group	-12.45872	15.3264	-0.81	0.425	-44.33171	19.41426
team_s_group	13.31665	12.5309	1.06	0.300	-12.74279	39.37609
team_a_group	-.9012056	15.07381	-0.06	0.953	-32.24891	30.4465
owner_group	-2.100977	14.55313	-0.14	0.887	-32.36586	28.16391
owner2_group	13.02413	17.42253	0.75	0.463	-23.208	49.25626
reven_group	-16.07347	16.24148	-0.99	0.334	-49.84948	17.70253
offer_group	-.2242368	15.87009	-0.01	0.989	-33.2279	32.77943
firm_group	-.1520701	12.26274	-0.01	0.990	-25.65383	25.34969
HQ_group	-10.63878	21.40642	-0.50	0.624	-55.15587	33.8783
export_group	-1.231789	13.04717	-0.09	0.926	-28.36486	25.90128
intrn_group	-5.699655	11.03375	-0.52	0.611	-28.64559	17.24628
intrn_comm	-4.777726	23.87825	-0.20	0.843	-54.43527	44.87982
_cons	79.42177	22.15572	3.58	0.002	33.34643	125.4971

Table 20 - Bootstrapping &amp; Company Profile Availability &amp; Access

Linear regression	Number of obs	=	34
	F(12, 21)	=	3.38
	Prob > F	=	0.0071
	R-squared	=	0.4962
	Root MSE	=	22.991

	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
pres_fin_b~r						
age_group	-4.308674	12.41558	-0.35	0.732	-30.1283	21.51095
team_s_group	-1.874085	9.522122	-0.20	0.846	-21.67642	17.92825
team_a_group	-12.5305	11.46131	-1.09	0.287	-36.3656	11.30459
owner_group	5.945502	12.65482	0.47	0.643	-20.37163	32.26264
owner2_group	18.14842	14.05109	1.29	0.211	-11.07243	47.36926
reven_group	-24.08229	19.49068	-1.24	0.230	-64.61539	16.4508
offer_group	18.2227	12.76653	1.43	0.168	-8.326753	44.77215
firm_group	-13.51472	11.40086	-1.19	0.249	-37.2241	10.19466
HQ_group	-.0689833	23.21391	-0.00	0.998	-48.34496	48.207
export_group	12.22412	11.15715	1.10	0.286	-10.97843	35.42668
intrn_group	-23.53939	9.486319	-2.48	0.022	-43.26727	-3.811511
intrn_comm	17.12158	24.85379	0.69	0.498	-34.5647	68.80786
_cons	65.34613	33.83336	1.93	0.067	-5.01419	135.7064

Table 21 - Formal Debt &amp; Company Profile in Discovery

Linear regression

Number of obs	=	34
F(12, 21)	=	1.25
Prob > F	=	0.3183
R-squared	=	0.5082
Root MSE	=	18.461

	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
stl_fin_bnk						
age_group	15.1635	8.679016	1.75	0.095	-2.885497	33.21251
team_s_group	.8869178	6.385173	0.14	0.891	-12.39178	14.16561
team_a_group	8.042546	8.510817	0.94	0.355	-9.656667	25.74176
owner_group	-9.377941	9.303334	-1.01	0.325	-28.72528	9.9694
owner2_group	-7.778217	12.84556	-0.61	0.551	-34.49202	18.93558
reven_group	-2.523829	12.13548	-0.21	0.837	-27.76093	22.71327
offer_group	-11.82779	7.707772	-1.53	0.140	-27.85698	4.201402
firm_group	15.77091	8.756317	1.80	0.086	-2.438845	33.98067
HQ_group	15.54277	16.85993	0.92	0.367	-19.51937	50.60492
export_group	-9.044196	10.12429	-0.89	0.382	-30.09882	12.01042
intrn_group	-11.21854	6.10478	-1.84	0.080	-23.91413	1.477045
intrn_comm	30.58762	19.43429	1.57	0.130	-9.828192	71.00344
_cons	2.400299	18.6384	0.13	0.899	-36.36038	41.16097

Table 22 - Formal Debt &amp; Company Profile in Validation

Linear regression	Number of obs	=	34
	F(12, 21)	=	2.84
	Prob > F	=	0.0177
	R-squared	=	0.4437
	Root MSE	=	26.072

st2_fin_bnk	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
age_group	17.46909	10.93286	1.60	0.125	-5.267041	40.20523
team_s_group	-14.95831	8.46273	-1.77	0.092	-32.55752	2.640901
team_a_group	4.506831	15.25947	0.30	0.771	-27.22698	36.24064
owner_group	-3.334463	9.066479	-0.37	0.717	-22.18924	15.52031
owner2_group	-10.54051	13.37961	-0.79	0.440	-38.36494	17.28393
reven_group	9.15636	13.21012	0.69	0.496	-18.31559	36.6283
offer_group	-22.05486	11.7979	-1.87	0.076	-46.58994	2.480206
firm_group	23.1384	13.80663	1.68	0.109	-5.574057	51.85085
HQ_group	2.49403	25.90348	0.10	0.924	-51.3752	56.36326
export_group	-12.24046	13.00374	-0.94	0.357	-39.28322	14.80229
intrn_group	-14.4553	12.61727	-1.15	0.265	-40.69434	11.78375
intrn_comm	20.57823	21.44675	0.96	0.348	-24.02272	65.17918
_cons	26.57866	19.7248	1.35	0.192	-14.4413	67.59863

Table 23 – Formal Debt &amp; Company Profile Availability &amp; Access

Linear regression

Number of obs	=	34
F(12, 21)	=	1.85
Prob > F	=	0.1045
R-squared	=	0.3354
Root MSE	=	27.084

	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
pres_fin_bnk						
age_group	2.58753	13.23651	0.20	0.847	-24.93929	30.11435
team_s_group	-13.06988	12.94994	-1.01	0.324	-40.00076	13.861
team_a_group	-15.74276	13.43159	-1.17	0.254	-43.67529	12.18977
owner_group	-.8888583	13.22896	-0.07	0.947	-28.39999	26.62228
owner2_group	5.042798	14.25362	0.35	0.727	-24.59922	34.68482
reven_group	8.909854	19.15837	0.47	0.647	-30.93216	48.75187
offer_group	2.199172	11.64913	0.19	0.852	-22.02652	26.42487
firm_group	2.775205	14.86437	0.19	0.854	-28.13694	33.68735
HQ_group	18.45669	24.95052	0.74	0.468	-33.43075	70.34413
export_group	-18.61861	15.2957	-1.22	0.237	-50.42776	13.19055
intrn_group	-9.65005	11.17647	-0.86	0.398	-32.89279	13.59269
intrn_comm	30.07062	25.2454	1.19	0.247	-22.43006	82.57129
_cons	22.46693	28.28034	0.79	0.436	-36.34526	81.27912

Table 24 - Informal Debt &amp; Company Profile in Discovery

Linear regression

Number of obs	=	34
F(12, 21)	=	1.41
Prob > F	=	0.2361
R-squared	=	0.4895
Root MSE	=	20.136

stl_fin_FFF	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
age_group	12.7097	12.65108	1.00	0.327	-13.59966	39.01907
team_s_group	3.724755	8.583906	0.43	0.669	-14.12646	21.57597
team_a_group	14.48842	8.10484	1.79	0.088	-2.366514	31.34336
owner_group	15.62601	9.610339	1.63	0.119	-4.359788	35.6118
owner2_group	-1.196186	14.72109	-0.08	0.936	-31.81037	29.418
reven_group	23.3072	17.23958	1.35	0.191	-12.54446	59.15886
offer_group	-24.68125	9.237601	-2.67	0.014	-43.8919	-5.470609
firm_group	14.30505	7.820167	1.83	0.082	-1.957877	30.56798
HQ_group	-3.949344	13.96232	-0.28	0.780	-32.98557	25.08688
export_group	-17.17043	10.84302	-1.58	0.128	-39.71972	5.378856
intrn_group	-2.241114	9.286774	-0.24	0.812	-21.55402	17.07179
intrn_comm	-8.984722	14.48459	-0.62	0.542	-39.10708	21.13763
_cons	57.69432	21.61882	2.67	0.014	12.73552	102.6531

Table 25 - Informal Debt &amp; Company Profile in Validation

Linear regression	Number of obs	=	34
	F(12, 21)	=	2.30
	Prob > F	=	0.0455
	R-squared	=	0.4140
	Root MSE	=	25.756

st2_fin_FFF	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
age_group	2.620168	12.5715	0.21	0.837	-23.52369	28.76402
team_s_group	3.686488	11.48897	0.32	0.751	-20.20614	27.57911
team_a_group	13.42047	15.57959	0.86	0.399	-18.97906	45.82
owner_group	5.720851	13.92699	0.41	0.685	-23.24191	34.68361
owner2_group	3.443158	13.83066	0.25	0.806	-25.31927	32.20559
reven_group	11.43187	18.37068	0.62	0.540	-26.77204	49.63578
offer_group	-10.61148	13.57692	-0.78	0.443	-38.84622	17.62326
firm_group	-7.613307	12.13217	-0.63	0.537	-32.84353	17.61691
HQ_group	20.17162	25.80126	0.78	0.443	-33.48503	73.82828
export_group	-11.02487	13.54256	-0.81	0.425	-39.18817	17.13843
intrn_group	-5.86727	10.65615	-0.55	0.588	-28.02795	16.29341
intrn_comm	3.815376	25.37624	0.15	0.882	-48.9574	56.58815
_cons	40.07955	31.09403	1.29	0.211	-24.58402	104.7431

Table 26 - Informal Debt &amp; Company Profile Availability &amp; Access

Linear regression

Number of obs	=	34
F(12, 21)	=	4.78
Prob > F	=	0.0009
R-squared	=	0.4096
Root MSE	=	24.83

	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
pres_fin_FFF						
age_group	-17.59679	11.04338	-1.59	0.126	-40.56276	5.369173
team_s_group	6.798734	9.293622	0.73	0.473	-12.52841	26.12588
team_a_group	2.928949	8.674964	0.34	0.739	-15.11163	20.96952
owner_group	-.4792267	10.0082	-0.05	0.962	-21.29242	20.33396
owner2_group	13.83491	13.17178	1.05	0.305	-13.55732	41.22713
reven_group	-23.02755	11.88109	-1.94	0.066	-47.73564	1.680529
offer_group	-15.89574	8.07411	-1.97	0.062	-32.68677	.8952949
firm_group	-10.38291	9.640951	-1.08	0.294	-30.43236	9.666551
HQ_group	-4.534383	15.02256	-0.30	0.766	-35.77551	26.70674
export_group	-6.141174	13.02147	-0.47	0.642	-33.2208	20.93845
intrn_group	-14.20293	8.559241	-1.66	0.112	-32.00285	3.596982
intrn_comm	-31.49731	18.5948	-1.69	0.105	-70.1673	7.172689
_cons	98.13067	22.34646	4.39	0.000	51.65865	144.6027

Table 27 - Venture Capital &amp; Company Profile in Discovery

Linear regression	Number of obs	=	34
	F(12, 21)	=	2.21
	Prob > F	=	0.0539
	R-squared	=	0.2925
	Root MSE	=	29.33

stl_fin_VC	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
age_group	7.971211	10.45771	0.76	0.454	-13.77679	29.71922
team_s_group	6.903442	10.86573	0.64	0.532	-15.69309	29.49997
team_a_group	3.207466	11.46185	0.28	0.782	-20.62876	27.04369
owner_group	-16.11155	8.673816	-1.86	0.077	-34.14974	1.926637
owner2_group	3.649751	16.77229	0.22	0.830	-31.23014	38.52965
reven_group	-4.892455	15.36886	-0.32	0.753	-36.85375	27.06885
offer_group	-8.642424	10.32077	-0.84	0.412	-30.10564	12.82079
firm_group	13.2127	16.98645	0.78	0.445	-22.11257	48.53796
HQ_group	13.74522	25.77909	0.53	0.599	-39.86533	67.35577
export_group	-12.45779	15.86164	-0.79	0.441	-45.44387	20.52829
intrn_group	2.193279	14.79299	0.15	0.884	-28.57044	32.95699
intrn_comm	2.257857	25.23188	0.09	0.930	-50.21471	54.73042
_cons	26.62702	25.14913	1.06	0.302	-25.67345	78.9275

Table 28 - Venture Capital &amp; Company Profile in Validation

Linear regression	Number of obs	=	34
	F(12, 21)	=	1.40
	Prob > F	=	0.2410
	R-squared	=	0.2955
	Root MSE	=	29.171

st2_fin_VC	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
age_group	27.47214	12.35507	2.22	0.037	1.778357	53.16592
team_s_group	3.005681	13.0891	0.23	0.821	-24.21459	30.22595
team_a_group	7.778879	15.46054	0.50	0.620	-24.37308	39.93083
owner_group	-1.092447	10.61015	-0.10	0.919	-23.15746	20.97256
owner2_group	-14.35537	13.12971	-1.09	0.287	-41.66011	12.94936
reven_group	10.40747	19.84554	0.52	0.605	-30.8636	51.67854
offer_group	-17.5691	12.71174	-1.38	0.181	-44.0046	8.866413
firm_group	20.99419	9.504086	2.21	0.038	1.22936	40.75902
HQ_group	4.800415	27.01426	0.18	0.861	-51.37881	60.97964
export_group	-2.427892	18.0402	-0.13	0.894	-39.94455	35.08876
intrn_group	2.235827	14.5155	0.15	0.879	-27.9508	32.42245
intrn_comm	11.75987	19.59871	0.60	0.555	-28.99787	52.51761
_cons	40.14972	25.99358	1.54	0.137	-13.9069	94.20634

Table 29 - Venture Capital &amp; Company Profile Availability &amp; Access

Linear regression

Number of obs	=	34
F(12, 21)	=	4.64
Prob > F	=	0.0011
R-squared	=	0.4355
Root MSE	=	20.28

	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
pres_fin_VC						
age_group	7.590273	9.084342	0.84	0.413	-11.30165	26.4822
team_s_group	10.31891	8.082564	1.28	0.216	-6.489701	27.12752
team_a_group	.4310505	10.47574	0.04	0.968	-21.35444	22.21654
owner_group	9.239508	9.558033	0.97	0.345	-10.63751	29.11653
owner2_group	-7.143257	14.33419	-0.50	0.623	-36.95283	22.66632
reven_group	-.559017	13.71533	-0.04	0.968	-29.08161	27.96357
offer_group	-21.8629	8.197568	-2.67	0.014	-38.91068	-4.815126
firm_group	-.5193978	9.160101	-0.06	0.955	-19.56887	18.53008
HQ_group	-28.69528	20.04459	-1.43	0.167	-70.38028	12.98972
export_group	-18.80805	10.99362	-1.71	0.102	-41.67052	4.054427
intrn_group	3.13678	7.268381	0.43	0.670	-11.97865	18.25221
intrn_comm	-16.83359	22.04038	-0.76	0.454	-62.66906	29.00188
_cons	67.78327	23.86054	2.84	0.010	18.16255	117.404

Table 30 - Angel Investors &amp; Company Profile in Discovery

Linear regression	Number of obs	=	34
	F(12, 21)	=	0.83
	Prob > F	=	0.6198
	R-squared	=	0.2054
	Root MSE	=	36.919

stl_fin_AI	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
age_group	17.97117	23.17303	0.78	0.447	-30.21978	66.16213
team_s_group	1.899037	18.55924	0.10	0.919	-36.69701	40.49509
team_a_group	6.67773	19.77773	0.34	0.739	-34.45231	47.80777
owner_group	-12.10536	16.22627	-0.75	0.464	-45.84973	21.63902
owner2_group	-1.945393	21.46254	-0.09	0.929	-46.5792	42.68841
reven_group	10.99135	23.10337	0.48	0.639	-37.05473	59.03744
offer_group	-11.63792	20.64433	-0.56	0.579	-54.57015	31.29432
firm_group	12.79123	15.66242	0.82	0.423	-19.78055	45.36302
HQ_group	16.93533	31.39665	0.54	0.595	-48.35758	82.22823
export_group	-15.51034	19.62122	-0.79	0.438	-56.31491	25.29423
intrn_group	4.226783	16.65517	0.25	0.802	-30.40954	38.86311
intrn_comm	31.29864	28.40767	1.10	0.283	-27.77834	90.37561
_cons	28.59817	33.07473	0.86	0.397	-40.18449	97.38084

Table 31 - Angel Investors &amp; Company Profile in Validation

Linear regression	Number of obs	=	34
	F(12, 21)	=	4.12
	Prob > F	=	0.0023
	R-squared	=	0.5245
	Root MSE	=	16.808

	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
st2_fin_AI						
age_group	13.814	7.664446	1.80	0.086	-2.12509	29.75309
team_s_group	15.08049	8.451851	1.78	0.089	-2.496093	32.65708
team_a_group	-5.986566	6.52112	-0.92	0.369	-19.54798	7.574846
owner_group	-2.941498	6.821879	-0.43	0.671	-17.12837	11.24537
owner2_group	-3.253548	8.153468	-0.40	0.694	-20.20961	13.70252
reven_group	13.83232	9.766297	1.42	0.171	-6.477812	34.14244
offer_group	-13.56269	6.909916	-1.96	0.063	-27.93264	.8072718
firm_group	2.116623	6.510085	0.33	0.748	-11.42184	15.65509
HQ_group	7.420063	11.0009	0.67	0.507	-15.45757	30.29769
export_group	-26.51491	9.750703	-2.72	0.013	-46.7926	-6.23721
intrn_group	-6.804531	5.593966	-1.22	0.237	-18.43782	4.828759
intrn_comm	6.365232	13.34291	0.48	0.638	-21.38288	34.11334
_cons	62.79762	17.09961	3.67	0.001	27.23704	98.35821

Table 32 - Angel Investors &amp; Company Profile Availability &amp; Access

Linear regression

Number of obs	=	34
F(12, 21)	=	2.81
Prob > F	=	0.0184
R-squared	=	0.4237
Root MSE	=	23.858

	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
pres_fin_AI						
age_group	2.140709	14.37206	0.15	0.883	-27.74762	32.02904
team_s_group	13.14593	11.6383	1.13	0.271	-11.05724	37.3491
team_a_group	2.480465	11.59599	0.21	0.833	-21.63471	26.59564
owner_group	9.91404	11.6113	0.85	0.403	-14.23299	34.06107
owner2_group	9.156724	17.05184	0.54	0.597	-26.30452	44.61797
reven_group	1.62364	17.08245	0.10	0.925	-33.90125	37.14853
offer_group	-32.60479	9.30504	-3.50	0.002	-51.95568	-13.2539
firm_group	3.692907	11.38145	0.32	0.749	-19.97611	27.36193
HQ_group	-32.12778	20.39035	-1.58	0.130	-74.53183	10.27626
export_group	-21.0059	10.84782	-1.94	0.066	-43.56518	1.553373
intrn_group	3.844228	9.69584	0.40	0.696	-16.31938	24.00783
intrn_comm	-33.86698	20.66239	-1.64	0.116	-76.83676	9.102807
_cons	73.98098	23.92839	3.09	0.006	24.21917	123.7428

Table 33 - Corporate Venture Capital &amp; Company Profile in Discovery

Linear regression	Number of obs	=	34
	F(12, 21)	=	4.79
	Prob > F	=	0.0009
	R-squared	=	0.5661
	Root MSE	=	16.214

	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
stl_fin_CVC						
age_group	-.9157975	6.877936	-0.13	0.895	-15.21925	13.38765
team_s_group	9.983875	5.201829	1.92	0.069	-.8339194	20.80167
team_a_group	2.285426	8.193924	0.28	0.783	-14.75477	19.32563
owner_group	-7.610446	7.67638	-0.99	0.333	-23.57435	8.35346
owner2_group	4.749307	9.300513	0.51	0.615	-14.59217	24.09078
reven_group	-1.122661	12.99473	-0.09	0.932	-28.14668	25.90136
offer_group	1.643052	6.540493	0.25	0.804	-11.95865	15.24475
firm_group	.2614814	8.740697	0.03	0.976	-17.91579	18.43876
HQ_group	23.08848	12.4676	1.85	0.078	-2.839316	49.01627
export_group	-26.42496	7.530156	-3.51	0.002	-42.08478	-10.76514
intrn_group	-7.687088	7.187893	-1.07	0.297	-22.63513	7.260954
intrn_comm	16.14556	8.568081	1.88	0.073	-1.672736	33.96386
_cons	14.77993	15.14681	0.98	0.340	-16.71959	46.27944

Table 34 - Corporate Venture Capital &amp; Company Profile in Validation

Linear regression	Number of obs	=	34
	F(12, 21)	=	1.00
	Prob > F	=	0.4791
	R-squared	=	0.2536
	Root MSE	=	27.788

	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
st2_fin_CVC						
age_group	-9.360253	14.3469	-0.65	0.521	-39.19627	20.47577
team_s_group	6.716951	10.94948	0.61	0.546	-16.05374	29.48764
team_a_group	-.7827294	13.57704	-0.06	0.955	-29.01772	27.45226
owner_group	-6.886676	12.61788	-0.55	0.591	-33.127	19.35364
owner2_group	-5.268923	16.20932	-0.33	0.748	-38.97805	28.44021
reven_group	.26017	20.59351	0.01	0.990	-42.56638	43.08672
offer_group	-16.75747	14.47993	-1.16	0.260	-46.87014	13.35519
firm_group	16.76858	13.21293	1.27	0.218	-10.70922	44.24637
HQ_group	7.627776	25.56899	0.30	0.768	-45.54585	60.8014
export_group	-13.63522	13.38009	-1.02	0.320	-41.46064	14.19019
intrn_group	5.884203	14.33447	0.41	0.686	-23.92597	35.69438
intrn_comm	-7.402985	26.43753	-0.28	0.782	-62.38283	47.57686
_cons	52.49457	34.39576	1.53	0.142	-19.03534	124.0245

Table 35 - Corporate Venture Capital &amp; Company Profile Availability &amp; Access

Linear regression	Number of obs	=	34
	F(12, 21)	=	1.79
	Prob > F	=	0.1181
	R-squared	=	0.3772
	Root MSE	=	20.273

	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
pres_fin_CVC						
age_group	-1.196058	9.798141	-0.12	0.904	-21.57241	19.18029
team_s_group	.7037911	9.245373	0.08	0.940	-18.52301	19.9306
team_a_group	14.21068	11.99155	1.19	0.249	-10.72712	39.14848
owner_group	1.448103	10.99772	0.13	0.896	-21.42291	24.31912
owner2_group	2.589084	12.78905	0.20	0.842	-24.00721	29.18538
reven_group	-9.027944	13.68608	-0.66	0.517	-37.4897	19.43382
offer_group	-5.504114	9.893017	-0.56	0.584	-26.07777	15.06954
firm_group	-4.093016	10.53961	-0.39	0.702	-26.01134	17.82531
HQ_group	-.6454741	21.1099	-0.03	0.976	-44.54592	43.25498
export_group	-18.29183	10.07006	-1.82	0.084	-39.23367	2.650019
intrn_group	-12.0368	6.808288	-1.77	0.092	-26.19541	2.121809
intrn_comm	-3.105445	21.4483	-0.14	0.886	-47.70964	41.49875
_cons	41.76436	26.27071	1.59	0.127	-12.86857	96.39729

Table 36 - Crowdfunding &amp; Company Profile in Discovery

Linear regression	Number of obs	=	34
	F(12, 21)	=	1.42
	Prob > F	=	0.2307
	R-squared	=	0.2686
	Root MSE	=	30.523

	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
st1_fin_cr~f						
age_group	11.97035	18.95585	0.63	0.535	-27.45049	51.39119
team_s_group	18.71191	15.5597	1.20	0.243	-13.64625	51.07008
team_a_group	-2.760819	16.82356	-0.16	0.871	-37.74734	32.2257
owner_group	4.744482	14.50524	0.33	0.747	-25.42082	34.90979
owner2_group	14.70297	15.98684	0.92	0.368	-18.54349	47.94942
reven_group	10.44792	18.97012	0.55	0.588	-29.0026	49.89844
offer_group	-7.215539	16.0567	-0.45	0.658	-40.60728	26.1762
firm_group	13.62644	14.20412	0.96	0.348	-15.91265	43.16552
HQ_group	-1.86325	25.83193	-0.07	0.943	-55.58368	51.85718
export_group	-7.333978	15.17538	-0.48	0.634	-38.89292	24.22496
intrn_group	8.467864	14.1387	0.60	0.556	-20.93517	37.8709
intrn_comm	7.917911	27.31654	0.29	0.775	-48.88995	64.72577
_cons	-.6947883	30.3824	-0.02	0.982	-63.87845	62.48887

Table 37 - Crowdfunding &amp; Company Profile in Validation

Linear regression	Number of obs	=	34
	F(12, 21)	=	4.23
	Prob > F	=	0.0019
	R-squared	=	0.5581
	Root MSE	=	19.764

	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
st2_fin_cr~f						
age_group	-10.69576	11.50658	-0.93	0.363	-34.62501	13.23349
team_s_group	12.33257	10.63867	1.16	0.259	-9.791756	34.4569
team_a_group	-11.22157	9.703377	-1.16	0.260	-31.40085	8.957704
owner_group	-2.772795	9.761971	-0.28	0.779	-23.07393	17.52834
owner2_group	15.03162	11.71564	1.28	0.213	-9.332385	39.39563
reven_group	-2.698598	10.29964	-0.26	0.796	-24.11788	18.72068
offer_group	-5.697365	9.567635	-0.60	0.558	-25.59435	14.19962
firm_group	1.359683	10.04572	0.14	0.894	-19.53153	22.2509
HQ_group	17.08434	14.46465	1.18	0.251	-12.99655	47.16523
export_group	6.186042	9.879079	0.63	0.538	-14.35863	26.73071
intrn_group	13.59998	7.977426	1.70	0.103	-2.989986	30.18995
intrn_comm	9.692991	11.20654	0.86	0.397	-13.61227	32.99826
_cons	31.07679	15.22773	2.04	0.054	-.591011	62.74459

Table 38 - Crowdfunding &amp; Company Profile in Availability &amp; Access

Linear regression

Number of obs	=	34
F(12, 21)	=	2.21
Prob > F	=	0.0537
R-squared	=	0.3334
Root MSE	=	25.371

	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
pres_fin_c~f						
age_group	17.16824	14.41012	1.19	0.247	-12.79923	47.13572
team_s_group	12.64662	12.75675	0.99	0.333	-13.8825	39.17575
team_a_group	-6.132646	10.83321	-0.57	0.577	-28.66154	16.39625
owner_group	-11.55062	9.439318	-1.22	0.235	-31.18076	8.079514
owner2_group	9.836308	16.30387	0.60	0.553	-24.06945	43.74206
reven_group	13.52172	14.40038	0.94	0.358	-16.42552	43.46896
offer_group	1.963467	9.476085	0.21	0.838	-17.74313	21.67006
firm_group	7.78996	12.71774	0.61	0.547	-18.65803	34.23795
HQ_group	33.33478	18.81069	1.77	0.091	-5.784189	72.45374
export_group	-8.926963	11.47079	-0.78	0.445	-32.78178	14.92785
intrn_group	-6.023466	13.14669	-0.46	0.652	-33.36351	21.31658
intrn_comm	31.32074	15.39329	2.03	0.055	-.6913533	63.33283
_cons	3.87967	18.80623	0.21	0.839	-35.23003	42.98937

Table 39 - Entrepreneurial Talent &amp; Company Profile in Discovery

Linear regression	Number of obs	=	34
	F(12, 21)	=	1.06
	Prob > F	=	0.4399
	R-squared	=	0.3013
	Root MSE	=	18.595

	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
st1_tlnt_e~r						
age_group	-12.72227	8.824168	-1.44	0.164	-31.07313	5.628594
team_s_group	-10.4006	6.018328	-1.73	0.099	-22.9164	2.115201
team_a_group	-1.595237	6.460828	-0.25	0.807	-15.03127	11.84079
owner_group	-3.423676	5.761344	-0.59	0.559	-15.40505	8.557696
owner2_group	11.27371	12.20375	0.92	0.366	-14.10538	36.65281
reven_group	-13.15375	10.60104	-1.24	0.228	-35.19981	8.892323
offer_group	-9.877525	7.274922	-1.36	0.189	-25.00655	5.251503
firm_group	3.362347	9.197901	0.37	0.718	-15.76574	22.49043
HQ_group	-.3729453	12.84844	-0.03	0.977	-27.09274	26.34685
export_group	7.986637	8.135958	0.98	0.337	-8.933013	24.90629
intrn_group	7.008377	7.606868	0.92	0.367	-8.81097	22.82772
intrn_comm	-20.66915	12.27266	-1.68	0.107	-46.19156	4.853249
_cons	106.2362	15.09375	7.04	0.000	74.84706	137.6254

Table 40 - Entrepreneurial Talent &amp; Company Profile in Validation

Linear regression	Number of obs	=	34
	F(12, 21)	=	0.62
	Prob > F	=	0.8015
	R-squared	=	0.1943
	Root MSE	=	12.853

	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
st2_tlnt_e~r						
age_group	-11.19633	6.798483	-1.65	0.114	-25.33455	2.941885
team_s_group	-2.674533	5.025978	-0.53	0.600	-13.12663	7.777561
team_a_group	-1.101502	4.677053	-0.24	0.816	-10.82797	8.624961
owner_group	-1.005624	5.607985	-0.18	0.859	-12.66807	10.65682
owner2_group	7.340527	7.429568	0.99	0.334	-8.110107	22.79116
reven_group	-5.983445	7.294954	-0.82	0.421	-21.15413	9.187244
offer_group	-1.928775	4.780063	-0.40	0.691	-11.86946	8.011909
firm_group	7.021054	8.543202	0.82	0.420	-10.74551	24.78761
HQ_group	-4.793101	10.4685	-0.46	0.652	-26.56353	16.97733
export_group	3.337921	6.429545	0.52	0.609	-10.03305	16.70889
intrn_group	7.927318	5.363688	1.48	0.154	-3.227082	19.08172
intrn_comm	-10.33118	10.3486	-1.00	0.329	-31.85227	11.18991
_cons	94.81644	11.16165	8.49	0.000	71.60452	118.0284

Table 41 - Entrepreneurial Talent &amp; Company Profile Availability &amp; Access

Linear regression	Number of obs	=	34
	F(12, 21)	=	2.32
	Prob > F	=	0.0443
	R-squared	=	0.4360
	Root MSE	=	18.493

	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
pres_tlnt~tr						
age_group	10.14742	11.33426	0.90	0.381	-13.42345	33.7183
team_s_group	5.737904	10.06979	0.57	0.575	-15.20338	26.67919
team_a_group	10.38119	8.984714	1.16	0.261	-8.303542	29.06593
owner_group	-9.088984	9.162648	-0.99	0.333	-28.14375	9.965786
owner2_group	-12.92214	11.56724	-1.12	0.277	-36.97754	11.13326
reven_group	22.6159	12.41949	1.82	0.083	-3.211835	48.44364
offer_group	-2.589167	8.12466	-0.32	0.753	-19.48532	14.30699
firm_group	10.7093	7.806022	1.37	0.185	-5.524214	26.94281
HQ_group	20.77211	12.80444	1.62	0.120	-5.85619	47.4004
export_group	-24.51536	7.161358	-3.42	0.003	-39.40822	-9.622498
intrn_group	-12.20309	8.858431	-1.38	0.183	-30.62521	6.219021
intrn_comm	31.7639	11.79271	2.69	0.014	7.239618	56.28818
_cons	31.41694	15.75795	1.99	0.059	-1.353501	64.18739

Table 42 - Worker Talent &amp; Company Profile in Discovery

Linear regression

Number of obs	=	34
F(12, 21)	=	1.22
Prob > F	=	0.3336
R-squared	=	0.3245
Root MSE	=	33.767

	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
st1_tlnt_w~r						
age_group	23.45259	16.56097	1.42	0.171	-10.98784	57.89302
team_s_group	11.95513	18.28798	0.65	0.520	-26.07681	49.98706
team_a_group	-14.6254	19.44942	-0.75	0.460	-55.07269	25.82188
owner_group	-13.87642	18.59139	-0.75	0.464	-52.53933	24.78648
owner2_group	12.11211	20.05438	0.60	0.552	-29.59326	53.81747
reven_group	-2.148497	20.70895	-0.10	0.918	-45.21511	40.91812
offer_group	-4.374833	18.3479	-0.24	0.814	-42.53138	33.78171
firm_group	6.040159	15.06062	0.40	0.692	-25.28012	37.36044
HQ_group	27.99301	30.09497	0.93	0.363	-34.5929	90.57892
export_group	-8.034463	16.60256	-0.48	0.633	-42.56139	26.49246
intrn_group	-7.783875	13.25709	-0.59	0.563	-35.3535	19.78575
intrn_comm	14.04747	26.20849	0.54	0.598	-40.45608	68.55101
_cons	33.76341	35.03748	0.96	0.346	-39.10102	106.6278

Table 43 - Worker Talent &amp; Company Profile in Validation

Linear regression	Number of obs	=	34
	F(12, 21)	=	1.61
	Prob > F	=	0.1632
	R-squared	=	0.2456
	Root MSE	=	23.452

	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
st2_tlnt_w~r						
age_group	10.28561	11.7788	0.87	0.392	-14.20974	34.78096
team_s_group	9.360437	10.71182	0.87	0.392	-12.91601	31.63688
team_a_group	-7.179629	15.59987	-0.46	0.650	-39.62134	25.26208
owner_group	-11.82529	13.19481	-0.90	0.380	-39.2654	15.61482
owner2_group	-6.430412	18.25619	-0.35	0.728	-44.39623	31.53541
reven_group	2.485641	14.49292	0.17	0.865	-27.65403	32.62531
offer_group	-8.12579	12.93346	-0.63	0.537	-35.02239	18.77081
firm_group	12.82039	9.644689	1.33	0.198	-7.236842	32.87762
HQ_group	21.77876	24.09592	0.90	0.376	-28.33146	71.88897
export_group	-6.360764	9.736666	-0.65	0.521	-26.60927	13.88774
intrn_group	-2.434688	8.899814	-0.27	0.787	-20.94287	16.07349
intrn_comm	16.05701	20.27694	0.79	0.437	-26.1112	58.22522
_cons	64.25162	25.33728	2.54	0.019	11.55986	116.9434

Table 44 - Worker Talent &amp; Company Profile Availability &amp; Access

Linear regression

Number of obs	=	34
F(12, 21)	=	3.74
Prob > F	=	0.0041
R-squared	=	0.4344
Root MSE	=	20.508

	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
pres_tlnt~kr						
age_group	-10.27932	12.56816	-0.82	0.423	-36.41624	15.85761
team_s_group	14.76394	12.76363	1.16	0.260	-11.77948	41.30736
team_a_group	-9.561871	10.7731	-0.89	0.385	-31.96577	12.84202
owner_group	-5.82105	10.40086	-0.56	0.582	-27.45082	15.80872
owner2_group	17.86895	10.15372	1.76	0.093	-3.246861	38.98477
reven_group	7.485588	12.21925	0.61	0.547	-17.92573	32.8969
offer_group	-6.553173	9.780084	-0.67	0.510	-26.89197	13.78563
firm_group	9.587356	7.957772	1.20	0.242	-6.961737	26.13645
HQ_group	1.888822	14.31619	0.13	0.896	-27.88333	31.66098
export_group	-17.93146	8.475411	-2.12	0.046	-35.55704	-.3058784
intrn_group	-1.264336	8.706419	-0.15	0.886	-19.37032	16.84165
intrn_comm	-5.194275	13.91352	-0.37	0.713	-34.12902	23.74047
_cons	45.73029	16.37645	2.79	0.011	11.6736	79.78698

Table 45 - Knowledge &amp; Company Profile in Discovery

Linear regression

Number of obs	=	34
F(12, 21)	=	2.10
Prob > F	=	0.0656
R-squared	=	0.3146
Root MSE	=	24.5

st1_knwldg	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
age_group	-9.848975	9.680194	-1.02	0.321	-29.98004	10.28209
team_s_group	14.73346	9.066964	1.62	0.119	-4.122326	33.58924
team_a_group	-9.446233	13.41697	-0.70	0.489	-37.34835	18.45588
owner_group	-24.24181	9.624512	-2.52	0.020	-44.25708	-4.226543
owner2_group	1.445583	12.27793	0.12	0.907	-24.08777	26.97893
reven_group	6.0253	14.84688	0.41	0.689	-24.85047	36.90107
offer_group	13.43838	12.3664	1.09	0.289	-12.27895	39.15571
firm_group	4.990665	12.878	0.39	0.702	-21.7906	31.77193
HQ_group	19.19169	23.51205	0.82	0.424	-29.7043	68.08768
export_group	-4.126127	11.21207	-0.37	0.717	-27.4429	19.19064
intrn_group	11.51481	12.32066	0.93	0.361	-14.10742	37.13703
intrn_comm	23.2937	16.54229	1.41	0.174	-11.10787	57.69528
_cons	49.47767	25.23804	1.96	0.063	-3.007698	101.963

Table 46 - Knowledge &amp; Company Profile in Validation

Linear regression

Number of obs	=	34
F(12, 21)	=	2.23
Prob > F	=	0.0522
R-squared	=	0.3018
Root MSE	=	14.433

st2_knwldg	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
age_group	5.209531	6.266345	0.83	0.415	-7.822047	18.24111
team_s_group	1.30066	6.38941	0.20	0.841	-11.98685	14.58817
team_a_group	-2.935276	6.943124	-0.42	0.677	-17.37429	11.50374
owner_group	-11.08849	4.97178	-2.23	0.037	-21.42787	-.7491044
owner2_group	-7.16935	6.681269	-1.07	0.295	-21.06381	6.72511
reven_group	-3.30193	10.52282	-0.31	0.757	-25.18534	18.58148
offer_group	12.66726	5.787008	2.19	0.040	.6325172	24.702
firm_group	-6.140651	5.401862	-1.14	0.268	-17.37444	5.093136
HQ_group	14.05045	13.15878	1.07	0.298	-13.31474	41.41564
export_group	-.5095582	9.103054	-0.06	0.956	-19.4404	18.42128
intrn_group	-5.107811	7.192692	-0.71	0.485	-20.06583	9.850211
intrn_comm	20.79517	10.53937	1.97	0.062	-1.122654	42.71298
_cons	80.05218	13.84149	5.78	0.000	51.26722	108.8371

Table 47 - Knowledge &amp; Company Profile Availability &amp; Access

Linear regression

Number of obs	=	34
F(12, 21)	=	2.64
Prob > F	=	0.0247
R-squared	=	0.3580
Root MSE	=	21.565

	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
pres_knwldg						
age_group	5.200759	12.15301	0.43	0.673	-20.07281	30.47433
team_s_group	6.603608	10.80854	0.61	0.548	-15.87398	29.08119
team_a_group	8.175929	7.972524	1.03	0.317	-8.403843	24.7557
owner_group	-14.77826	8.561905	-1.73	0.099	-32.58371	3.0272
owner2_group	15.32305	12.74094	1.20	0.242	-11.17318	41.81928
reven_group	-6.572518	13.89222	-0.47	0.641	-35.46297	22.31793
offer_group	.5485814	7.779107	0.07	0.944	-15.62896	16.72612
firm_group	-1.797752	8.652349	-0.21	0.837	-19.7913	16.19579
HQ_group	-1.724656	14.55988	-0.12	0.907	-32.00358	28.55426
export_group	-13.27321	9.895481	-1.34	0.194	-33.85199	7.305572
intrn_group	-4.633368	10.79586	-0.43	0.672	-27.0846	17.81786
intrn_comm	-3.143924	14.35166	-0.22	0.829	-32.98983	26.70199
_cons	58.01714	23.14082	2.51	0.020	9.89316	106.1411

Table 48 - Network &amp; Company Profile in Discovery

Linear regression

Number of obs	=	34
F(12, 21)	=	1.88
Prob > F	=	0.0984
R-squared	=	0.3917
Root MSE	=	28.493

stl_ntwrks	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
age_group	-8.034818	13.94905	-0.58	0.571	-37.04346	20.97383
team_s_group	.2510606	14.30424	0.02	0.986	-29.49624	29.99836
team_a_group	-17.77775	14.8321	-1.20	0.244	-48.62279	13.0673
owner_group	-9.223649	15.33706	-0.60	0.554	-41.1188	22.67151
owner2_group	22.64328	15.08458	1.50	0.148	-8.726824	54.01338
reven_group	1.47016	16.68168	0.09	0.931	-33.22129	36.16161
offer_group	-3.969075	15.7592	-0.25	0.804	-36.74213	28.80398
firm_group	17.6244	14.51977	1.21	0.238	-12.57112	47.81992
HQ_group	34.17045	23.96617	1.43	0.169	-15.66994	84.01083
export_group	-8.090211	13.5439	-0.60	0.557	-36.25629	20.07587
intrn_group	-3.809154	13.12929	-0.29	0.775	-31.11301	23.49471
intrn_comm	29.78667	21.8344	1.36	0.187	-15.62045	75.1938
_cons	31.21508	27.74192	1.13	0.273	-26.4774	88.90755

Table 49 - Network &amp; Company Profile in Validation

Linear regression	Number of obs	=	34
	F(12, 21)	=	0.99
	Prob > F	=	0.4925
	R-squared	=	0.1796
	Root MSE	=	26.864

st2_ntwrks	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
age_group	-1.167599	13.04481	-0.09	0.930	-28.29577	25.96057
team_s_group	-8.770462	12.46881	-0.70	0.490	-34.70077	17.15984
team_a_group	-5.007657	11.03136	-0.45	0.655	-27.94863	17.93332
owner_group	-5.027903	13.39476	-0.38	0.711	-32.88382	22.82802
owner2_group	9.901753	13.93929	0.71	0.485	-19.08659	38.8901
reven_group	-4.433911	13.88999	-0.32	0.753	-33.31972	24.4519
offer_group	-3.622747	14.59509	-0.25	0.806	-33.97491	26.72941
firm_group	5.918628	13.48209	0.44	0.665	-22.11892	33.95617
HQ_group	14.71311	20.10337	0.73	0.472	-27.09414	56.52036
export_group	-1.532811	12.6583	-0.12	0.905	-27.85718	24.79155
intrn_group	-11.13274	13.2969	-0.84	0.412	-38.78516	16.51968
intrn_comm	8.008569	20.16682	0.40	0.695	-33.93064	49.94778
_cons	75.45523	24.50291	3.08	0.006	24.49863	126.4118

Table 50 - Network &amp; Company Profile Availability &amp; Access

Linear regression

Number of obs	=	34
F(12, 21)	=	1.30
Prob > F	=	0.2913
R-squared	=	0.3160
Root MSE	=	27.294

	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
pres_ntwrks						
age_group	10.1524	13.4627	0.75	0.459	-17.84482	38.14963
team_s_group	-.6346611	11.70941	-0.05	0.957	-24.98572	23.7164
team_a_group	6.509397	11.33636	0.57	0.572	-17.06586	30.08466
owner_group	10.34378	10.2919	1.01	0.326	-11.0594	31.74696
owner2_group	21.20712	15.11976	1.40	0.175	-10.23613	52.65038
reven_group	-4.531646	18.50418	-0.24	0.809	-43.0132	33.94991
offer_group	-12.76874	12.43263	-1.03	0.316	-38.6238	13.08632
firm_group	-.4251377	10.77391	-0.04	0.969	-22.8307	21.98042
HQ_group	-25.60975	20.20957	-1.27	0.219	-67.63784	16.41835
export_group	-18.51184	13.9772	-1.32	0.200	-47.57903	10.55535
intrn_group	9.926663	14.26692	0.70	0.494	-19.74302	39.59635
intrn_comm	-12.58623	20.17193	-0.62	0.539	-54.53604	29.36359
_cons	52.056	27.53616	1.89	0.073	-5.208579	109.3206

Table 51 - Professional Services &amp; Company Profile in Discovery

Linear regression	Number of obs	=	34
	F(12, 21)	=	1.11
	Prob > F	=	0.3991
	R-squared	=	0.3156
	Root MSE	=	26.098

st1_SS_prf~v	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
age_group	.6817143	13.18917	0.05	0.959	-26.74667	28.11009
team_s_group	12.92417	12.91353	1.00	0.328	-13.93099	39.77933
team_a_group	6.475139	10.92943	0.59	0.560	-16.25385	29.20413
owner_group	-1.318463	13.80174	-0.10	0.925	-30.02076	27.38383
owner2_group	-16.08389	14.5567	-1.10	0.282	-46.35621	14.18843
reven_group	14.42761	14.40159	1.00	0.328	-15.52215	44.37737
offer_group	-11.3117	13.4791	-0.84	0.411	-39.34303	16.71963
firm_group	14.99154	14.7416	1.02	0.321	-15.66529	45.64837
HQ_group	7.07767	17.20055	0.41	0.685	-28.69283	42.84817
export_group	-5.902447	11.32189	-0.52	0.608	-29.44761	17.64272
intrn_group	11.69026	11.16741	1.05	0.307	-11.53364	34.91416
intrn_comm	17.14094	16.36895	1.05	0.307	-16.90016	51.18204
_cons	17.77759	25.15923	0.71	0.488	-34.54388	70.09907

Table 52 - Professional Services &amp; Company Profile in Validation

Linear regression	Number of obs	=	34
	F(12, 21)	=	2.70
	Prob > F	=	0.0225
	R-squared	=	0.4647
	Root MSE	=	22.469

st2_SS_prf~v	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
age_group	-.0285731	11.03227	-0.00	0.998	-22.97143	22.91428
team_s_group	-5.541724	12.02336	-0.46	0.650	-30.54568	19.46223
team_a_group	7.60307	9.081685	0.84	0.412	-11.28333	26.48947
owner_group	5.753575	11.09007	0.52	0.609	-17.3095	28.81665
owner2_group	6.969345	13.47782	0.52	0.610	-21.05932	34.99801
reven_group	17.65422	14.25268	1.24	0.229	-11.98585	47.29429
offer_group	-25.39997	8.236995	-3.08	0.006	-42.52974	-8.2702
firm_group	35.96767	10.64042	3.38	0.003	13.83972	58.09563
HQ_group	-20.50161	12.71863	-1.61	0.122	-46.95145	5.94823
export_group	-18.0846	10.12529	-1.79	0.089	-39.14129	2.972083
intrn_group	7.147518	9.760497	0.73	0.472	-13.15055	27.44558
intrn_comm	-9.298194	12.59821	-0.74	0.469	-35.49761	16.90122
_cons	43.74281	24.37994	1.79	0.087	-6.958062	94.44367

Table 53 - Professional Services &amp; Company Profile Availability &amp; Access

Linear regression	Number of obs	=	34
	F(12, 21)	=	4.72
	Prob > F	=	0.0010
	R-squared	=	0.3587
	Root MSE	=	23.358

	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
pres_SS_pr~v						
age_group	10.20427	13.03101	0.78	0.442	-16.89521	37.30374
team_s_group	-1.085407	10.5739	-0.10	0.919	-23.07503	20.90421
team_a_group	-2.07402	9.522559	-0.22	0.830	-21.87726	17.72923
owner_group	9.2547	10.46009	0.88	0.386	-12.49825	31.00765
owner2_group	13.72611	11.55647	1.19	0.248	-10.30689	37.75911
reven_group	8.400177	15.12056	0.56	0.584	-23.04475	39.8451
offer_group	-2.911221	12.04568	-0.24	0.811	-27.96158	22.13914
firm_group	3.299516	10.74179	0.31	0.762	-19.03925	25.63828
HQ_group	-30.80023	16.73474	-1.84	0.080	-65.60202	4.001564
export_group	-14.66438	12.63849	-1.16	0.259	-40.94756	11.61881
intrn_group	6.264826	10.15369	0.62	0.544	-14.85093	27.38058
intrn_comm	-18.28965	19.65285	-0.93	0.363	-59.15998	22.58068
_cons	48.69362	24.96946	1.95	0.065	-3.233209	100.6205

Table 54 - Intermediaries &amp; Company Profile in Discovery

Linear regression	Number of obs	=	34
	F(12, 21)	=	1.65
	Prob > F	=	0.1529
	R-squared	=	0.2720
	Root MSE	=	32.102

	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
st1_SS_int~s						
age_group	25.22609	16.50736	1.53	0.141	-9.102844	59.55502
team_s_group	8.237104	17.52298	0.47	0.643	-28.20394	44.67814
team_a_group	-8.326426	15.3243	-0.54	0.593	-40.19505	23.5422
owner_group	-10.1838	14.04286	-0.73	0.476	-39.38753	19.01993
owner2_group	-27.38358	14.20065	-1.93	0.067	-56.91545	2.148291
reven_group	30.20326	17.45332	1.73	0.098	-6.092902	66.49943
offer_group	9.01887	16.34401	0.55	0.587	-24.97036	43.00811
firm_group	21.04435	13.53124	1.56	0.135	-7.095394	49.1841
HQ_group	51.32177	21.0865	2.43	0.024	7.47	95.17354
export_group	-13.05324	15.46277	-0.84	0.408	-45.20983	19.10334
intrn_group	-.2641674	12.80448	-0.02	0.984	-26.89255	26.36422
intrn_comm	48.79165	17.08548	2.86	0.009	13.26046	84.32285
_cons	-15.38738	28.4701	-0.54	0.595	-74.5942	43.81945

Table 55 - Intermediaries &amp; Company Profile in Validation

Linear regression	Number of obs	=	34
	F(12, 21)	=	2.20
	Prob > F	=	0.0546
	R-squared	=	0.3371
	Root MSE	=	27.681

st2_SS_int~s	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
age_group	14.96942	17.28976	0.87	0.396	-20.9866	50.92544
team_s_group	4.822854	11.97377	0.40	0.691	-20.07797	29.72368
team_a_group	-12.69777	9.938076	-1.28	0.215	-33.36513	7.969595
owner_group	-25.33488	10.40247	-2.44	0.024	-46.96801	-3.701755
owner2_group	-9.907238	20.46711	-0.48	0.633	-52.47092	32.65645
reven_group	30.54798	21.9689	1.39	0.179	-15.13885	76.23482
offer_group	8.573628	10.27156	0.83	0.413	-12.78725	29.9345
firm_group	6.439694	12.4235	0.52	0.610	-19.39638	32.27577
HQ_group	43.42676	17.76578	2.44	0.023	6.48081	80.37272
export_group	-11.1184	14.06494	-0.79	0.438	-40.36804	18.13124
intrn_group	15.74147	10.66872	1.48	0.155	-6.445354	37.92829
intrn_comm	44.36172	17.57328	2.52	0.020	7.816086	80.90735
_cons	4.854561	26.8193	0.18	0.858	-50.91923	60.62835

Table 56 - Intermediaries &amp; Company Profile Availability &amp; Access

Linear regression

Number of obs	=	34
F(12, 21)	=	0.84
Prob > F	=	0.6162
R-squared	=	0.1677
Root MSE	=	28.779

	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
pres_SS_in~s						
age_group	20.57216	14.10727	1.46	0.160	-8.765505	49.90983
team_s_group	7.456804	15.78496	0.47	0.642	-25.36981	40.28342
team_a_group	2.46056	12.0205	0.20	0.840	-22.53744	27.45856
owner_group	10.88642	13.86278	0.79	0.441	-17.9428	39.71564
owner2_group	-13.14845	14.61411	-0.90	0.378	-43.54017	17.24326
reven_group	8.475454	17.45017	0.49	0.632	-27.81417	44.76508
offer_group	-8.770715	10.09027	-0.87	0.395	-29.75459	12.21316
firm_group	-.0970644	13.02901	-0.01	0.994	-27.19237	26.99825
HQ_group	-1.258864	20.36143	-0.06	0.951	-43.60278	41.08505
export_group	-17.40152	13.98344	-1.24	0.227	-46.48168	11.67864
intrn_group	-6.253435	13.91218	-0.45	0.658	-35.18539	22.67852
intrn_comm	6.847467	17.52666	0.39	0.700	-29.60122	43.29616
_cons	48.24666	29.41952	1.64	0.116	-12.93458	109.4279

Table 57 - Networking Services &amp; Company Profile in Discovery

Linear regression

Number of obs	=	34
F(12, 21)	=	4.93
Prob > F	=	0.0007
R-squared	=	0.4955
Root MSE	=	22.096

	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
st1_SS_ntw~v						
age_group	17.22847	11.57537	1.49	0.152	-6.843831	41.30077
team_s_group	20.54478	12.58259	1.63	0.117	-5.622142	46.71171
team_a_group	-9.448333	11.42998	-0.83	0.418	-33.21827	14.3216
owner_group	-10.33687	13.65332	-0.76	0.457	-38.73051	18.05677
owner2_group	-3.77639	15.65975	-0.24	0.812	-36.34263	28.78985
reven_group	31.18234	14.12911	2.21	0.039	1.799256	60.56543
offer_group	23.5824	11.37943	2.07	0.051	-.0824174	47.24721
firm_group	12.1155	9.786672	1.24	0.229	-8.237	32.468
HQ_group	52.12725	20.14877	2.59	0.017	10.22559	94.02892
export_group	-7.320404	10.32477	-0.71	0.486	-28.79194	14.15113
intrn_group	-4.013789	6.74041	-0.60	0.558	-18.03124	10.00366
intrn_comm	40.05484	19.93727	2.01	0.058	-1.406991	81.51667
_cons	-40.09168	24.69708	-1.62	0.119	-91.45208	11.26871

Table 58 - Networking Services &amp; Company Profile in Validation

Linear regression	Number of obs	=	34
	F(12, 21)	=	3.10
	Prob > F	=	0.0113
	R-squared	=	0.4399
	Root MSE	=	21.306

	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
st2_SS_ntw~v						
age_group	-6.516874	9.165727	-0.71	0.485	-25.57805	12.5443
team_s_group	-9.209232	10.57263	-0.87	0.394	-31.19622	12.77775
team_a_group	-19.74543	7.94219	-2.49	0.021	-36.26211	-3.228739
owner_group	-10.27812	11.22042	-0.92	0.370	-33.61227	13.05602
owner2_group	11.37542	14.4139	0.79	0.439	-18.59993	41.35078
reven_group	8.635607	14.9449	0.58	0.570	-22.44401	39.71522
offer_group	16.50217	8.867933	1.86	0.077	-1.939711	34.94404
firm_group	14.8209	9.943877	1.49	0.151	-5.858527	35.50032
HQ_group	41.68961	16.45702	2.53	0.019	7.465371	75.91385
export_group	4.675543	10.19575	0.46	0.651	-16.52769	25.87877
intrn_group	1.937167	9.47855	0.20	0.840	-17.77456	21.64889
intrn_comm	27.32172	15.95477	1.71	0.102	-5.85803	60.50148
_cons	9.198711	24.74913	0.37	0.714	-42.26991	60.66733

Table 59 - Networking Services &amp; Company Profile Availability &amp; Access

Linear regression

Number of obs	=	34
F(12, 21)	=	1.52
Prob > F	=	0.1926
R-squared	=	0.2164
Root MSE	=	24.58

	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
pres_SS_nt~v						
age_group	14.35534	13.57542	1.06	0.302	-13.87628	42.58696
team_s_group	6.29653	11.54522	0.55	0.591	-17.71308	30.30614
team_a_group	-.3395569	10.45009	-0.03	0.974	-22.07171	21.3926
owner_group	.9448494	10.29686	0.09	0.928	-20.46865	22.35835
owner2_group	4.874898	17.51416	0.28	0.783	-31.54779	41.29759
reven_group	.1394871	15.26571	0.01	0.993	-31.60729	31.88627
offer_group	3.424534	10.72027	0.32	0.753	-18.86948	25.71855
firm_group	6.452427	9.205543	0.70	0.491	-12.69155	25.5964
HQ_group	-5.145999	20.73974	-0.25	0.806	-48.27665	37.98465
export_group	-9.612986	13.7042	-0.70	0.491	-38.11242	18.88645
intrn_group	3.595846	13.39099	0.27	0.791	-24.25224	31.44393
intrn_comm	15.04394	19.25845	0.78	0.443	-25.00619	55.09407
_cons	28.10531	19.77378	1.42	0.170	-13.01653	69.22714

Table 60 - Engagement Services &amp; Company Profile in Discovery

Linear regression	Number of obs	=	34
	F(12, 21)	=	7.38
	Prob > F	=	0.0000
	R-squared	=	0.5498
	Root MSE	=	23.595

	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
st1_SS_eng~v						
age_group	-1.924514	12.17986	-0.16	0.876	-27.25392	23.40489
team_s_group	3.044183	12.45573	0.24	0.809	-22.85893	28.9473
team_a_group	-22.62052	11.29621	-2.00	0.058	-46.11227	.8712239
owner_group	3.884699	11.00132	0.35	0.728	-18.9938	26.7632
owner2_group	1.616222	11.6921	0.14	0.891	-22.69883	25.93128
reven_group	33.7281	11.06002	3.05	0.006	10.72753	56.72867
offer_group	27.18444	12.84633	2.12	0.046	.4690308	53.89986
firm_group	3.55138	9.927408	0.36	0.724	-17.0938	24.19656
HQ_group	22.0452	18.03183	1.22	0.235	-15.45405	59.54445
export_group	-9.299266	9.517879	-0.98	0.340	-29.09278	10.49425
intrn_group	25.33445	9.723506	2.61	0.017	5.113315	45.55559
intrn_comm	31.75565	17.58605	1.81	0.085	-4.816535	68.32783
_cons	.2110288	19.82888	0.01	0.992	-41.02539	41.44745

Table 61 - Engagement Services &amp; Company Profile in Validation

Linear regression

Number of obs	=	34
F(12, 21)	=	2.25
Prob > F	=	0.0501
R-squared	=	0.3184
Root MSE	=	28.036

	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
st2_SS_eng~v						
age_group	2.381979	18.37308	0.13	0.898	-35.82694	40.5909
team_s_group	18.13574	15.59738	1.16	0.258	-14.30079	50.57228
team_a_group	-11.55737	13.24923	-0.87	0.393	-39.11066	15.99592
owner_group	4.248821	16.11977	0.26	0.795	-29.27407	37.77171
owner2_group	-7.10073	18.39461	-0.39	0.703	-45.35442	31.15296
reven_group	-.1960599	20.84016	-0.01	0.993	-43.53555	43.14343
offer_group	14.85931	15.64849	0.95	0.353	-17.6835	47.40213
firm_group	-26.67066	11.7902	-2.26	0.034	-51.18972	-2.151599
HQ_group	23.97357	21.63651	1.11	0.280	-21.02202	68.96917
export_group	-14.51329	12.38176	-1.17	0.254	-40.26256	11.23599
intrn_group	-15.74893	11.55277	-1.36	0.187	-39.77423	8.276373
intrn_comm	25.95921	23.376	1.11	0.279	-22.65385	74.57226
_cons	54.45645	27.57729	1.97	0.062	-2.893668	111.8066

Table 62 - Engagement Services &amp; Company Profile Availability &amp; Access

Linear regression

Number of obs	=	34
F(12, 21)	=	0.89
Prob > F	=	0.5661
R-squared	=	0.2812
Root MSE	=	24.801

	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
pres_SS_en~v						
age_group	-3.330544	15.99236	-0.21	0.837	-36.58849	29.9274
team_s_group	6.289438	10.67064	0.59	0.562	-15.90136	28.48024
team_a_group	-9.362435	11.74204	-0.80	0.434	-33.78135	15.05648
owner_group	1.146444	9.522617	0.12	0.905	-18.65692	20.94981
owner2_group	29.60992	20.76816	1.43	0.169	-13.57984	72.79968
reven_group	-16.11386	19.05649	-0.85	0.407	-55.74399	23.51628
offer_group	9.686271	12.98373	0.75	0.464	-17.31487	36.68741
firm_group	-1.711493	10.00367	-0.17	0.866	-22.51527	19.09228
HQ_group	-5.595055	23.0743	-0.24	0.811	-53.58069	42.39058
export_group	4.886408	13.12119	0.37	0.713	-22.40059	32.17341
intrn_group	2.175894	14.49177	0.15	0.882	-27.96139	32.31318
intrn_comm	.5613751	22.00005	0.03	0.980	-45.19023	46.31298
_cons	55.56444	26.08884	2.13	0.045	1.309738	109.8191