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Decision support systems

Influential factors in the startup and investor ecosystem

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Decision support systems: Influential factors in the startup and investor ecosystem

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ABSTRACT (MAX. 200 WORDS):
Startups struggle to transition from young and early stage startups to mature operational startups because of challenges in acquiring Venture Capital investments due to the competition from existing peers. This thesis proposes the use of Decision Support Systems to create and sustain competitive advantage for startups in the pre-investment and post-investment phases. The Actor Network theory has been used to map out the relevant networks and actors in the startup and investor ecosystem after which the Resource based view theory has been used to understand the value of Decision support systems resources and attributes in this ecosystem during different stages of investment. This thesis has been examined through 5 interviews with 3 mature startup founders and 2 investment managers. Key findings highlight factors and attributes of Decision support system resources from both Information System and non-Information system standpoints that lead to sustainable competitive advantage. Additionally, the thesis highlights the strategic role of Decision support systems in a startup's change management and planning

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Monalisha Nayak

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1 Introduction

This chapter highlights the background and motivation behind the thesis with regards to how a company's Decision Support System (DSS) resources can impact the startup's ability to attract outside investment. This chapter clarifies the problem area, states the limitations and defines key terms and concepts relevant to the research topic.

1.1 Background

"It's almost always harder to raise capital than you thought it would be, and it always takes longer. So, plan for that."

- Richard Harroch, Venture Capitalist

A startup refers to early stage companies with a unique set of objectives that allow them to expand and disrupt at a faster pace (Stone, 2018). Growth and rapid scaling are one of the factors that differentiate startups from small business where startups exhibit characteristics such as massive hiring and high burn rates (Mcnight, 2019). Startups are also characterized by their ability to introduce new ideas, innovations and technologies that would typically disrupt existing markets (Mcnight, 2019).

Due to their early age, massive growth and need to disrupt, startups face various challenges such as lack of stability (Mcnight, 2019), resource constraints and liability of newness (Yin & Luo, 2018), an absence of operation and production history, limited knowledge of the environments, inadequate relationships with suppliers and customers and immature, unpolished methods and routines (Islam, Fremeth & Marcus, 2018). Other startup challenges highlighted by Upwork (2019) include planning challenges, attracting the right talent and poor management. These challenges are magnified for seed stage startups who are fighting to endorse unproven technologies and profit oriented products in rising markets. Such startups not only lack financial, social and human capital to chase divine opportunities, but also the experience and legitimacy to deliver feasible products and services (Islam, Fremeth & Marcus, 2018).

Moreover, early stage startups seeking to acquire resources will struggle to demonstrate the legitimacy they need to transition from the conceptualization phase to the commercialization phase (Islam, Fremeth & Marcus, 2018) with significant challenges in product development and marketing sector (Sathaworawong, Thawesaengskulthai & Saengchote, 2019).They must therefore expertly overcome the thresholds over the organizational life cycle to guarantee their survival as well as growth in the market. Recent research in entrepreneurship by Cordova, Dolci & Gianfrate (2015), Kim & Wagman (2016) and Islam, Fremeth & Marcus, (2018) has revealed that the strategies used by the startups to overcome these thresholds involve costly and disruptive efforts to signal the quality of their ventures through establishing ties with investors, overcoming any forms of information asymmetries with investors.

Empirical studies highlight that a higher percentage of startups depend on equity investments compared to debts (Sathaworawong, Thawesaengskulthai & Saengchote, 2019). Venture Capitalists (VCs) have helped entrepreneurial startups to overcome some startup challenges by supporting their legitimacy, competitiveness and maturity (Islam, Fremeth & Marcus, 2018). Popular TV Shows such as "*Shark Tank*" and "*The Profit*" (Zipin, 2019) can give the impression that acquiring investment is an easy process when you have the right product and pitch. However, according to Libes (2017), getting VC funding is a hard task given that in a demographic like the United States where more than 500,000 companies are started each year, VCs only invest in fewer than 1000 of these companies. The percentage of companies that attract VC funding could even be lower given that most startups will receive investments from multiple investors, and this may cause double counting in these statistics, running the percentage of VC funded startups to 3 percent (Libes, 2017).

Startups can acquire funding through different models which provide easier and faster access to funds comparison to VCs (Wright, 2017). They include bootstrapping/self-funding, funding from networks, banks, accelerators, angel investors, peer to peer lending and crowdfunding (Wright, 2017). A significant rise in accelerator programs has allowed support of entrepreneurs and startups through providing them with workspace, housing, training and networks that may make them expand and attract investor funding (Wright, 2017). Angel Investors have also provided wider industry knowledge, mentorship and finances in exchange of equity (Wright, 2017), (Dibrova, 2015). Startups are also shifted their focus from VCs to financing their ventures disruptively through crowd funding (Loher, 2017), (Ahlers et al., 2015), (Bi, Liu & Usman, 2017). They take advantage of different investment personalities such as angelic backers, reward hunters, avid fans and tasteful hermits whose motivations are affected by their interests, playfulness, philanthropy, reward, relationship and recognition (Ryu & Kim, 2016).

Acquiring the right investment through VCs is not easy to do and is clearly taken from the perspective of financial stability which a startup reflects, as shown above. But in light of this, we recognized that investments on startups are neither typically seen from the strength that IS resources can bring for them as much focus is on the social networks (Stone, 2018), (Islam, Fremeth & Marcus, 2018) and innovation promoters such as patents (Lahr & Mina, 2016), (Dutta & Folta, 2016) of a startup. According to Powell & Dent-Micallef (1997), Pearlson and Saunders (2012) and Ashrafi & Mueller (2015) however, IS resources must be a key agenda for any organization, including those that are at the beginning of their operations.

1.2 Problem area and research question

Investors have become highly judicious in the process of selecting startups (Yin & Luo, 2018). The selection criteria that VCs use to invest in startups has been linked to factors such as the founder's and team's experience and networks, the mission of the company and the research and presentation of the idea (Alejandro Cremandes, 2019). Studies by Stone (2018), Ahlers et al., (2015), Dibrova (2015) and Zheng et al., (2014) have all highlighted how startups can use their social capital to be able to attract funding from VCs and other investors. Intellectual capital is another factor that has been linked to startup attractability to investments(Lahr & Mina, 2016). Lastly, a market size that signals significant returns and the valuation that allows more ownership would attract more investments (Novoa, 2018).

Among all the other types of investors, VCs are known to be generally highly knowledgeable about valuing startup and assessing founding teams because of the large amounts of investments they offer to startups (Ahlers et al., 2015). Therefore, they will be interested in the Information systems (IS) that support decision making for growth and strategy in a startup. Over time, VCs need to diffuse funds and undertake valuations which become hard to manage for both investors and entrepreneurs (Sathaworawong et al., 2018). Pearlson & Sanders (2012) highlight the importance of IS by terming them as a 'critical resource' in an organization as they support and consume a significant amount of company resources. This is because technology has become entwined with other classical functions in organizations such as marketing, operations, finance and accounting(Pearlson & Saunders, 2012) thus magnifying the criticalness of IT systems as a resource.

Decision support systems particularly assist people in an organization to make decisions faster and more efficiently (Power, 2007). The challenges experienced in a startup setting such as instability and rapid growth (Mcnight, 2019) can benefit from fast, efficient and strategic decision making. According to Ashrafi & Mueller (2015), when IT resources and capabilities are used in an organizational context, they contribute to an enhanced enterprise performance and optimize the competitive advantage of the company. The role played by a startup's IS resources such as decision support systems in attracting investments and giving a startup competitive advantage over its peers is not tackled in the literature as such Islam, Fremeth & Marcus(2018), Stone (2018), Dibrova (2015) and Burtch, Ghose & Wattal (2013). We therefore recognize the need to understanding better what role decision support systems actually play in competitive advantage for startups against their peers, particularly that Pearlson and Saunders (2012), Ashrafi & Mueller (2015) and (Powell & Dent-Micallef, 1997) and Mandal (2018) have shown that IS-resources enrich a company's infrastructure through increasing its visibility, maturity and readiness for the market.

As a result, we consider DSS as a key agenda for VC investors before investing in startups as the existing literature has not picked on it from this perspective yet. While this may not sound problematic, we foresee the need to raise the importance of IS resources in the DSS perspective, as a key competitive advantage compared to studies on startup investments that continues to ignore its effects. Startups in their infancy will continue to miss on the right guidelines and the crucial link on the role played by DSS in ensuring that they have a competitive advantage over their startup peers in an open market and that they are able to attract the right investment from an open market.

1.2.1 Research Question

We therefore see a gap with regards to the role IS decision support systems play in affecting a startup's ability to gain competitive advantage over time when seeking for investment through the following research question:

"What factors influence investors to invest in startups based on their existing Decision Support System Resources?"

1.3 Purpose

The purpose of this thesis is to explore and determine the key factors that influence investors into selecting startups for growth and expansion based on their current IS decision support systems. The thesis will further explore how DSS can provide a competitive advantage in different stages of the startup and investor journey such as the pre-investment stage where startups are seeking funding and post-investment when startups have already secured funding and want to continue maintaining and a sustainable competitive advantage and relationship with their investors. This is done through identifying both human and non-human factors that contribute to the startup and investor ecosystem through the Actor Network Theory (Latour, 2005) and identifying key DSS resources through the Resource based view theory (Wade & Hulland, 2004) to understand the interactions further with regards to competitive advantage. To further understand the value of these resources through different phases, the different investor motivations before and after investing are identified in this thesis.

1.4 Delimitation

This thesis will only focus on operational and mature startups that are already past the idea, prototype and go-to-market phases and have already launched and been operational for several years. These startups will therefore be looking for investment to grow and expand rather than start their business. The focus of the thesis is on mature startups and not seed startups because they lack sufficient historical data and records and may be operating on a precariousness business model (Sathaworawong, Thawesaengskulthai & Saengchote, 2019), factors which may impede the use of established decision support systems. We will also focus on startups that are business driven and profit making and not mission driven or social enterprise-oriented startups as we seek to investigate on competitive advantage in revenue generating business models. Lastly, the thesis will focus on VC type of investors who are purely driven by profitability in their quest to invest (Dutta & Folta, 2016).

1.5 Definitions

Startups.
According to (Ries, 2011), a startup is a human institution that is designed to deliver a new product or service under conditions of extreme uncertainty. For this thesis, we will differentiate the startups based on their maturity thus ‘Mature startups’ will refer to operational startups while ‘Young startups’ will refer to startups in their infancy stage which are not fully operational.
Venture Capitalists (VCs)
Investors providing startup companies with financial support for the purpose of long-term growth (Dutta & Folta, 2016).
Startup and investor ecosystem
Ecosystem definition has been borrowed from Moore (1996), where an ecosystem is a set of entities or organizations that are highly dependent on the input and output of each other. For this reason, the startup and investor ecosystem refer to the entities dependent between startup and investors.

2 Theoretical background

This chapter outlines the key supporting literature that form the foundational basis of this thesis. Section 2. talks about the theoretical choices that support these thesis. Section 2.2 examines the literature on Actor Network Theory to define the vocabulary with which we will describe, analyze and map out actors and networks within the startup investment funding ecosystem. In this section, we examine the literature on the multi-sided nature in the startups and investor ecosystem, highlighting the human and non-human actors in the ecosystem. We then present the final mapping of the multisided actors and networks. As is with the Actor Network Theory, this mapping will not explain how and why a network takes the form it does (Latour, 2005) but will thoroughly explore relational ties within this network. Section 2.3 talks about the Resource based view and analyses DSS systems as a resource. Section 2.4 gives a technical overview and summary of the decision support systems and technology. Lastly, section 2.5 highlights the Research framework influenced by both theories. This serves as a basis for the data collection and discussion of the results in Chapter 4 and 5.

2.1 Theoretical choices

For the underlying theoretical framework of this thesis, Actor Network Theory (ANT) and Resource based view (RBV) theory were selected to highlight Decision Support Systems (DSS) in the startup and investor ecosystem. This is because while ANT helps to evaluate the role of DSS as a non-human actor in the startup and investor multi-sided ecosystem, the RBV theory provides an understanding of how DSS can be resourceful and strategically adopted to support to a company's competitive advantage (Wade & Hulland, 2004). In this case, this applies to how a startup can differentiate itself from other existing startups when seeking to acquire funding and maintain sustainable relationships with investors.

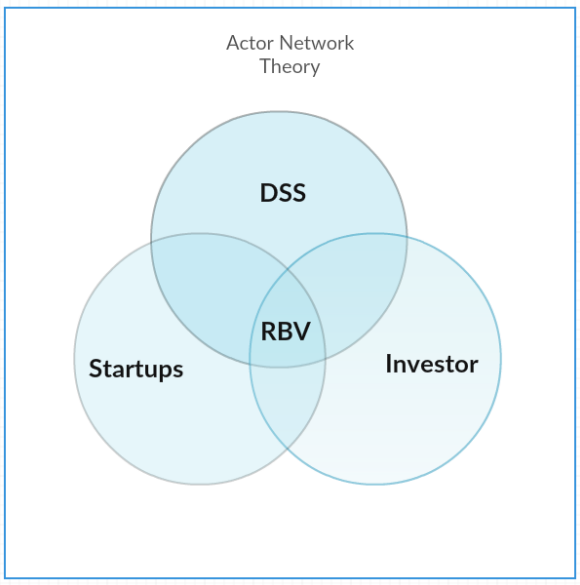

Fig 2.1: Theoretical framework summary

ANT is used to analyze the main human and non-human actors and networks in the startup investor ecosystem while the RBV theory highlights DSS as resources that provide competitive advantage relationship (Shan et al., 2019). From the mapped-out ANT of the startup and investor ecosystem, relationships between different actors are used to highlight key resources based on the frequency of the actor interactions.

Other theories considered for the thesis alongside the Actor Network Theory include the Signaling theory and Game theory. While the signaling theory is used specially to curb the challenge with information asymmetry in the startup and investor ecosystem (Ahlers et al., 2015), it does not focus on IT Systems as a resource for competitive advantage. Cooperative game theory is another theory considered alongside the Actor network theory given that actors gain more by cooperating than staying alone (Benqatla, Dikra & Bounabat, 2016) which is the case for startups aligning with investors. As this theory focuses on strategic alliances through social capital (Stone, 2018), it fails to highlight the strategic importance of IT resources.

2.2 Actor Network Theory

The Actor Network theory originates from the studies of Lawrence (1987), Callon (1986), and Latour (2005) where a systematic way that assigns agency to both non-human and human actors is proposed. It is derived from the combination of technological determinism approach where social changes are attributed to technological changes and social determinism where individual behavior changes are only explained by social interactions (Delukie, 2009). As the thesis focuses on the role of reporting systems in attracting investments in startups, the Actor Network Theory has been considered as an effective tool for mapping actors in the startup and investor ecosystem. We will be using the Actor Network Theory in our thesis to map out the complex multi-sided nature of both startups and investors in relation to reporting systems to gain a detailed description of the concrete mechanisms at work that are able to hold this network together while still maintaining impartiality in the actors involved.

Callon (1986) mentioned that everything takes a form of actor-network where an actor-network is where an actor's activity involves networking heterogeneous elements and networks should be able to redefine and transform what they are made of. Latour (2005)further built on this definition by defining an actor as:

"*The name of a movement, a displacement, a transformation, a translation or an enrolment. It is an association between entities which are in no way recognizable as being social in the ordinary manner, except during the brief moment when they are reshuffled together*"

When mapping actors, the characteristics of Actors in the Actor Network Theory have been considered. They include:

1. The principle of generalised symmetry where both human and non-human factors such as organization structures and artefacts have all integrated in the same conceptual framework, with equal amounts of agency (Latour, 2005). Identities and qualities will be defined during negotiations and differences are not created in the network and not presupposed (Latour, 2005).

2. For the non-human factors, the concept of punctualisation is applied where entire networks are converted into single points or nodes in other networks (Callon, 1986) to allow for easier mapping of complex actor-networks such as technology systems.
3. As actors do not have any predetermined differences, the interactions within the network therefore create meaning through material-semiotic relationships between objects and concepts (Latour, 2005).

2.2.1 Multi- sided stakeholders.

The main human actors that have been identified for this thesis are Investors, Startups and external stakeholders. Investor actors will include both ownership and lending investments. Ownership investments may be complex and highly regulated compared to lending (Hemer, 2011). However, both share the need to make profits (Beattie, 2019). Another group of actors include external stakeholders. These external stakeholders will include the society, the government and state regulators (Valančienė & Jegelevičiūtė, 2014). External stakeholders have been included because they directly affect the business conditions and external environments for Startups (Valančienė & Jegelevičiūtė, 2014).

Startups have further been broken down according to the structure of Baum and Silverman (2004) which highlights how investors use attributes provided by the entrepreneurs in their proposals. The 3 major issues of importance include human capital, intellectual capital and social/alliance capital (Baum & Silverman, 2004). In this thesis, the startup is the main actor with various sub-nodes in the form of departments that reflect different roles within the company. For instance, intellectual capital which not only covers innovation but subsequent patents (Ahlers et al., 2015) may be handled by the startup's Product and Design, R&D department while it's reporting and capital seeking capabilities may be handled by a different department of the startup. Social/alliance capital stems from business linkages, networks and social relationships (Ahlers et al., 2015) which provide complementary resources such as valuable information, greater reputation and legitimacy as well as financial resources (Baum & Silverman, 2004).

Other potential actors who will not be included in the mapping include banks, micro-lenders and web and software-based services. Many venture initiators may not have interest or experience in managing the financial aspects themselves and would prefer to hand over these tasks to intermediaries (Hemer, 2011). As these actors will normally have a neutral role between the investors and startups (Hemer, 2011), they will be ignored since they transport force from one entity to another without making any kind of transformation. A thesis highlighted a funding disparity between male and female entrepreneurs because of gender biased questions posed by investors when they sought for investments (Kanze et al., 2016). While adding basic categories such as class, gender, race and postcolonialism would allow to challenge patriarchy, eurocentrism and racism (Harding, 2008), that will not be the focus of this thesis.

Human Actors	Sub-actors	Role	Supporting literature
Investors	Formal Venture capital investors	Crediting or lending and Private Equity (PE) investments	(Dutta & Folta, 2016)
	Board of directors	Investing and strategy	(Dusil & Cerny, 2018) (Ahlers et al., 2015)
Startup	Management/Strategy	Capital seeking venture	(Hemer, 2011), (Ahlers et al., 2015),
	Product Design and Innovation/R&D	Innovation	(Ahlers et al., 2015)
	Commercialization/Sales & Marketing	Production, Distribution, Marketing, Sales, Customer support	(Ahlers et al., 2015)
	Operations (HR, Administration, Accounting)	Business support, Reporting.	(Baum & Silverman, 2004), (Ahlers et al., 2015)
	Technology	Reporting systems	(Ashrafi & Mueller, 2015)
Social capital/Ecosystem building	Board of advisers	Governance (Cooperate mandate and Legal procedures)	(Dusil & Cerny, 2018), (Ahlers et al., 2015)
	Accelerators	Speed up typical startup with emphasis on networking with venture capitalists, investors, peers, mentors	(Wright, 2017), (Stone, 2018)
	Angel investors	Provide Investments and value-added services (advice and mentorship)	(Dutta & Folta, 2016), (Stone, 2018)
External stakeholders	Government and State regulators	Govern business conditions and regulations	(Valančienė & Jegelevičiūtė, 2014)
	Society	Customers who help generate revenue	(Valančienė & Jegelevičiūtė, 2014)

Table 2.1: Literature summary - Human Actors.

2.2.2 Decision Support Systems

Bazerman (2013) highlights overconfidence, optimism, denying random events, anchoring the status quo and prospect theory as factors that affect result into bad investment decisions. When investors are overconfident in their ability to know which direction, the market will take and are overconfident about their knowledge, predictions and beliefs they tend to invest more (Bazerman, 2013). However, investing in startups possess great risks especially during the initial stages as they may be subject to dilution during startup IPOs (Dibrova, 2015). Dutta & Folta, (2016) further highlight that when startups launch technology-based ventures, they face considerable risks such as business model credibility, product viability as well as technological feasibility. By making investments in these startups, investors will assume this risk for an exchange of equity as well as offer help through strategy, management talent and development networks (Dutta & Folta, 2016).

(Ahlers et al., 2015) highlights further that the existence of information asymmetries between investors and entrepreneurs is a big challenge when it comes to investments. If there exist substantial information asymmetries and poor projects are more than good projects, venture capital markets may not exist. To reduce the asymmetries, gathering information, monitoring progress and providing input are some of the important aspects needed by early stage investors (Ahlers et al., 2015). For this reason, decision support systems will be considered as the non-human actors in the mapping to bridge the gap between investors and startups in this ecosystem.

For this thesis, the non-human actors have been differentiated based on the mode of assistance as the criterion for decision support systems. Therefore, the thesis will focus on:

1. Model-driven systems. Model-driven systems were selected for this thesis because of their ability to support the access and manipulation of financial and optimization models with the use of limited data (Power, 2007).
2. Data-driven systems. Data driven systems on the other hand give emphasis to the access and manipulation of company data both internally and externally in real time through querying and retrieval tools (Power, 2007). Both systems will be helpful in assisting investors to minimise errors in investment decision making because of overconfidence, optimism and denying random events (Bazerman, 2013) at different stages of investments.
3. Document-driven systems. Document-driven systems will comprise of technologies that provide document retrieval and analysis of documents such as policies and procedures, product specifications, meeting minutes, correspondence as well as corporate historical documents (Power, 2007). These systems will be helpful in reducing the information asymmetry challenge (Ahlers et al., 2015) experienced between investors and startups hence, the reason for choosing it as one of the actors.
4. Knowledge-driven systems. Other challenges witnessed with investors when making investment decisions include common biases, bounded awareness and emotional influences (Bazerman, 2013). Therefore, knowledge-driven systems have been considered as an additional non-human actor. These systems can be programmed with domain specific knowledge to aid in the understanding of domain specific problems (Power, 2007). By understanding the shifting decision criteria, managers can be made aware of their own subconscious preferences to improve their decision process and increase entrepreneur empathy towards managers (Yin & Luo, 2018).

Actors	Role	Supporting literature
Models driven systems – Financial models	Accessing and manipulating financial, optimization and/or simulation models to help in analysis	(Fan-Osuala, Zantedeschi & Jank, 2018), (Nugus, 2009a), (Nugus, 2009b), (Power, 2007)
Document driven systems	Computerized systems for representing and processing pieces of text	(Parhankangas & Ehrlich, 2014), (Power, 2007)
Knowledge-driven systems	Suggest and recommend actions for decision making, Aggregate a startup's knowledge	(Halawi et al., 2014), (Al-Natour & Cavusoglu, 2009) (Power, 2007)
Data- driven systems	Allows access to and manipulation of a time-series of internal company data, external and real-time data	(Song, Wang & Parry, 2010), (Power, 2007)

Table 2.2: Literature summary- The role of Decision Support Systems in the Startup and investor ecosystem.

2.2.3 Startup and investor ecosystem.

By defining both human and non-human factors based on the Actor Network theory, a mapping of the multi-sided nature in the Startup and Investor ecosystem was derived.

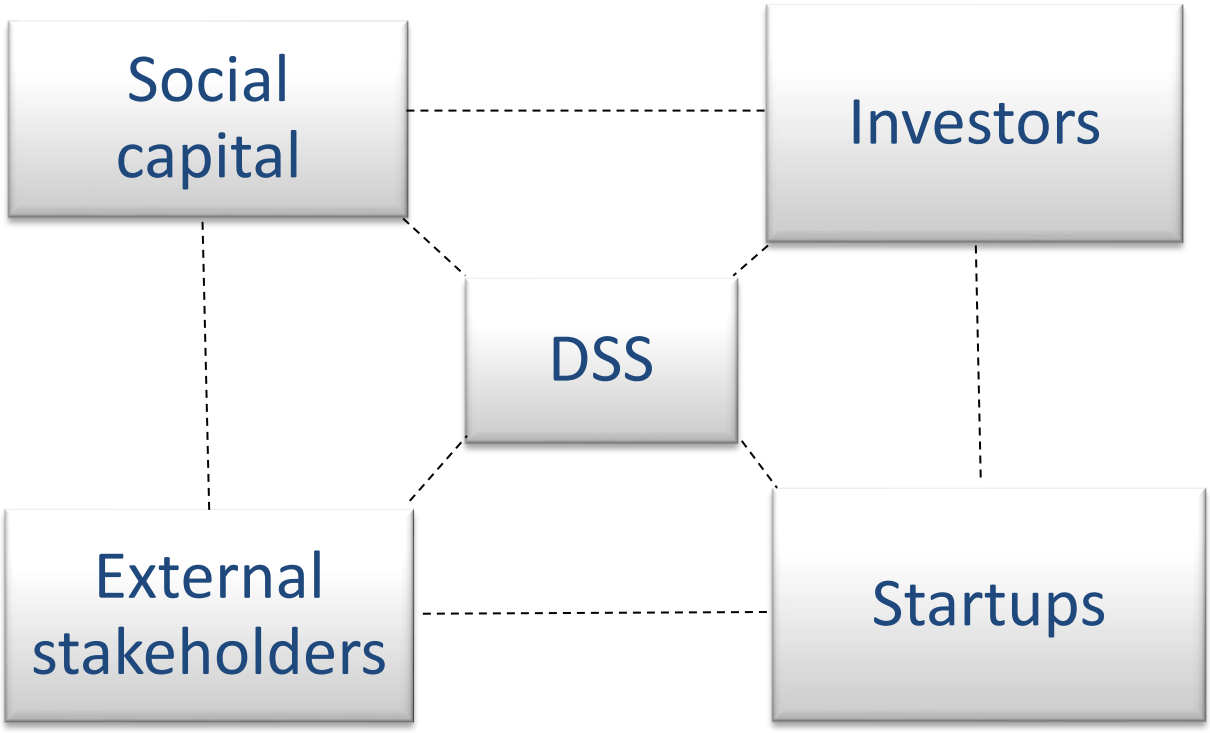

Fig 2.2: Human and non-human actors in the startup and investor ecosystem

2.3 Resource - based view theory

RBV theory implies that there is an essential relationship between the competitive advantage and the resources and capabilities that are utilized where a company's internal resources can be transformed into capabilities that improve performance (Shan et al., 2019). RBV is based on two underlying assertions that were developed in the strategic management theory (Barney, 1991). The assertions include that the resources and the capabilities possessed by competing companies may differ and that these resources may be long lasting (Barney, 1991), (Wernerfelt, 1984). The Resource based view theory allows for the specification of information system resources by providing the groundwork for mutually exclusive and exhaustive information assets and capabilities and also sets out an elaborate link between the IS resources and competitive advantage, providing a more useful way to measure the strategic value that comes with IS resources (Wade & Hulland, 2004). RBV provides a framework of evaluating the strategic value of information system resources (Wade & Hulland, 2004), which in this case refers to decision support systems. It differentiates technology and systems in relation to their performance.

As is with ANT where both human and non-human factors via a generalized symmetry (Latour, 2005) are considered, the resource-based view theory allows for comparison between Information system and non-information system resources (Wade & Hulland, 2004). One of the weaknesses of the resource-based view theory is that it does not fully recognize the role of resource complementarity (Wade & Hulland, 2004). Therefore, this thesis will explore resource complementarity with the help of Actor Network theory.

2.3.1. Decision Support Systems as a Resource.

According to Porter (1979), the five forces that bring about competition for organizations include new entrants, the threat of substitute products and services, suppliers bargaining power, supplier bargaining power and jockeying among current contestants. The essential usage of IT resources and capabilities will often contribute to enhanced enterprise performance as well as competitive advantage (Ashrafi & Mueller, 2015). Decision support systems comprise of information systems that support the process of decision making (Power, 2007). According to Power (2007), decision support systems are computer-based systems or subsystems that are interactive as they assist decision makers to put into use data, document, knowledge and model technologies to make decisions by identifying and solving problems.

DSS resource types

Wade & Hulland (2004) use a framework proposed by Day (1994) to categorize different capabilities based on the focus of the resource and the area the capabilities are deployed. Therefore, the resource types are grouped into:

1. "Inside-out" capabilities

These capabilities are deployed in the firm in response to market requirements and opportunities with a much more internal focus and include technology development and controls (Day, 1994). These resources are further broken down by Wade & Hulland (2004) into:

- IS Infrastructure where the components of IS such as the hardware and software components are considered.
- IS Technical skills where the current technical knowledge and the ability to manage existing knowledge is used to ensure competitive advantage through complex and advance skills that are hard to imitate.
- IS Development where a company has an appetite to experiment with new emerging technologies and encompasses the capabilities to develop and experiment with the new technologies.
- IS Cost where the ability of a firm to support a firm with cost effective and efficient IS operations is considered

2. "Outside-in" capabilities

These capabilities are oriented externally with an emphasis on market responsiveness and managing external relationships (Day, 1994).These resources are further broken down by Wade & Hulland (2004) into:

- External relationship management where the ability of a company to manage its IS functions with external stakeholders is examined.
- Market responsiveness where a company's ability to collect information from external sources, disseminate market intelligence internally and the response of the company to the learning is considered.

3. "Spanning" capabilities

These capabilities cater to both the inside-out and outside-in resources of an organization by integrating both capabilities for better internal integration, change management and planning (Day, 1994). These resources are further broken down by (Wade & Hulland, 2004) into:

- IS business partnerships which focus on the IS function in relation to other functions and departments of the firm
- IS planning change and management which focus on capabilities of a firm to plan, manage and use the right standards and technology architectures to support the changes.

DSS Attributes

Barney (1991) stated that for resources to hold potential as resources for a company, they should be valuable, rare, imperfectly imitable and not substitutable (VRIN criteria). To be able to track the usefulness of RBV theory in IS research, recognizing the attributes and characteristics that lead to the strategic importance of these resources should be considered (Wade & Hulland, 2004). Therefore, to further discuss IS attributes, Barney's VRIN criteria (Barney, 1991) has been expanded by Wade & Hulland (2004) to present a conclusive list of attributes that include:

(1) Value – where a resource is considered valuable to the company
(2) Rarity refers to a condition where a resource is not easily acquired simultaneously by many firms.
(3) Appropriability – where a resource can easily be reproduced
(4) Imitability- where a resource can easily be imitated by others. This is the ability of a firm to sustain competitive advantage based on the speed with which other firms can imitate it's strategy (Grant, 1991).
(5) Substitutability – where a resource can be acquired in-house or through third parties
(6) Mobility – where a resource can be acquired through factor markets.

The advantages from the resources and capabilities of a firm's resources are dependent on the sustainability of the competitive advantage which the capabilities and resources confer and the ability of the firm to appropriate rents earned from the capabilities and resources (Grant, 1991). The RBV over time framework adapted from Wade & Hulland (2004) shows different attributes of the resources compared over time in both the competitive advantage phase (in our case, when organizations are looking to differentiate themselves from other organizations so as to secure funding) and the sustainability phase (when startups have already secured funding and are looking for sustained advantage through maximizing the funding and relationship with the investors.)

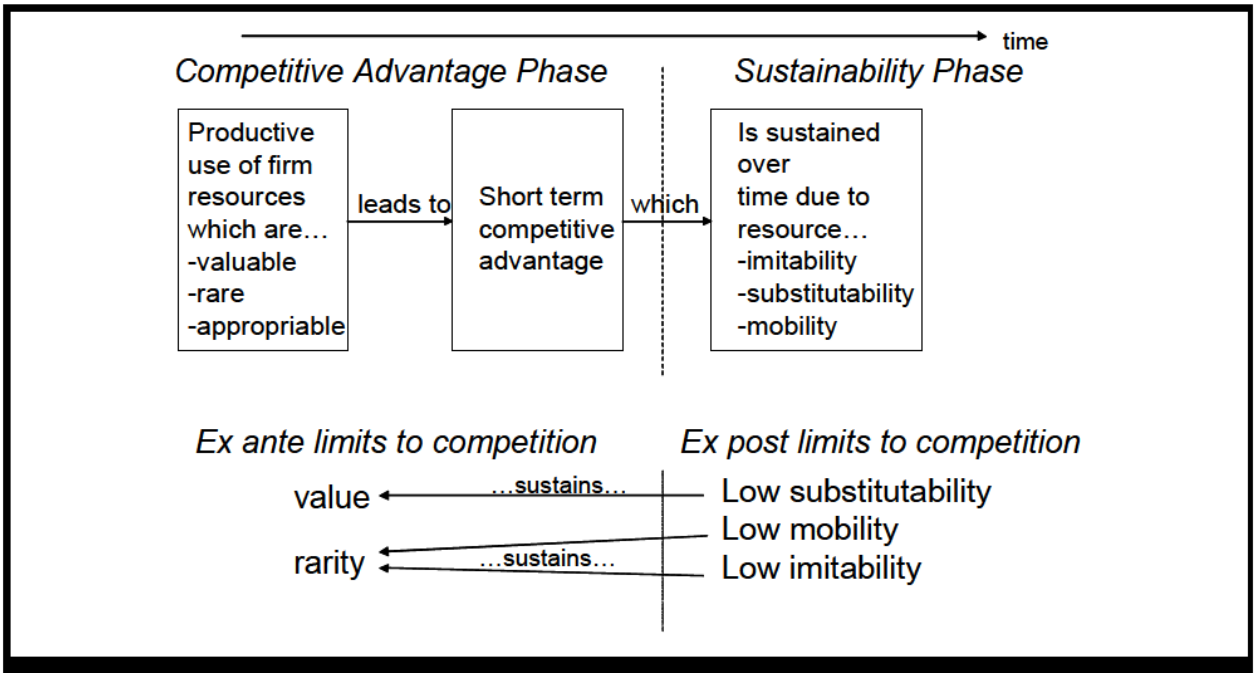

Fig 2.3: Resource based view attributes over time

Based on the relationship between the different attributes to achieve competitive advantage and to sustain it, this thesis will be focused on (1) Value (2) Rarity (3) Substitutability attributes. This is because mobility and imitability sustain rarity but do not have a direct link to value. Substitutability however, directly sustains value and rarity directly affects competitive advantage of a resource (Wade & Hulland, 2004).

2.4 Decision support systems – technical overview

DSS were first used in the early 1970s when the idea of using information systems to support decision making was introduced (Watson & Wixom, 2007). At that time, these systems were different from operational applications and transaction processing systems that helped track manual processes such as inventory control, payroll systems and order entry (Watson & Wixom, 2007). The Decision support system has expanded over the years because of the emergence of Online Analytical processing (OLAP), predictive analysis and executive information and with these developments came the term 'Business Intelligence' which describes analytic applications (Watson & Wixom, 2007). (Holsapple & Whinston, 1996) characterize DSS as:

1. Systems that include a body of knowledge which describes certain aspects of a decision maker's world and helps them specify how to accomplish tasks which indicate valid conclusions in various circumstances
2. Systems that interact with decision makers or participants in a way the user has flexible choices and sequences
3. Systems that can select desired subsets of stored knowledge for basic presentation or derived knowledge based on a recognized problem

4. Systems that can acquire and maintain descriptive knowledge as well as other kinds of knowledge such as rule keeping and procedures
5. Systems that can present knowledge on ad-hoc basis in customised ways as well as standardized reports.

Several terms are used to describe DSS such as data warehousing, knowledge management and business intelligence (Power, 2000). However, based on the DSS characteristics as specified by Holsapple & Whinston (1996), this thesis's focus will be on a wholesome view of DSS which includes all information systems that support decision making processes of both analytic and non-analytical nature.

2.4.1 Data technologies

Many companies are continually using data as a business assets and resource (Pearlson & Saunders, 2012). They would generally task the IT department with managing and integrating data to fuel decision making (Abbasi, Sarker & Chiang, 2016). The process of decision making with the help of data is visible through the information value chain which comprises of a cyclical set of activities that convert data into information and knowledge for decision making (Abbasi, Sarker & Chiang, 2016).

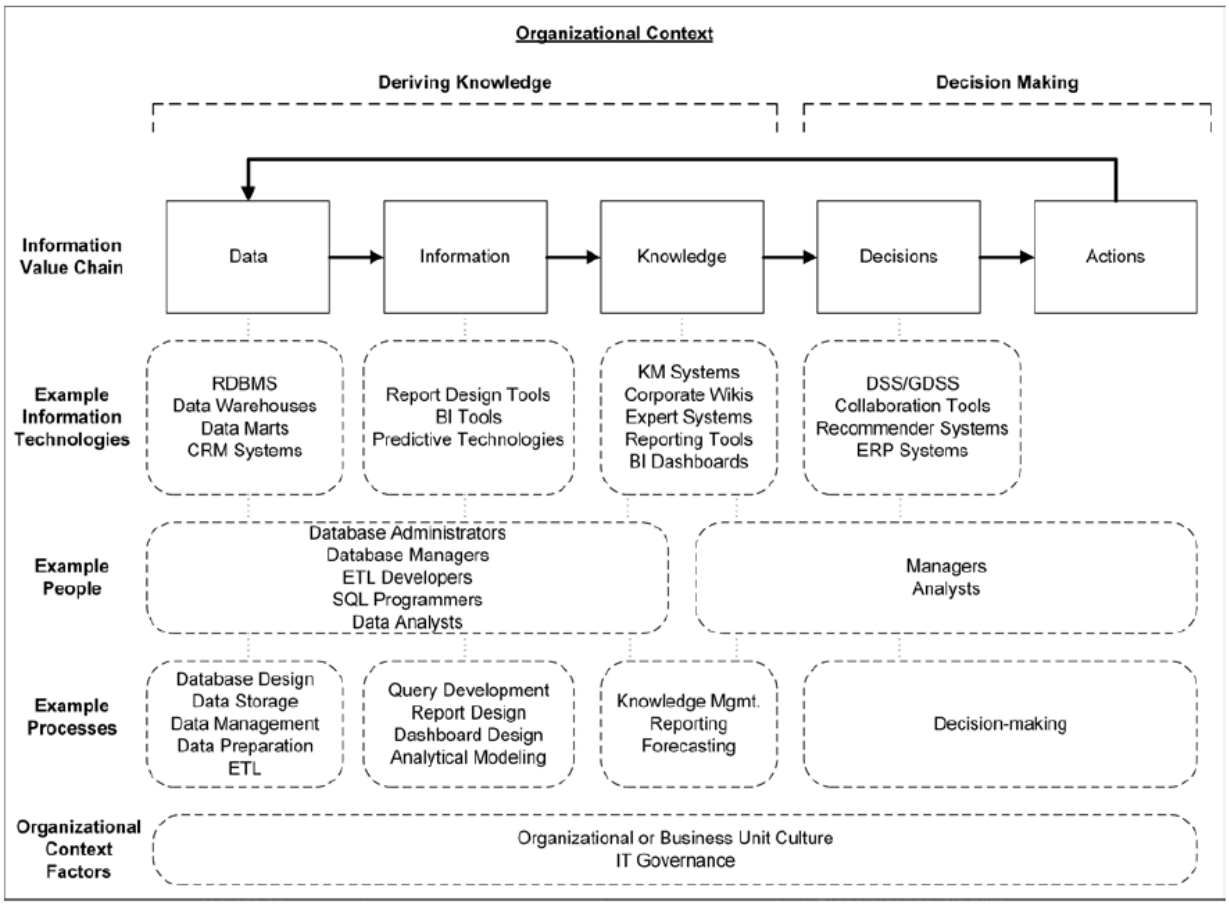

Fig 2.4. Information Value Chain

The traditional information value chain for both regular sized and big data value has 2 distinct phases of development that include deriving knowledge from data (phase 1) and making decisions using the acquired knowledge (phase 2). The difference lies in the underlying technologies that are needed to handle mid-sized data and big data. Big data's 4Vs - velocity, volume, veracity and variety push for a much more sophisticated technology (Schroeck et al., 2012). Big data's velocity has fueled data driven decision making and self-service BI has increased real time consumption of analytics (Abbasi, Sarker & Chiang, 2016). In this thesis, since decision support systems are viewed as a strategic resource, an understanding of both mid-sized and big data capabilities will be put into account to for resource sources and attributes (Wade & Hulland, 2004).

2.4.2 Model driven technology

In the information value chain by Abbasi, Sarker & Chiang (2016), models are used in the second phase of decision making rather than in the initial phase of deriving information. Model technologies comprise of financial, representational, optimization and simulation models that use simple data and statistical and analysis tools to help in decision analysis (Power, 2000). One of the generic operations performed by DSS include accounting and financial models whose function is to calculate the consequences of possible actions (Power, 2000). In the startup and investor ecosystem, models can be used to estimate profitability, operational plans feasibility analysis and break-even analysis. Representational models such as risk analysis models will help in estimating the consequences of actions while optimization models such as resource allocation provide guidelines for action based on specified constraints (Power, 2000).

2.4.3 Document and knowledge technologies

Document and knowledge technologies are complementary. Managing information is directly linked to managing a database. Therefore, to support management decision making, computerized systems are used to make sense from documents and structured data in the database (Power, 2000). Document databases store hypertext documents, images, sound, video and scanned documents (Power, 2007). Knowledge, on the other hand, according to the information value chain is derived after the processing of data to information (Abbasi, Sarker & Chiang, 2016).

Knowledge management strategy is therefore a process that results from data and information that ensures the generation, codification and transfer of explicit and tacit knowledge within an organization and ensuring that the right information gets to the right people in the right place and at the right time (Halawi et al., 2014). According to Halawi et al., (2014), knowledge management is a cross-disciplinary field that draws from different technologies such as expert systems, artificial intelligence and knowledge-based management systems, decision support and business intelligence as well as simulation and organizational science. A company's knowledge strategy depends on its knowledge awareness and needs and leads to decision making and actions as illustrated in the knowledge portfolio where for example knowledge maps and audits are tools for an organization that is aware of what knowledge gaps they have (Halawi et al., 2014).

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Knowledge awareness/ knowledge content	1. What we know we know	2. What we know we don't know	3. What we don't know we know	4. What we don't know we don't know
Emphasis	Knowledge sharing, access and inventory	Knowledge seeking and creation	Uncovering hidden or tacit knowledge	Discovering key risks, exposures and opportunities
Tools	Benchmarking, communities of practice	R&D, market research, competitive intelligence	Knowledge maps, audits, training and networks	Creative tension, audits, dilemmas, complexity science

Table I.
A knowledge portfolio

Source: Adapted from Drew (1999)

Fig 2.5: Knowledge portfolio

Knowledge as a resource is a proposition that argues knowledge satisfies the basic requirement of product-oriented resources through value creation (Al-Natour & Cavusoglu, 2009). Because of this, the Knowledge-based view (KBV) emerged where companies are institutions that function because they have put in place conditions where multiple individuals integrate their specialized knowledge (Al-Natour & Cavusoglu, 2009). Hence, analyzing specialized knowledge is helpful in analyzing an organization's capabilities.

Technology type	Complementing resources	DSS Challenges	Supporting literature
Data	Big data and IOT, Business Intelligence, Social media	Privacy invasion,	(Abbasi, Sarker & Chiang, 2016),
Document	Search/Find capabilities, Data mining, Data driven, Audit	High dimensionality	(Martens & Provost, 2017), (Power, 2007)
Knowledge	Artificial Intelligence, Business Intelligence, Document Management, Expert systems, Cognitive Science	Politics, Unquantifiable nature of knowledge	(Al-Natour & Cavusoglu, 2009), (Halawi et al., 2014)
Model	Data, User Interface/Interactions	Imprecise estimation, Misunderstanding	(Power, 2000)

Table 2.3: Literature summary- Decision support technical overview

2.5 Research Framework

For the Research Framework, DSS typology defined is adopted to the startup and investor ecosystem and the Information System attributes are investigated to confirm if they create advantage at the initial stages or if they provide sustainable advantage over long periods of time. One of the Propositions from Wade & Hulland (2004) in relation to Information Systems as a resource in the organization states:

"*IS resources influence competitive position and performance both directly and indirectly through interactions with other constructs (including other resources).*

Decision support systems heavily rely on data (Power, 2007) for decision making. One of data's biggest challenges is maintain data security and privacy (Abbasi, Sarker & Chiang, 2016) and therefore additional resource type has been added within the inside-out category of the IS topology for IS Security with relation to Decision support systems. The Resource topology that will be used for this framework is adopted from the IS Resource topology suggested by Wade & Hulland (2004).

The resource topology includes both Information Systems and non-Information Systems. Relationships are considered resources in this framework. This is because the relationships between IT and businesses strongly affect the ability of an organization to use IT strategically to achieve objectives, thus suggesting that these relationships are crucial (Ashrafi & Mueller, 2015). IT Strategic planning through aligning IT Strategy and business goals and objectives so as to achieve IT value is an important resource (Ashrafi & Mueller, 2015). Therefore, they will be considered for this framework.

Organizations can also get value from IT through the IT teams who analyze business requirements, educate users, ensure planning and organization and manage IT projects based on the technical, analytical, interpersonal and managerial skills (Ashrafi & Mueller, 2015) . For this reason, are considered an important resource for incorporation in this framework.

Resource topology	**Definitions. (Wade & Hulland, 2004)**	**Definition adopted for this thesis**	**Actor Network theory linkage**
Outside resources			
1. External relationship management	Company's ability to manage linkages between IS Function and the stakeholders in the firm	Company's ability to manage the linkages between DSS and investors, governments, society, angel investors, accelerators,	Startups (Management and Strategy, Operations, Sales), Investors, DSS, Social capital, Society, Governments and Regulation.
2. Market responsiveness	Company's ability to collect information from sources and disseminate across its departments and its response to learning	Company's capability of data collection, analysis, reporting and action	Startups (Technology and Reporting), DSS, Society

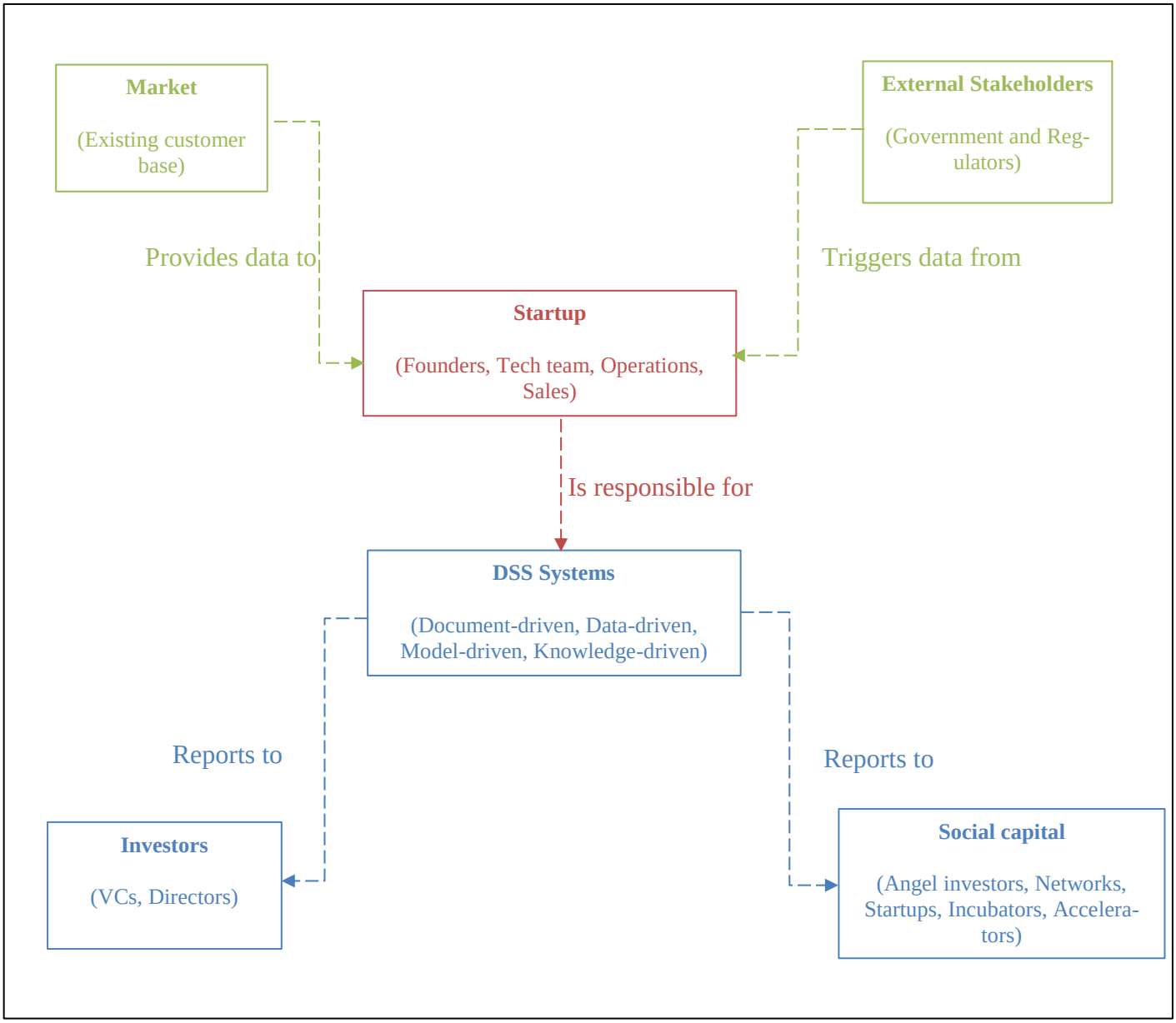
Spanning resources			
3. IS Business partnerships	Company's ability to integrate and align IS function in other functional areas	Company's ability to integrate and align DSS function in other functional areas	Startup (All Departments), DSS
4. IS planning and change management	Company's capability to plan, manage and use appropriate technology architectures and standards that can accommodate change and growth	Company's capabilities to use effective DSS technology architecture to accommodate change and growth	Startup (Technology & Reporting, Management & Strategy), DSS, Scale/Expansion
Inside-out resources			
5. IS Infrastructure	Company's hardware and software technology	Company's DSS technology	Startup (Technical/Reporting, R&D Innovation), DSS
6. IS Technical skills	Company's human capital current technical knowledge and ability to deploy, use and manage knowledge	Company's Human capital ability to deploy, use and manage DSS technical knowledge	Startup (Technical/Reporting, R&D Innovation), DSS
7. IS Development	Company's capabilities to develop and experiment with new technologies	Company's capabilities to develop and experiment with new DSS technologies	Startup (R&D Innovation, Management), DSS
8. IS Security	Company's ability to defend IT assets and digital information against both internal and external malicious and accidental threats (Bacon, 2007)	Company's ability to defend DSS assets and digital information against internal and external threats	DSS, Startup (Technology/Reporting),

Table 2.4: Resource topology for DSS.

Based on the stakeholders mapped with the Actor Network theory and the analysis of DSS as a resource, the following framework is developed. Understanding the benefits that partners in multi-stakeholder partnerships is important because it allows for contributions based on partner resources obtained from partnerships (Clarke & Macdonald, 2019). It also allows to identify how local governments can help partners develop systems that will make them more attractive to partners (Clarke & Macdonald, 2019). On the other hand, it is important that DSS provide current, timely information that is both accurate, relevant and complete so that it can

foster decision making and should be presented in a format that is easy to understand and manipulate (Speier, 2006). Information presented by DSS may result from the analysis of transactional data or from decision models gathered from external sources (Power, 2000).

Therefore, based on the defined resource topology for DSS with DSS attributes, the framework highlights the relationships between the different actors and investigates each DSS resource pre-investment and post-investment to understand which resources are considered most valuable in the startup and investor ecosystem.



Green: Outside-in resources. Red: Spanning resources. Blue: Inside-out resources.

Fig 2.6. Research Framework.

As per the IS resource attributes and IS resource topology types defined in Section 2.3.1, the table below was added to be able to highlight the importance and overall value of each of the topology instruments in the startup and investor ecosystem before and after investments.

Resource	**Value**		**Rarity**		**Substitutability**	
	Pre-invest-ment	Post-invest-ment	Pre investment	Post-invest-ment	Pre-investment	Post-Investment
Outside-in						
External Relation-ship management	**M**	**H**	**L**	**L**	**H**	**H**
Market responsive-ness	**M**	**H**	**M**	**M**	**H**	**H**
Spanning resources						
DSS Business part-nerships	**M**	**M**	**L**	**L**	**H**	**H**
DSS planning and change manage-ment	**M**	**M**	**L**	**L**	**H**	**H**
Inside-out resources						
Document Driven DSS	**M**	**M**	**L**	**L**	**L**	**L**
Knowledge Driven DSS	**M**	**M**	**H**	**H**	**M**	**M**
Data-driven DSS	**M**	**M**	**L**	**L**	**M**	**M**
Model-driven DSS	**M**	**M**	**L**	**L**	**M**	**M**
DSS Security	**H**	**H**	**M**	**M**	**M**	**M**
Technical team	**M**	**M**	**M**	**M**	**M**	**M**

H – High, L-Low, M-Medium.

Table 2.5 Resources and key attributes framework

3 Methodology

This chapter describes the actions followed in solving the research problem. Section 3.1 describes the Research Strategy; Section 3.2 describes the data collection techniques used and section 3.3 describes the data analysis techniques. Lastly, section 3.4 compiles a set of ethical standards considerations to ensure research quality, validity and reliability

3.1 Research Strategy

Based on the purpose and nature of our research question, an explanatory research strategy was the best fit for our empirical thesis so as to fully identify the underlying factors influencing startup selection based on existing DSS resources (Bhattacherjee, 2012) . It was also helpful in connecting dots in research by identifying IS and non-IS factors that contributes to the target phenomenon (Bhattacherjee, 2012). With the state of existing literature on startups screening factors, Interpretive research was used to explore hidden reasons behind complex or interrelated observations. Moreover, this research strategy type allowed us to interpret our findings through sense making process (Bhattacherjee, 2012) as social reality is impossible to abstract using theory of generalization (Baskerville & Lee, 2003).

As interpretive research is often used loosely and synonymously with qualitative research (Bhattacherjee, 2012), qualitative data was collected from investors and mature startup founders through interviews to make our findings reliable. As the research is of explanatory nature, the results were more likely to be dependent on the researcher's personal experience as well as strong analytical and interpretation skills (Bhattacherjee, 2012). Therefore, we conducted semi-structured interviews with the respondents to allow for flexibility to improvise on the go (Myers & Newman, 2007) and to implement interview iterative analysis (Kvale, 1996) . We followed a conversational format allowing respondents to discuss openly about the topic by starting with open-ended general questions related to the thesis topic (Recker, 2012). Further, data collected from the interviews were analyzed using Nvivo tool which helped us in identifying the key phrases and major themes that were discussed during the interviews. Once the key concepts were identified, they were further used to code the remaining data (Bhattacherjee, 2012). In our thesis the selection of an appropriate strategy of inquiry to determine the appropriate research methodology was critical and ultimately resulted in the success of the research project.

3.2 Data collection

To achieve our objective, interviews were selected as our main data collection source. In qualitative method, data collection in the form of interviews is preferred because it provides a personalized form of data collection than a questionnaire (Bhattacherjee, 2012). We chose interviews as the method for data collection because it allowed for in depth and rich data (Recker, 2012) which was aligned with our thesis as the focus of the research was to understand the causal mechanisms and relationships in the multi-sided nature in the startup and investor ecosystem and the role different decision support systems play. The interviews enabled a broad

understanding of the factors and attributes that DSS resources that make an influence in the startup and investor ecosystem.

The interviews conducted were of a semi-structured nature where the respondents were provided with questions from a predefined interview structure (Recker, 2012). We were careful not to over-prepare the script and were able to use an incomplete script which allowed for improvisation, openness and flexibility (Myers & Newman, 2007). As we were interviewing different types of respondents, the questions asked varied depending on the role, background and experience of the respondents. Semi-structured interviews also allowed for flexibility to ask follow-up questions based on the answers given by the respondent and this method allows for analysis of the interview during the interview process itself as proposed by Kvale (1996). According to Kvale (1996), interviews are to be analyzed even before they are conducted. This mode of analysis helped in the preparation of the interview guide, through ought the interviewing process as well as the transcription of the interviews. This is because every stage of an interview offers constraints and possibilities during the later stages of the project thus ensuring that the final analysis is built on secure ground (Kvale, 1996). Therefore, interview questions were refined for upcoming interviews based on the previous interview results.

One of the major challenges of using interviews as a method of data collection was the risk of having response and system bias due to poorly constructed questions (Recker, 2012). To mitigate this risk, Kvale (1996) advises to have content and purpose precede method. Therefore, to do this, Kvale & Brinkmann (2009) seven stages of conducting a qualitative research was used. The first step involved thematizing (Brinkmann & Kvale, 2005) and therefore for this thesis, potential respondents were identified (Section 3.2.1), after which an interview guide was prepared (Section 3.2.2) based on the research framework (Section 2.5). The interviews were then carried out, transcribed, analyzed and verified in accordance with Kvale and Brinkmann (2009) 7 stages of conducting qualitative interview.

3.2.1 Selection of participants.

The selection of the participants was done carefully to ensure that the selected participants fitted the nature of the research questions by considering the firm size and industry effects in order to maximize the key interest of this thesis, which is to tackle DSS resources for competitive advantage of a startup over time (Bhattacherjee, 2012). We selected mature startups of similar size, operating in similar regions, with IT products as their main business products. We additionally selected startups which attracted more funding than others within a similar time frame of operation. To obtain divergent perspectives about the phenomenon of interest, we further selected investors and incubators.

Interviewees were selected based on their personal involvement with the process of funding in the startup and investor ecosystem and their ability and willingness to answer the research questions accurately and adequately, and not based on convenience or access. The selected participants were categorized into 2 types:

- The first type of participant was respondents from Senior Management and strategy of startups. As the focus of the thesis was on mature startups, we spoke to mature startups that had successfully attracted investments of more than $1 Million dollars from VCs for purposes of growth and expansion. Even though these participants were in Management roles, they were expected to have significant understanding of the different

DSS resources that they had as a company in relation to the resource attributes, the resource providers and the relation, if any, to attracting investments.

- The second type of participants comprised of respondents from the Investment sector in roles that directly impacting the selection of startups. They include representatives from different VCs and Investment groups. These respondents were expected to have a good idea of the DSS used in the startups they targeted or invested in. They were also expected to understand the differentiating factors of startups that successfully attracted investment and those that did not.

Respondent 1 is an Investment Manager at ALMI INVEST. He is tasked with the role of managing the entire investment process, which involves finding, investing in and developing companies with growth potential as well as implementing an exit strategy from the startups. We found Respondent 1 a useful respondent because of their participation and involvement with startups before investment and after as well as their extensive background in investment. ALMI INVEST is one of Sweden's largest Venture Capital Investment Group with a portfolio of about 350 companies in different industries spanning from Cleantech to Life Science to Industry specific domains such as construction and Robotics. They invest in both young and mature startups. By working with a diverse portfolio, this respondent will be able to give insight about our chosen topic with regards to different kinds of startups in various industries. Startups from ALMI INVEST have gone ahead and been acquired by companies such as Google, Microsoft, Qlik and Apple and therefore his experience and insights will broaden our understanding of investor motivations and planning. Given that ALMI INVEST co-invest with business angels and Institutional investors, we felt that this respondent would be able to contribute to the social capital actors mapped in the Actor Network Theory of our Research framework and their importance in the Startup ecosystem.

Respondent 2 is the CEO and Co-founder of M-survey, a mature startup based in East Africa, the Caribbean and USA. Its most recent amount of funding attracted $3.5 Million from a UK based VC – TLcom Capital Partners. M-survey is an operationally active startup that provides a mobile survey platform which helps businesses to drive their decision making across the various continents. We chose to interview the CEO and Co-founder at M-Survey because he has been involved throughout the entire company journey from inception. Being a data driven company, we found that M-survey would provide great insight into how they use decision support systems internally as a company as well as externally with investors. We also wanted to find out how the company continued to manage relationships with investors over time and given that the CEO's background was in Data analysis and technology, we found that he would provide a great mix of co-founder, data analyst and strategy when it comes to attracting investments, thus sufficiently contributing to our thesis.

Respondent 3 is the Chief Credit Officer (CCO) and Co-founder at M-kopa Solar, a mature startup based in East and West Africa that has built one of the world's most advanced Pay-As-You-Go platforms and operates in the clean energy sector. It successfully raised a total of $161.8 Million over 11 rounds of funding- making it one of the most heavily funded Startups in Africa. Some of the VCs who back the company include CDC Group, based in United Kingdom and DOB Equity, based in the Netherlands. Given the success M-kopa has had in receiving accolades such as Bloomberg's New Energy finance because of its innovative technologies, momentum in activity, robust business models and global scale potential, we felt that it would be a good choice to interview the co-founder on how they managed to attain all these competitive characteristics. The Co-founder and CCO was a selected participant in the

interview process because of his amass knowledge in business, technology, strategy and finance and his involvement in these successful rounds of funding.

Respondent 4 is a Portfolio Associate at LU Holding which is an investment company that mainly invests in incoming ideas from Lund University. He is solely responsible for investing in young startups where the risk is considerable. We found him relevant because of his strong background in screening the young entrepreneurs and researchers from the university. The holding company at Lund University has invested in over 100 companies, and at present LU Holding AB is part-owner of more than 60 companies. Even though our thesis is focused on mature and operational startups, we found that interviewing him would give us more information on the measures early stage startups usually take to make sure that they are able to attract VC funding once they have an established product and market.

Respondent 5 is the Country Manager of an East African logistics and parcel delivery mature startup. This mature startup has successfully raised $5.5 Million within 5 rounds of funding from DOB Equity, a VC based in Netherlands and Safaricom, based in Kenya. This startup uses web platform technology to schedule, track and pay for deliveries, making it highly dependent on real-time data for its operations. It also fits with our current thesis focus because it has been able to raise $5.5 Million in funding through 5 rounds in the last 5 years. We chose to speak with the Country Manager because of her operational, technology and startup expertise and felt that she would be able to contribute to the thesis in terms of internal company processes with regards to decision making and decision support systems.

3.2.2 Interview guide

The interview guide is based on explanatory interviewing where we sought to determine whether presumed or postulated relationships and causal links between constructs and concepts occur or are perceived such as in real life (Recker, 2012). To fully understand the phenomena, a predefined interview structure (Appendix 1) was used to conduct the interviews. This Interview guide was guided by the research themes and sub-themes below (Table 5) which were derived based on the Research framework specified in section 2.5 (Recker, 2012). The questions we asked revolved around the respondent's personal opinions and considerations when it came to factors and attributes of DSS resources in a startup that give them sustainable competitive advantage during both pre-investment and post-investment phases.

To manage time constraints and ease the user into the interview, we included open ended questions and ensured that each theme had an allocated time frame to ensure that the focus of the discussions was balanced throughout the interview. The interview was semi-structured to allow the interviewers to dig deeper for clarification throughout the interview (Recker, 2012). The interview questions were standardized for comparative analysis (Kvale & Brinkmann, 2009) and generic concepts in the interviews through themazing allowed for better interviewing process between different respondents who belonged to companies with different business models, different investor types and different experiences with investment attraction.

Theme	Sub-theme
Outside-in DSS Resources	External relationship Management
	Market Responsiveness
Spanning Resources	DSS Internal Business Partnerships
	DSS Planning and Change Management
Inside out Resources	DSS Infrastructure
	DSS Technical skills
	DSS Development
	DSS Security

Table 3.1: interview Themes and Sub-themes.

3.2.3 Interview Summary

Before the interviews, we shared the nature and purpose of our project with all the respondents and shared with them the potential benefits of our thesis (Bhattacherjee, 2012).With the guidance of the Interview guide, we started each of the interviews with an introduction of ourselves and of the respondents as well as getting consent from the respondents to record the interview for further publishing. All the respondents were assured of the confidentiality of their responses, privacy and anonymity (Bhattacherjee, 2012). One of the respondents was in proximity therefore we had a one on one interview with them. However, due to distance constraints, we could not conduct face to face interviews with the rest of the respondents and therefore had video calls as stipulated in Table 3.2.

As all the interviews were social encounters, it was important that we minimize social dissonance. We did this through disclosure, managing first impressions, dressing appropriately, using appropriate language and jargon based on the respondent's background and experience as well as playing different parts for different subjects (Myers & Newman, 2007). We used several probing techniques during the interview to build on the respondents' comments that were ambiguous or interesting to our thesis. Some of the probing techniques we used include the silent probe were we allowed the users to add details to their responses, asking for elaboration in certain instances when their answers were not clear, reflection over the responses given by the respondents and overt encouragement without agreeing or disagreeing with the respondents (Bhattacherjee, 2012).

Respondent	Company name	Position.	Interview Date and Time	Type of Interview
Rsp 1	ALMI INVEST	Investment Manager	8th May 2019 10.00 am (60 Minutes)	Face to face interview
Rsp 2	M-SURVEY	CEO and Co-founder	9th May 2019 6.00 am (45 minutes)	Google Hangouts
Rsp 3	M-KOPA	Chief Credit Officer and Co-founder	9th May 2019 2.00 pm (44 minutes)	Google Hangouts
Rsp 4	LU Holding	Portfolio Associate	10th May 2019 9.00 am (50 minutes)	Google Hangouts
Rsp 5	**ANONYMOUS	Country Manager	10th May 2019 1.0 pm 2.0 (40 minutes)	Google Hangouts

Table 3.2: Summary of Interview details.

3.3 Data analysis

The data analysis process was borrowed from the 3 steps suggested by Miles & Huberman (2007) that include data reduction, data display and drawing conclusions.

Data reduction

Data reduction was the first step that was used to analyze the qualitative data gathered and it involved selecting, focusing, simplifying and transforming raw data so that it can appear in edited field notes that were more digestible (Miles & Huberman, 2007). All the interviews were recorded with Otter mobile application. This application was useful in recording interviews as well as directly transcribing the interview content and producing a text version of the interviews. As it provided the raw text version of the interview, we had to go through the transcripts and group the conversation in line with the text spoken by the interviewer and the interviewee and change automated transcription mistakes from the application. The transcribed

interviews formed the basis of analysis for the interviews (Kvale, 1996). Each of the transcribed interviews was independently uploaded to NVivo tool for qualitative analysis. Nvivo acted as a text analyzing tool for conducting text analysis during exploration of the interview results. Basic text analysis helped us to quickly understand the key phrases, major themes and concepts that were talked about and highlighted in the interviews. To further explore, we started analyzing each interview manually to understand the key findings discussed during the interview.

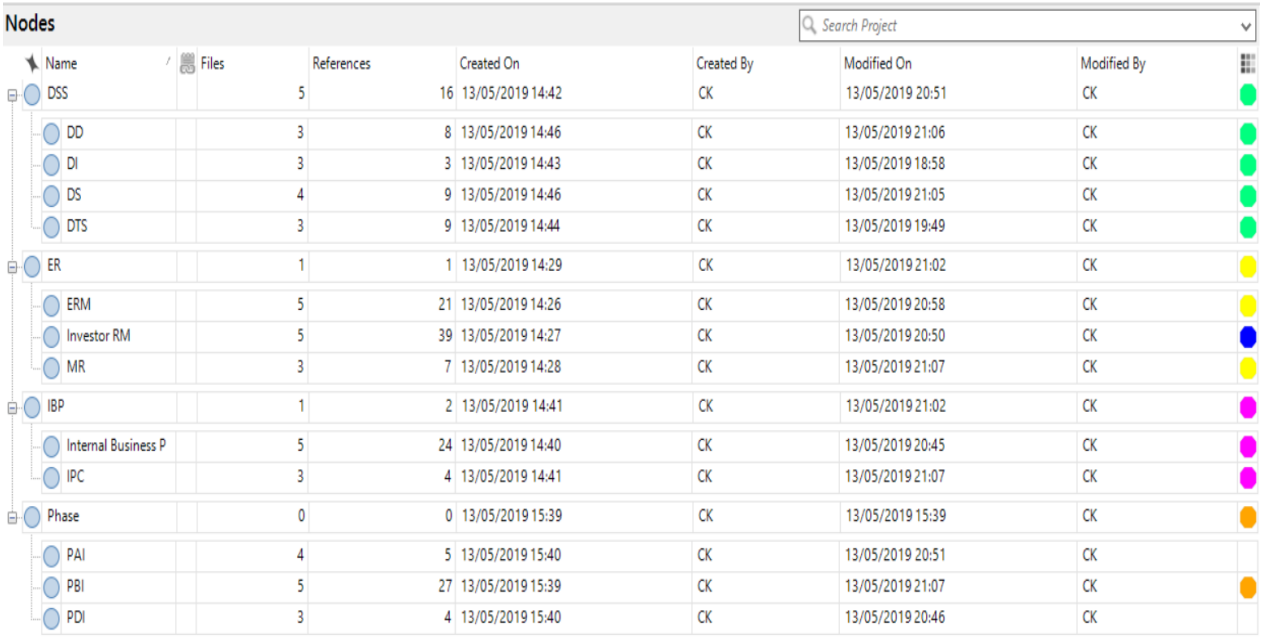
Data display

This process involved deriving base nodes from thematic research descriptions and manually identifying key concepts from the interview that were directly related to the themes. Coding schemes were driven by the research question and framework providing a critical data reduction tool according to Miles & Huberman (2007). From this data, base nodes were identified and defined in relation to the thematic code description from the literature review and research framework in Chapter 2. After having a conclusive list of the nodes and sub-nodes, we revisited the interview text and started highlighting and grouping key texts that linked to the nodes and sub-nodes. Thereafter, more codes were added continually with the aim of refining these codes to come up with the list of final list of codes. This process was done in several iterations to ensure that theoretical saturation was reached so that any additional data could not affect the core values or relationships (Bhattacherjee, 2012).

Base Node	Sub-nodes	Thematic code description
External relationship (ER)	ERM	External Relationship Management
	IRM	Investor Relationship Management
	MR	Market Responsiveness
Internal Business (IB)	IBP	Internal Business Partnerships
	IPC	Internal Planning and Change
Decision Support Systems (DS)	DI	DSS Infrastructure
	DTS	DSS Technical Skills
	DD	DSS Development
	DS	DSS Security
Phase (P)	PBI	Phase Before Investment
	PDI	Phase During Investment
	PAI	Phase After Investment

Table 3.3: Thematic nodes and sub-nodes based on Theoretical framework used in Nvivo

As qualitative analysis is dependent on the researcher's integrative and analytical skills, text analyzed in this research included analytical skills as well as personal knowledge of the social context where data had been collected to make sense and avoid predicting or explaining (Bhattacherjee, 2012).



Nodes

Search Project

Name	Files	References	Created On	Created By	Modified On	Modified By
DSS	5	16	13/05/2019 14:42	CK	13/05/2019 20:51	CK
DD	3	8	13/05/2019 14:46	CK	13/05/2019 21:06	CK
DI	3	3	13/05/2019 14:43	CK	13/05/2019 18:58	CK
DS	4	9	13/05/2019 14:46	CK	13/05/2019 21:05	CK
DTS	3	9	13/05/2019 14:44	CK	13/05/2019 19:49	CK
ER	1	1	13/05/2019 14:29	CK	13/05/2019 21:02	CK
ERM	5	21	13/05/2019 14:26	CK	13/05/2019 20:58	CK
Investor RM	5	39	13/05/2019 14:27	CK	13/05/2019 20:50	CK
MR	3	7	13/05/2019 14:28	CK	13/05/2019 21:07	CK
IBP	1	2	13/05/2019 14:41	CK	13/05/2019 21:02	CK
Internal Business P	5	24	13/05/2019 14:40	CK	13/05/2019 20:45	CK
IPC	3	4	13/05/2019 14:41	CK	13/05/2019 21:07	CK
Phase	0	0	13/05/2019 15:39	CK	13/05/2019 15:39	CK
PAI	4	5	13/05/2019 15:40	CK	13/05/2019 20:51	CK
PBI	5	27	13/05/2019 15:39	CK	13/05/2019 21:07	CK
PDI	3	4	13/05/2019 15:40	CK	13/05/2019 20:46	CK

Fig 3.1: Screenshot of analysis done on Nvivo with grouped nodes and sub-nodes.

Drawing conclusions

While Nvivo was able to help us categorize the interview results based on the thematic codes, it did not help to decipher the meaning and context behind certain phrases and words and therefore we went through all the transcript data manually as it was manageable and efficient. The interview guide, research framework and prior knowledge assisted in contextualizing the interviews and in the verification and conclusion drawing phase. During our analysis and before drawing any conclusions, we were able to note patterns, regularities, causal flows and propositions (Miles & Huberman, 2007).

3.4 Research Quality

3.4.1 Reliability and validity

According to Bhattacherjee (2012), reliability is the degree to which the measure of a construct is consistent or dependable. To achieve reliability, we conducted multiple interviews with investors and top level management in mature startups in the form of objective techniques to avoid subjective bias (Recker, 2012).We framed all our investor and startup specific questions well in advance to avoid imprecise and ambiguous questions that could affect theirs

responses. We verified the interview guide thoroughly to ensure it did not include any irrelevant questions that were not related to our subject. To further ensure reliability, we started our interview with an introduction of ourselves and discussed the motivations behind our thesis. This allowed the respondent to get an understanding of our thesis which in turn helped us to gather data that was most relevant to the thesis topic. After completing the interviews we analyzed the interview transcripts individually and collectively to confirm both similar and contradicting analyses (Recker, 2012).

Recker (2012) describes validity as whether the data collected really measures what the researcher wanted to whereas Kvale and Brinkmann (2009) describe validity as the correctness, truth and strength of the arguments received in the research. To achieve accuracy of results from collected data, we first validated our instrument which was the interview guide then analyzed our theories to understand their usefulness with regards to the instrument (Baskerville & Lee, 2003). We framed our interview guide on the basis our theoretical framework with main and sub-themes that highlighted the focus areas without creating any ambiguity to gain rich data from the respondents. The interview questions were reviewed by both of us to ensure internal validity in account of research (Bhattacherjee, 2012). To ensure credibility and reliability, the respondents targeted were chosen based on high levels of expertise within the startup and investor ecosystem thus provided qualitative data that was both accurate and reliable.

3.4.2 Ethics

Ethics in research should always be taken very seriously as it helps to prevent science from being manipulated by people to advance private agendas and organization to fuel profit-making interests (Bhattacherjee, 2012). As our research focused on decision making, data and knowledge within organizations, we came across sensitive data related to the startup resources and funds that needed to be handled cautiously. We therefore considered ethics as an important pillar to the methodology (Brinkmann & Kvale, 2005). Ethical challenges in qualitative research such as privacy concerns, lack of consent, deception and insecurity of participants arise because of the complexities of researching private aspects and placing these accounts in the public area (Brinkmann & Kvale, 2005). To overcome these ethical challenges, our thesis followed the following ethical principles of scientific research highlighted by Bhattacherjee (2012):

- ***Voluntary participation and harmlessness:*** This was upheld by asking for consent to the participants before scheduling an interview to inform them about the character of research as well as the researcher's role (Brinkmann & Kvale, 2005). Participants were provided with a brief version of what the thesis is about prior to the interviews and thereafter the participants decided if they would wish to proceed with the interviews or not. Further they were assured to communicate freely when presenting their opinions regarding the selection process by using hypothesis as well as real-life examples to clarify certain concepts to avoid ambiguity.

- ***Anonymity and Confidentiality:*** As this was a qualitative thesis, the issue of anonymity and confidentiality was addressed by protecting participant's identity in the research through not revealing their data and identity when specifically requested not to do so.

- ***Disclosure:*** The purpose of the thesis, the expected outcomes and the usefulness of the results may become useful for investors as well as young and mature startups seeking to attract VC funding. This was informed to the participants in advanced.

- ***Analysis and Reporting***: This was upheld through presenting all the findings in an accurate, unbiased and precise manner even if the research results were unexpected or negative. In our analysis, we used direct quotes to affirm insights and highlight any contrary findings. This ensured that bias during analysis and reporting was minimized.

4 Empirical results

This chapter showcases the analysis of findings obtained following the methodology applied in chapter 3 above. It describes the results in a synthesized manner highlighting commonalities in what the interviewees said and including support with direct quotations as per the transcriptions where necessary. The structure of this section follows that of our research framework while including subtopics of the key factors identified under each subheading.

4.1 Startup external relationships

While a lot of investment is pegged to monetary value, external relationships play a significant role within the startup and investor ecosystem.

"*We've been very, very, very intentional about getting strategic investment. Because, you know, we believe that the money, money is great, but the thing for us is getting money that could go so folks behind that money can offer additional value, right?"*

-Rsp 2(10)

External relationships have proven beneficial for startups during the initial phases before they attract VC funding in various ways:

- Incubators help startups setup their company through assisting the startup to create teams and boards with the intention of increasing their attractiveness for external financing (Rsp 4:22).
- Angel investors hand-hold companies and give them guidance and advice about improving their products and reaching out to their markets. (Rsp 2:8).
- Rsp 3 (10) mentions that by being an incubator, a startup is likely to have more knowledge of how a startup should be driven.
- Some relationships can help a startup get more partnerships, more employees or more funding (Rsp 1:10)

4.1.1 Government relations

The relationship a startup has with its government and statutory bodies depends on the type of business the startup runs, the regulations that encompass it and the type of government the startup operates under (Rsp 3: 10).

The type of the business the firm is operating determines the need for the relationship with the government authorities. If the business is regulated, a startup will need to have a good relationship with its regulator, who in some instances, may be the government (Rsp 3: 10). It will also need enough documentation to prove regulatory compliance (Rsp 3:16).

The type of government the business operates in determines the relationship startups will have with the government authorities. Rsp 3(10) highlights that a startup will not benefit directly from having a relationship with the government if the government does not offer incentives

targeted specifically for startups such as tax rebates and further gives an example highlighting that when governments offer incentives such as grants targeting startups, startups can gain advantage from good relationships with them.

"you might not need government relations, unless there's some benefit, maybe the government has some program that gives tax rebates, that's just startups."

-Rsp (3:10)

4.1.2 Social capital relations

Relationships with incubators, angel investors and other startups are not viewed as an important aspect that affects the decision for an investor to put their investment into a startup (Rsp 1:10). Angel investors offer advice to budding startups (Rsp 2:8) advice based on their previous experience and offer. However, (Rsp 2:10) and (Rsp 4: 38) highlight how having angel investors during the initial stages gives validation to other investors about your idea and startup. They highlight that some investors may be inclined to invest in a startup because they know some of the investors or people on the board who offer credibility to the startup.

Strategic investments for a startup will therefore involve having investors who are aligned with their long- and short-term goals of the startup (Rsp 2:10), investors who can offer advice on the route the startup should take and investors who offer support to the startup (Rsp 2:8),

"But it's also getting folks who kind of resonate what you're doing, align what you're doing and, you know, have a specific value proposition that they bring to the whole vision."

-Rsp (2:10)

External relationships with the startup community can be used to help raise more money, attract more employees or find the right partners (Rsp 3:10). Otherwise they would be considered useless. (Rsp 5: 18) highlights that by taking part and winning in a competition, their startup was able to gain recognition among the investment community and this allowed them to get a big name and investments as well. Rsp 1 (10) adds a new advantage that comes with startups being affiliated to an incubator which is that get more knowledge on how to succeed.

"And basically, those relationships, I would say, if it doesn't get you any of those, if it doesn't get your money, employees or partnerships, you can be networked in the startup community, but it's kind of luxury"

- Rsp (3:10)

Throughout the interviews, the external relationships with social capital stakeholders was not linked to any DSS but was purely relational.

4.1.3 Customer relations

Customers play an important role in the startup and investor ecosystem since they determine the success of the startup in terms of revenue generation (Rsp 2:12). Customers can contribute

to the growth of a company by referring other customers when they have a good experience with the company's product (Rsp 2: 12).

The product a company presents to its customers plays an important role in the success of the startup (Rsp 2:2). It is important to know if customers resonate with the product during the initial stages and how much they are willing to pay for the product or service it in the long run (Rsp 3:4) given that customer interests will shift over time (Rsp 1:28). In order to track customer sentiments about the product and the view of the company over time, some companies rely on integrated customer experience platforms (Rsp 2:4). By collecting customer data, the startup can see if there are improvements that they can make to increase value for the customer and if these improvements can create a commercial opportunity for the company (Rsp 2:24). This data also helps startups to stay ahead of the curve when it comes to meeting the evolving needs of customers (Rsp 2:24). Startups use KPIs such as net promoter scores to gauge their own performance as the main aim of the startups is to provide value to their customers as the customers are the backbone of their business (Rsp 2:12). Other metrics that are tracked by startups include customer lifetime value, acquisition costs, customer behavior patterns (Rsp 2: 14), Rsp 2:22)

"So, for us, we are very meticulous about, we have a customer success department and customer success departments make sure they monitor to know exactly the customer successful on our platform, if they're successful, what resources do they need to be successful? And also monitor is exactly you know, how, how can we grow our offering, specifically, our software offering, right when the customer says hey, you know, I wish I had XYZ, right? So that helped build additional value for customers."
-Rsp 2(12)

Investors are also curious about what customers think about the products a startup gives and some of them will do their due diligence through interviewing customers (Rsp 2:6) and customer research (Rsp 3: 24), (Rsp 4:18). They are also curious about other metrics related to the customer such as customer acquisition costs which they gather through doing market research within their networks (Rsp 1:4). Other customer metrics that investors are interested in including customer signups (Rsp 3:28) and the estimated customer growth (Rsp 1:26).

"the big examples, always like Instagram, or whatever that, you know, launched and had like, a million downloads within like, a week or whatever, you; investors love that kind of story."
-Rsp 3(34)

4.2 Strategic startup and investor relationships

Apart from the external relationship discussed above, there exist internal relationship within startup and investor ecosystem which motivates them to set their long term as well as short term goals. The relationship between an investor and a startup is influenced by trust (Rsp 1:20) and in some instances, the two partners can form personal relationships (Rsp 4:34). In the early stage, investors use to interact with multiple startups in order to understand their motivations, ideas and plans to achieve their target; so that they can guide them through their implementation and see if there is a potential for a partnership that is mutually beneficial to both

parties (Rsp 4:22) (Rsp 1:8). Startups are also able to gauge which investor would suit them based on the amount of money they want to raise (Rsp 1:8).

"So that's why we consider very much in the early stage to talk to the companies that find the right investors, we might be the right investors or not. But you should think about your situation and think of a company of going forward. And that needs to be sustainable"

-Rsp (1:14)

While some startups may not have the luxury of selecting their investors because the need for securing an investment is higher, it is important for the startup to understand the short and long term vision of the investor so that they can be able to gauge whether it aligns with the short and long term goals of the startup (Rsp 3:6). Some of the suggested factors for consideration when evaluating the alignment of both partners include:

- Evaluating the role, the investor would like to play within the partnership. Some investors may want to take an active role in the decision making of the company's internal and external operations while other investors may want to play a more hands-off approach (Rsp 3:6)

- The long-term vision of the business. Some investors may be looking to invest for profitability while others may be willing to invest for exits (Rsp 3:6) (Rsp 1:16). The overall aim of the investments however when it comes to startups is usually of a long-term nature because investors do not really care about losses in the initial years but focus more on plausible roadmap for profitability (Rsp 3: 4)

- Evaluating the timelines. When both parties agree to invest for profitability, the timelines of the startup and the investor should resonate so that they are both in agreement on details about when to start paying out dividends, for example (Rsp 3:6).

- Evaluating the additional value an investor is bringing to the startup in terms of resonating with the startup goals and their contribution to the startup's vision (Rsp 2:10).

Startup and investor relationships are solidified in most instances with investment agreement documents that lay out different obligations such as reporting obligations for each of the parties (Rsp 3: 12). In the agreements, the frequency with which reporting is expected is also highlighted (Rsp 1:24). Reporting needs may be done differently based on the different investment tiers a startup has (Rsp 2:18) and will often include information about the startup's stock, product, roadmap and customer trajectory (Rsp 2: 40).

Investors will prefer transparency and say that sharing company information with investors is a way of showing respect (Rsp 1:22). By startups sharing their information and discuss the way forward (Rsp 1:24). It also allows the investors to ask startups how they are dealing with scenarios that did not go as planned and how they plan to learn from the failure (Rsp 1:24).

4.3 Resources valued by investors

"And then there could be some other value not expressed in the company value financials."

-Rsp 1(2)

The valuation of the customer is in terms of the commercial opportunity the customer brings to the revenue generation of the company (Rsp 2:24) and that is why metrics such as customer retention are important for investors (Rsp 2:14). The value of a company is not pegged to the financial revenue a company makes as there are other non-monetary factors that contribute to the value of a company (Rsp 1:2). Before an investor selects a company, they consider some factors such as:

- The idea and the team (Rsp 1:10), (Rsp 2:6) (Rsp 3:4) (Rsp 4:30)
- The product type and business model (Rsp 2:40), (Rsp 2:2), (Rsp 3:4), (Rsp 4:20), (Rsp 1:2)

1.The idea and the team

One of the key considerations that investors look at is the uniqueness in the idea that could scale up the business (Rsp 1:10). They also look at the team to make sure that their competencies and capabilities can bring the idea to life (Rsp 1:10). Rsp 3(4) further highlights this by mentioning that even though a company has a good idea, if they do not have a capable team then the idea will not materialize as expected (Rsp 3:4), (Rsp 4:30). A team also plays a great role and is considered resourceful especially when the company showcases a projection model to the investors as they want to be assured that the startup has proper bandwidth and a capable team to support the projected model (Rsp 2:6). The team is therefore considered as an important resource.

"that's what we've found out after 20 years of investment, that it's not always these uniqueness and scalability, but it's the team performing. And if the team doesn't perform, it doesn't happen. You can have the best idea. But if it doesn't happen"

-Rsp 1(10)

2. The product and business model.

A key consideration and resource highlighted from the interviews is having a product market fit where the product ultimately creates value to the customer by providing attractive solutions (Rsp 4:20) (Rsp 2:2) through a proven business model that attracts investors' attention (Rsp 4:30) (Rsp 1:2). Some Investors will look at patents as a key resource that attracts them to put an investment in a company (Rsp 4:16).

Other external factors

Rsp 1(18) highlights that the valuation of a company, its idea, and product may be subject to other external factors such as the stock market valuation. He gives an example where the company in life science solving a cancer problem would be valued higher because of the long

period of time it takes to grow such a company based on the industry type compared to a company that takes a shorter time to build and therefore has lower expectations on the stock market (Rsp 1:18)

4.4 Role of DSS pre-investment

Before investing, investors will do some due diligence to make sure that a startup is legitimate. The level to which the due diligence will be conducted will depend on factors such as:

- The stage the company is in (Rsp 2: 16),
- The size of the investment (Rsp 3: 14),
- The type of investor (Rsp 3:14, Rsp 4:38)
- The type of relationship between the cofounders and the investor (Rsp 1: 20)

4.4.1 Low level due diligence pre-investment

On a low level, due diligence to verify the product may include testing the actual product that the company is selling especially if the product is an IT system. Investors will have a look at the system to test it on a surface level and to learn about the technical solution the company is providing (Rsp 1: 40, Rsp 2: 16). To verify the market, they may talk to existing customers to understand the product more and what exact problem the company is trying to solve (Rsp 2: 6, Rsp 4:18). They might also ask for information extracts that would be provided by the company from their historical data (Rsp 3:14, Rsp 5: 6). For other investors, credibility is gained from knowing an existing board member or investor (Rsp 4:38) however low-level due diligence has been linked to early investments (Rsp 2: 16)

"For a couple of cases that are that I have seen where investors put in quite a bit of money, but don't really know the company. They know someone within the company, so earlier investor or someone in the board creates credibility. Okay, so I'm a friend that's in the board for this company. And that startup is within my area of expertise, perhaps or I know a lot of the area and I think their Idea is super-hot, it's on the right way. can be the next big thing. And then if you have some on the inside."

-Rsp 4 (38)

For early stage startups which lack in rich historical data and will be introducing a new product, investors rely on their networks and the knowledge of these networks to confirm the viability and credibility of a company's business model before they invest (Rsp 1: 4). They try to verify the revenue and cost information proposed by the company through comparing revenues and costs of other companies in similar fields as well as talking to market experts to verify the projections presented by a company (Rsp 1:4). Investors have networks in different markets and niches who provide advice on whether the figures a company projects are feasible (Rsp 4:18). They therefore do not rely on specific Information systems to help them in coming up with a decision to make an investment because of the lack of historical data.

4.4.2 High Level due diligence pre-investment

On a higher level, larger companies that want large investments to the tune of $10 Million will usually attract more requirements from the investors as more money is at stake (Rsp 2:42, Rsp 4:44). In some cases, investors may be managing investment money for 3rd parties and therefore must ensure that they do the highest level of due diligence for compliance (Rsp 3: 14) and are more careful before signing a company on. The audits don't focus on IT systems only but include financial and process audits as well (Rsp 3: 14, Rsp 2: 42).

"So they'll come in and say, we're conducting our due diligence process, and we're thesising in Price Waterhouse Coopers to basically do part of that, for us, and they might want to actually do like a mini audit of your financials, or your, your IT systems or, or other things, others, others maybe more go more on trust, all of them would ask for some, you know, as part of their process, they, they would have some sort of data requests and their due diligence. Really, I guess the intensity of those requests kind of vary based on the investor type. And, and probably the size of investment, once you get up to certain size, you know, 10 million $20 million coming into a company. And that's where, you know, the, those investors, especially if they're managing funds for third parties, they might want to bring in a big four firms just to cover their ass, right? They want to basically show that they've done the proper, you know, diligence."

-Rsp 3(14)

4.4.3 The role of Document Driven DSS

Documents contribute greatly to ensuring that a startup passes the compliance test with investors during the initial investment stages and are some of the standard requirements asked for by investors (Rsp 4:44). Some of the documents are published online and can easily be accessed however some are physical documents. These documents contain information relating to shareholders, the board and higher management profiles of people like CEOs. Legal documents are also necessary to show a company's eligibility (Rsp 4: 26)

"I think in these early stages, investors, they don't expect the companies to have a full structure on and reporting systems. But they do require that the company have the documents in order."

-Rsp 4 (50)

Documentation needs instigated by the investor will rely on the kind of business a company runs and how they are regulated as a business (Rsp 3:16). Rsp 3 goes further to give a comparison of 2 companies that operate in different regulatory spheres. A company that has a mobile application on the App store may not face any compliance or regulatory issues in comparison to a company that is doing drilling in volcanic areas (Rsp 3: 16). Therefore, investors investing in companies that are highly regulated, intensive and run a high risk of shutting down if they fail compliance audits will find document driven information systems resourceful (Rsp 3:16).

4.5 The role of DSS post-investment

After investments have been done, Information Systems contribute to the relationship between startups and investors by providing information that can be shared between both parties to ensure that the relationship is transparent (Rsp 2:26). To further help transparency, startups give real time access to the investors so that they can easily monitor the performance of the company (Rsp 5:4). This information can include different aspects of the business such as reporting on revenue spending and burn rate (Rsp 2:26). Apart from providing transparency, this information helps both the startups and investors make decisions based on the overall trajectory of the business (Rsp 1: 14). Some of these decisions include learning from past mistakes, re-strategizing, re-pivoting and deciding on new actions to take based on the expectations of both parties (Rsp 1: 24)

"Coming back to the shareholders and saying you're valuable, I respect you, I give you information. So, I actually spoke about that this morning, to someone on the phone to always give respect, that is also here, because an information is respect,"

-Rsp 1(22)

The reporting requirements between companies and Investors when it comes to the type of reporting data and frequency of reporting will depend on the contractual terms of both parties and mutual agreements (Rsp 1: 20, Rsp 2:18, Rsp 3: 12). It is advised to clearly stipulate the key metrics that will be reported on to manage the expectations of both parties (Rsp 1:20) as well as to manage the data requests from investors (Rsp 3:12). Information sharing channels may however be influenced by the confidentiality of metrics that are being reported as well as the personal relationship between the company and the investor because in cases where Startups feel that the investor may use information presented for their own purposes (Rsp 1:22)

4.5.1 The role of Data Driven DSS

Most of the respondents agree that the goal for adding investments in fast growing companies is making profits (Rsp 3:24, Rsp 2:12, Rsp 1:14, Rsp 4: 58). The decisions that are made with the help of Information Systems should ultimately lead to profits (Rsp 3: 24). The decisions that are derived from Information Systems include the company's strategy and the road map (Rsp 3: 24).

"I mean, ideally, you know, ideally, this kind of informs the, the strategy, and that sort of roadmap of the company, if you have a future price, you know, the data that you gather, through customer research, or just kind of the uptake of the products and forms, you know, performance, basically, where you want to invest more, you know, that that ultimately, you know, the use of the data, ultimately, ultimately, in the long run, it's got it, you know, should end up with more money in the bank."

-Rsp 3 (24)

Growing companies have too much data (Rsp 2:18, Rsp 3:20) therefore in order for investors to be able to make sound decisions from the data, companies will derive Key Performance Indicators (KPIs) and metrics that will help them in making faster analysis of current company

status and ultimately affect the decision-making process. The process of coming up with KPIs can be driven by the investors (Rsp 3:20) depending on their information needs. Investors can also ask companies to define the KPIs independently (Rsp 1:2). However, the company and the investor can collaborate to define the metrics that they would like to track (Rsp 2:18).

Different data types affect different decisions. Organizational data that helps in decision making. They include:

- Product-related data which is collected and tracked with the help of additional software such as Google analytics and informs customer behaviour on IT platforms that becomes resourceful in determining product improvements and iterations (Rsp 2: 36).
- Financial data which is collected from financial software (Rsp 2:36) and provides information about the costs and revenue which allows investors to conduct comparative analysis (Rsp 2: 14) and this interfaces with other teams in the organisation such as commercial teams (Rsp 2: 24) and sales teams (Rsp 2:14).
- Growth data which is aggregated from different data sources such as sales and commercial teams to create a data narrative that can easily be shared to the investors for easier understanding of the company's performance (Rsp 2: 20).

The data that is collected by the company about the product and user preferences helps the company to be able to understand the market and the market preferences which in turn drive the decisions of the products the company should focus on based on the customer responsiveness (Rsp 3:24). Customer data can be collected through customer research (Rsp 3:24). In instances where a company is very customer focused, data is collected by a dedicated Customer care team that receives customer requests on product improvements that are needed by the customer and by also tracking the pulse of the customers through net promoter score surveys that help the business gauge whether their products continue to give value to customers and whether customers would recommend them to other customers (Rsp 2:12).

Another use of Information Systems within a company that was noted from the analysis included the use of ERP systems to simplify and conduct administrative tasks such as payroll management. These systems can serve the basic functions necessary for any functional company by providing accounting modules and customer relationship modules depending on the company's technology structures. As they are information systems that contain data, they can help with decision making at a lower level by sending out reminders to better manage their tasks for example (Rsp 3:26). However, on a larger scale, data can be pulled from these reports to help in understanding customer relations or company data such as company costs (Rsp 3:26, Rsp 2:32).

4.5.2 The role of Model Driven DSS

Predictive models are data input assumptions derived from historical data (Rsp 2: 6) from different systems in the company (Rsp 2:36). Given that they are derived from assumptions, predicting company metrics is one of the most challenging tasks (Rsp 1:26). This is partly because of the shift in customer preferences and commitment to the product over time (Rsp

1:26). To increase the accuracy in prediction, Rsp 3(28) highlights that the process of prediction is iterative and should improve over time when a company learns from their market and keeps on adjusting forecasts and estimations based on this.

Another challenge highlighted with model driven systems is that in many cases, companies may predict high growth in terms of revenue and customer acquisitions but may not think about whether their current resources can accommodate the predictions (Rsp 1:26, Rsp 2: 6). Rsp 2 (30) gives the example of Facebook which experienced several crashes because they had not anticipated and re-engineered their systems to accommodate the scaling number of users. Predictive models can be used to easily tell if a business will break even over time using simple tools and calculations such as Excel (Rsp 1:28) however they can be used to drive decision making in a company in terms of planning for resources and re-engineering of products to accommodate anticipated growth (2:6).

"So, despite, you know, you're giving an investor projection model of what the future would hold, you still need the bandwidth and the team to activate that that projection model."

-Rsp 2(6)

4.5.3 The role of Knowledge Driven DSS

According to Rsp 3, companies may not invest a lot of time and effort when it comes to gathering and documenting information about its functions and processes. However, with Uber as an example, knowledge driven systems prove to be highly resourceful for investors and companies that seek to expand into different markets by supporting agility (Rsp 3:30). Knowledge driven systems simplify the decision-making process and eases rollout into new markets by allowing easy revisions and local customizations to the original playbook (Rsp 3: 30). In the case of Uber, having well documented processes that constituted their Knowledge System allowed them to scale to new markets faster.

"But I mean, I have heard like, oh, but like Uber, I heard this, for example, that they have an extensive sort of knowledge base. And when they roll out in a new country, like when they first came to Kenya, that the you know, the basically, that has the playbook and you know, can be revised locally for local conditions. Maybe in Kenya, you can pay through a mobile phone-based money system. And you know, you can, but there's a bunch of kind of playbooks for how do you sign up drivers? How do you how do you set up a department to inspect the vehicles to make sure they're safe? And all this becomes kind of the, the basis for the rollout in additional territory."

-Rsp 3 (30)

4.6 DSS Data Security

A company's focus on data security can be driven and influenced by the investors if the investors perceive data security as an important aspect of the business and if the company operates in very sensitive and confidential information such as payment information (Rsp 3:32). Rsp 4(64) highlighted that with the recent changes in legislation on GDPR, investors may care

about how personal data of customers is handled by companies to ensure that they are compliant. While some investors will prioritize security, others ranked other factors on a higher priority such as Intellectual security (Rsp 1:36). Investors will ask about data security to confirm that management has thought about it, but they do not get into the details of how security is being implemented (Rsp 1:34, Rsp 5: 28)

In other cases, data security measures within the company are driven by internal management who focus on the security of their systems as an internal measure of quality and will use ethical hacking and IT audits to ensure that their data is secure (Rsp 2:42). While certain investors may ask about the source code of IT products and whether these systems are open source or not (Rsp 4:64), other investors understand that fast growing companies will use free tools that are available on the market so as to minimize on costs (Rsp 1:34) and maximize on their scalability (Rsp 5:26)

"But I think we do not pay the licenses. So that's an important factor. Because now we grow like crazy. We have 80 to 90 people and not wanting to get to obtain on a tool that requires substantial licensing for every single user. No cost was very important part of it."

-Rsp 5 (26)

4.7 DSS Technical teams

From all interviews, it was consistent that the company teams played a very big role in attracting investors to select companies to invest in (Rsp 3: 4, Rsp 4:30, Rsp 2: 34, Rsp 1:10). They investigate the capability of the team to execute the business model (Rsp 1:10), the business idea (Rsp 3:4) and if they can trust them (Rsp 2:34). As the company continues to grow, investors will not only be interested to know more about the leadership team but may do interviews with heads of department to make sure that they get detailed information about the capabilities and competencies of team members (Rsp 2:34).

All the interviewed startups preferred in-house teams than outsourcing for their technical teams (Rsp 2:32, Rsp 5: 4, Rsp 3: 26). All these companies relied on an IT System as a product that generates revenue and consequently generates their decision-making data. Companies have invested heavily in the technology teams in terms of team size and time to ensure that they build products that have longevity and cannot be easily replicated (Rsp 5:4). The motivations behind choosing in-house teams varied from each startup and included reasons such as:

- Hiring locally being part of the company's social mission (Rsp 5:14)
- Hiring locally to reduce cultural bias and disparities to ensure that products made are tailored for the market (Rsp 2:32)
- Maintaining intimacy with customers over time and therefore cultivating a customer centric attitude and culture within the team which leads to creating better products for customers (Rsp 2:32)
- Maintaining agility and fast iteration of the IT products (Rsp 2:32)
- Ensuring that the ownership of the product, intellectual property, software and growth is secured by the company (Rsp 2:32, Rsp 5:14)
- Ensuring total control over levels of data access (Rsp 5:14)

5 Discussion

This chapter aims to synthesize and discuss how empirical findings and literature relate to one another. The discussion follows the same structure as the theoretical background with section 5.1 highlighting the roles and factors that influence the role of DSS resources pre-investment and post-investment. Section 2 looks at DSS resource attributes and factors that influence their credibility. The findings are compiled into an enriched version of the research framework, where new additions to previous studies have been highlighted. An extended framework is presented in section 5.3 based on the research discussion in section 5.1 and 5.2.

5.1 Multi Stakeholders

5.1.1 Startup internal team

All the respondents interviewed agreed that one of the most valuable resources in the startup and investor ecosystem is the team (Rsp 1:10; Rsp 2: 6; Rsp 3: 4; Rsp 4:30; Rsp 5: 4). The startup team includes the founding team as well as different departmental teams that contribute to the overall structure of the team. Baum & Silverman (2004) highlight that the identity and the background of top management teams are regarded as very important signals of the startup's potential, and this therefore attracts funding. This is because top management comprises of the biggest decision makers in the organization. They stir the company's vision and determine the startup's overall strategy and trajectory (Baum & Silverman, 2004).

From the interviews, two major reasons emerge as to why teams are an important resource in the organization. The first reason is to support the expansion of the business according to the startup's projected models. Rsp 1(26) highlights that the team's capacities and capabilities should be able to match the projection model a startup presents to the investor. If a startup claims that it will have an increase in customers to a certain percentage, there should be enough human capital resources to support the expansion. Rsp 2(6) solidifies this in his statement *"so despite, you know, you're giving an investor production model of what the future would hold, you still need the bandwidth and the team to activate that that projection model."*. Rsp 2(32) justifies why they prefer to hire in-house rather than outsource in relation to adjusting to scalability in a business and this is because an in-house team can support agility when a company rapidly scales.

The second reason is to support the product and the idea of the startup through sustainable innovation. Rsp 3(4) states: "*But it's, you know, the confidence in the investor as to whether the team is going to be the one that's going to be able to execute it on an idea. Because, you know, as you guys would know, often, you know, you start with one idea, we find out, it was sort of things by, don't work, but other things are much more interactive than we thought, and you sort of pivot and change the model. And so, the team that can basically carry out that kind*". From this statement, it is important the team has the competencies and capabilities to invent and re-invent the products so that they can fit the market they are targeting. Baum & Silverman (2004) highlight that when a startup signals innovative capabilities to investors through instruments such as patents, they increase their likelihood of attracting VC funding (Baum & Silverman, 2004). Innovation capabilities of a team can be signaled in different

ways apart from patents. For example, being able to use product and customer related data to improve a product to fit the market is a sustainable way to continue innovating for customers as it allows for new product improvements and commercial benefits Rsp 2(24).

5.1.2 Governments

From the interviews, we came across three factors that influence the relationship between governments, startups and investors can be considered valuable. They include the type of industry the startup is in and the regulations and rules that encompass the industry, the type of governments and regulators the startups and investors interact with and any benefits offered by the government (Rsp 3:10).

The first factor that makes the relationship with the government authorities valuable is in relation to legislative compliance where document driven DSS are essential. Companies will have governmental obligations to fulfil based on the government policies and legislation of the industry that they are a part of (Valančienė & Jegelevičiūtė, 2014). Investors will also have to abide according to the government and legislation policies as indicated by Rsp 4(4): "*So it's a separate entity, but it's still somehow part of the university the reason for that is that the university cannot own anything as because of its regulations, it's not allowed to invest in companies, which is well, why we have this holding companies separate*" who gives an example of how a university had to create a separate investment company to invest in research projects around the university. Therefore, the relationship between the government and the startup and investors is important for both investors and startups in the pre-investment stage in relation to ensuring business compliance.

The second factor is the benefits that come from strategic alliances between these parties. Rsp 3 (10) highlighted that some governments will offer incentives to startups in different forms such as tax rebates or friendly environments that encourage startups to grow. In such cases, the relationship between a startups and its government would be highly valuable as seen here: "*you might not need government relations, unless there's some benefit, maybe the government has some program that gives tax rebates, that's just startups*." Rsp 3(10). Alternatively, governments may promote startups so as to support government objectives such as creating jobs, fostering economic recovery and encouraging innovation (Valančienė & Jegelevičiūtė, 2014).

The third factor is the type of industry a company operates in. If the company operates in a highly regulated space, a good relationship with the regulators is important with the support of compliance documentation as per stipulated regulations (Rsp 3:10). Startups that prove that they are compliant, both with governments and industry regulators can pass investor background checks (Valančienė & Jegelevičiūtė, 2014).

5.1.3 Social capital

The interview results showed us the relationship that exists between the startups and social capital stakeholders is purely relational and does not weigh in on the value of DSS. The existing relationships between a startup and accelerators may affect the decisions for selecting a startup based on the type of investor (Rsp 1:10). While some investors will be attracted to a startup because they happen to know a board member and use this as a credibility assurance (Rsp 4: 38), other investors may not put so much weight on which social network a startup is associated with (Rsp 1:10).

Startups can however use their social capital relationships to their advantage which can later allow them to track investments (Rsp 2:10). According to Yin and Luo (2018), accelerators help startups in receiving funds by overcoming the issue of resource constraints and liability of business. Rsp 3(10) mentions:" *So that's probably where it's more valuable, I would say, if it doesn't get you any of those, if it doesn't get your money, employees or partnerships, it's kind of a luxury*". This is because the startup ecosystem is highly networked, where social capital connects people with wider tech ecosystems (Stone, 2018). Relationships with external contacts have helped startups to get guidance from the angel investors who have already some previous experience as well as offer (Rsp 2:8) to help them grow in earlier stage. Moreover, mentors spend time in helping startups develop their businesses freely (Stone, 2018). Sometimes investors get inclined to invest in a startup if they find someone in the board to whom they find credible. In this case it might play an important role in adding credibility to the organisation and attracting investors at the early stages.

5.1.4 Customers

The relationship between startups and customers carries a lot of value in the startup investor ecosystem customers are the revenue source of any business (Rsp 2:12). The investors value customer data and use it to confirm the credibility of the business idea and model (Rsp 2:12). They also interview customers as a form of due diligence before investing with a customer (Rsp 2:2). This value is carried from the pre-investment phase to the post-investment phase where investors will often build KPIs that help with tracking business performance based on customer data in accordance with the short- and long-term goals of the investors (Rsp 2:12). After being presented with this data, investors can make data driven strategic decisions.

Determining the social factors like lifestyle trends and consumer buying patterns (Valančienė & Jegelevičiūtė, 2014) accelerates the company's winning possibility in getting selected by investors as the customers are treated as the backbone of business (Rsp 2:12). Startups get value from tracking customer data through following customer lifetime value, customer acquisition costs and customer behavior patterns to rate their performance in meeting the dynamic needs of customers (Rsp 2:14, Rsp 2:22). Startups also create value from customer data through using the data to influence product improvements making market data an asset for the startup and the investor (Rsp 2:24). The product that company presents to a customer plays an important role, they are bound to refer the product to other potential customers as when the customer appreciates the product, they would refer other customers which would ultimately attract investments in long run (Rsp 2:12).

Rsp (2:4) says that they offer integrated customer experience platform to their customers to capture the dynamic needs of their customers. It becomes very essential to determine the sentiments of the customers on the product they are using and what they perceive about the company as in long run the customers interest will shift over time (Rsp 1:28). By combining primary customer data with user product data, companies can get rich analysis that affects the product roadmap and allows for innovation to create more value to the customers (Rsp 3:24).

5.2 Decision Support Systems

5.2.1 Data technologies

Businesses that are maturing and are able to conduct analysis and prediction are able to achieve benefits on a larger scale which may be difficult to quantify (Watson & Wixom, 2007). This is because Business Intelligence (BI) is sometimes able to facilitate strategic decisions that help a company to enter a new market, launch a new product or change the company focus based on the company's current performance (Watson & Wixom, 2007). Standard data definitions help to define reporting expectations between startups and investors and are usually outlined in written agreements (Rsp 3:20). These definitions are defined in terms of KPIs that may be defined by the investor (Rsp 3:20), the startup (Rsp 1:2) or both parties (Rsp 2:18).

Customer centric data warehouses can be used to understand customer profitability, preferences and lifetime value (Watson & Wixom, 2007). Rsp 3(24) explains how the data collected from customer preferences can affect the decisions made about the direction a product should take based on customer preferences. The feedback collected can be quantitative when tracking the pulse of the customers with quantitative tools such as net promoter surveys (Rsp 2:12). However, adding qualitative information collected from customers that looks to understand the user needs and expectations through customer research efforts (Rsp 3:24) helps a company maintain a customer centric approach with data driven systems. Rsp 2 (12) explains why the collection of customer data is extremely important for them: "*For us, we are very meticulous about, we have a customer success department and customer success departments make sure they monitor to know exactly the customer successful on our platform, if they're successful, what resources do they need to be successful? And monitor is exactly you know, how, how can we grow our offering, specifically, our software offering, right when the customer says hey, you know, I wish I had XYZ, right? So that helped build additional value for customers. And you know, something we do every quarter, you know, we tap we check in with our customers, we get a pulse, we get a net promoter score on our customers, from our customers to know exactly how we're doing.*"

Product centric data warehouses can be used to understand how a product should be improved. Product data can contribute to the improvement of products with the use of tools such as Google analytics that help monitor the behavior of how customers interact with their products (Rsp 2:36). Ultimately, the goal is to use the data to make decisions on how to iteratively improve the product for the customer and market in general so that they stay in business (Rsp 2:36). In line with product improvements, Rsp 5 mentioned that data collected from products helps the company monitor the performance of the product and show inefficiencies that may not have been caught in initial stages (Rsp 5:12).

Therefore, data driven systems provide value to both startups and investors if the customer and product data are used complementarily to improve products, increase the product value to customers, increase market responsiveness, influence strategy and product road map.

5.2.2 Model driven technology

Model driven technology comprises of different models such as representation, optimization and accounting models (Power, 2000). According to Power (2000), model driven technologies provide the most elementary function of functionality through simple and analytical tools. Rsp 1 explains that it is easy to use a model to predict whether a business will be profitable or not "*And we also look at the amount of revenue in Excel files. Trying to understand, is this possible? And that's really, that's really quite easy to understand if it's possible or not*." (Rsp 1:26). Model driven systems also provide value in the startup and investor ecosystem through communicating company future expectations to the employees, the management and the investors (Rsp 3:28)

It however appears that there is a disconnect between the use of simple models that are not data intensive and data intensive models that rely on historical data to make predictions. This is because different companies will create their own prediction models based on their reporting needs as there is no standardized process of doing it as understood from Rsp 2 (36) : "*the growth analyst, they use, we use a technologies, they use pretty much prediction models that they built themselves*. " When asked about if their company used predictive tools, one respondent mentioned that they do not, however went ahead to mention that they use data for market analysis and unravelling market opportunities. "*We don't use predictive tools. We do just market analysis. And as you can see, of the opportunity, that's a missed opportunity. So, our and basically potential with our current customers, we calculate based on retention rate and market opportunity, we estimate and forecast sales in the upcoming months*." (Rsp 5: 20).

The development of OLAP systems has allowed for the complex analysis of data to be used to create hybrid DSS that provide models, data retrieval and data summaries that are used for decision making (Power, 2000). Rsp 2 (6) explained how they use historical data to make predictions: "*you've seen some kind of historical data, and you predicting the future based on that historical data.*". These DSS use data and parameters provided by investors to help in analyzing a situation and deciding which path to take (Power, 2000).

The value of model driven system is dependent on the accuracy of these models and the ability to track company performance based on set goals.

Model driven systems used in organizations present inaccuracy problems because of the inconsistency in customer patterns (Rsp 1: 28) as well as unexpected events (Rsp 2:30). One of the ways that the inaccuracy can be reduced includes incorporating data from different company sources to create more precise prediction models (Rsp 2:36). The second way of improving the accuracy of model driven systems is by ensuring that prediction is done iteratively and continuously (Rsp 3:28). This involves relying and learning from the existing market data to be able to make changes and estimations based on the reactions of the customers and the market. By learning from the existing data, an organization can make business forecasts more accurately (Rsp 3:28).

5.2.3 Document systems

Document systems that affect decision making can either be data driven (Martens & Provost, 2017) or storage systems where important data is stored and retrieved (Power, 2000). In the startup investor ecosystem, documentation is used by a startup to show that their business is compliant (Rsp 3:16). These documents help to show credibility of the business and can be accessed online or through physical documents and could range from legal documentation to profiles of management and founder teams (Rsp 4:26).

The value of document systems in the startup and investor ecosystem depends on the kind of business a startup runs and what the regulations for that business are (Rsp 3:16). The more regulated an industry is, the higher the compliance documentation needed to prove the credibility of the business. As Rsp 3(16) puts it, "*it would depend on how outcome intensive the businesses, but you know, if it's, if it's a business that would be regulated, or has a lot of rules around it, or is, you know, doing extractive industry of some kind, or whatever, investors will want to know, they're going to want to audit the compliance*"

5.2.4 Knowledge technologies

Knowledge is considered as a resource because it satisfies the classic requirements of production-oriented resources and creates value if utilized (Al-Natour & Cavusoglu, 2009). Knowledge is also seen as competitive advantage which is difficult and time consuming to imitate (Halawi et al., 2014).

According to Halawi et al., (2014), the process of knowledge management is simple in theory however the implementation of such systems can be quite complex. Organizations fail to realize that knowledge technologies are generally comprised of 10 to 20 percent efforts in setting up the technology and the remaining 90 to 80 percent are tied to the cultural, behavioral and managerial influences in the company (Halawi et al., 2014). When discussing knowledge management systems, Rsp 3(30) comments "*I think in general, it's an advantage, but a lot of times, it's a really lean team, not too many people, and you just have to kind of your focus mostly on the customer stuff. So, you're not, you don't have somebody writing up procedures."* to describe why these systems are rarely implemented in organizations. He further explains that a growing startup may channel its team's efforts on other aspects of the business that provide a direct contribution to profits and that is why documenting processes along the way may not be a trivial organization activity.

The non-use of knowledge systems is also noted with investors where investors rely on networks to inform investment market knowledge. Rsp 1(4) says "*So we have 350 investments, and we have colleagues all over Sweden. So we tried to find do we have in our portfolio, and the other company that's similar close to or based on knowledge that we've been invested in another company with that kind of relations, or building value, then then we try to find that we go out to the market, and ask someone who's involved in that kind of company. And ask them, is this the reasonable cost for customer acquisition, for instance. So that's what we're trying to compare it."* And so, does Rsp 4(18) who relies on networks for market knowledge "*Of course, we investigate the market. We do our own research, of course. And we we have*

some we have kind of a big network with people within different types of markets and niches. So in many cases, we ask them and what they think about it."

The link between knowledge systems and business strategy has been previously overlooked with knowledge systems being related to information technology only (Halawi et al., 2014). However, Rsp 3(30) gives an example of Uber, which used Knowledge base systems strategically to scale to new markets through creating playbooks and manuals for key company processes that could either be replicated or localized based on the local conditions. By being able to document processes, companies can roll out to additional territories and scale faster (Rsp 3: 30).

Therefore, knowledge systems can be termed as rare information systems that can provide a startup with strategic advantage that may influence decision making and support business goals and vision such as being scalable.

5.2.5 DSS Security

With the collection and storage of data in large amounts in startups, issues relating to privacy, security and ethical considerations come to play (Abbasi, Sarker & Chiang, 2016). While Martin (2015) points out that the influence to make information systems secure can come from BI tool providers, industry leaders and Big data gatekeepers, the interviews show that investors can influence a culture of data security in an organization if they perceive it important for the business (Rsp 3:32). This perception may be influenced by the industry a company is in and the kind of transactional data that they work with. If the transactional data is confidential, sensitive and deemed important, then investors will advocate for tighter security measures (Rsp 3:32). Companies can also prioritize security of their DSS through ethical hacks and IT audits (Rsp 2:42)

5.3 Expanded research framework

The expanded framework consists of the initially mapped actors in the startup and investor ecosystem with an update on the relationships and data dependencies between the different actors. Additionally, it highlights the different factors that influence investors in selecting startups based on their existing Decision support system resources. They include:

- Investor related:
  - The type of investor
  - The investor intentions and long-term plan and vision
  - The investor motivations
  - The amount of investment.
  - The terms of Investment
- Market
  - Market size
- Startup
  - The startup phase
  - The startup size
  - The Industry a startup belongs to

- The type of transactional data a company handles
- The startup team

- Data driven strategy efforts
  - To foster Innovation
  - To foster process improvements.
- External stakeholders
  - Industry regulator types
  - Government type

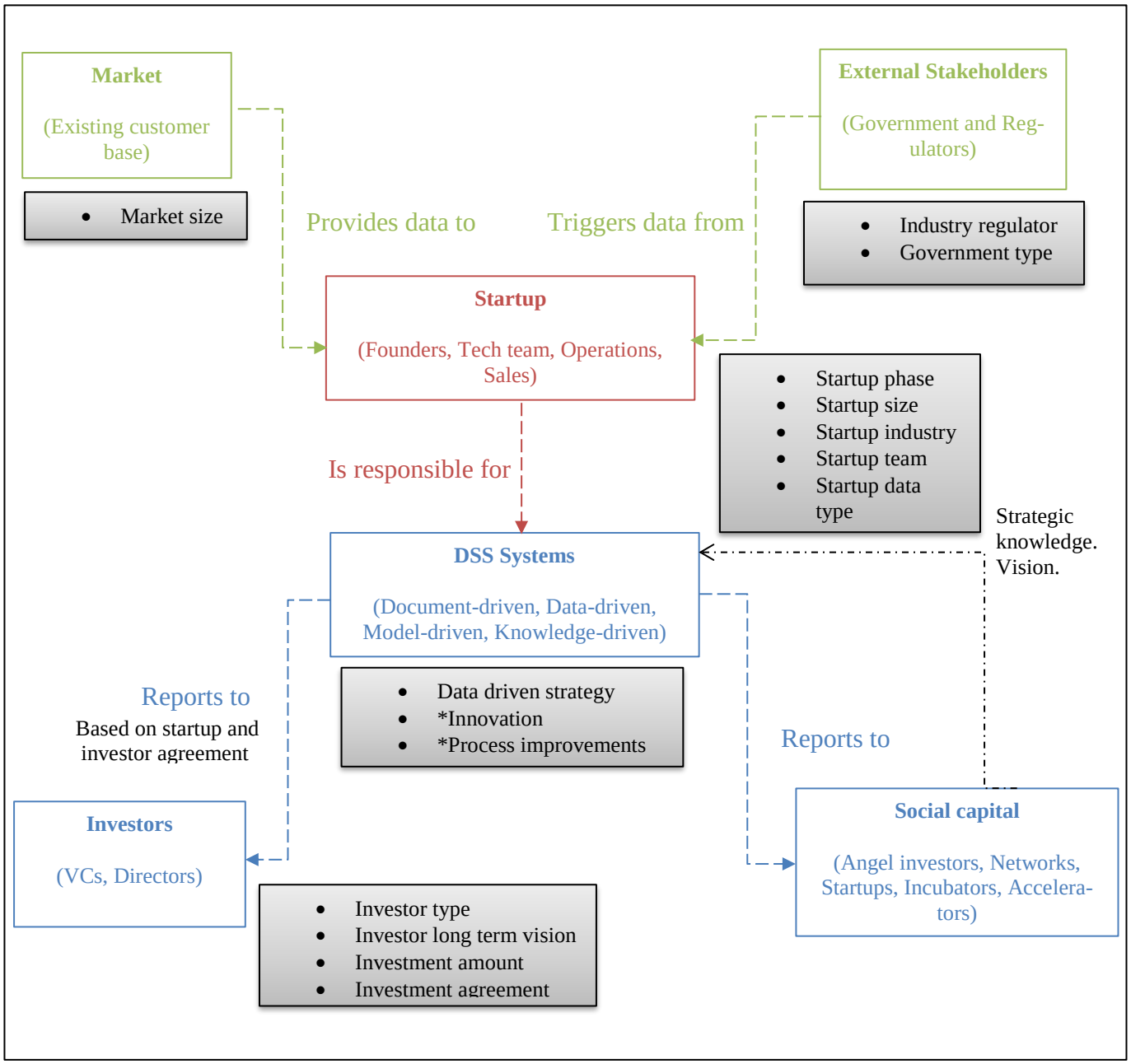


Fig 5.1: Extended research framework – Mapped factors

Based on the empirical results in Chapter 4 and the analysis in Chapter 5, the different resource topologies and value attributes framework in Chapter 2 was expanded to highlight the research findings. To be able to gauge the total weight of each resource, a sum of the resource's perceived value, rarity and substitutability was considered based on the literature review and research findings. A scale of 1-3 was used with the following guideline:

- Low (Valued as 1): the resource is not considered of severe importance to both the startup and the investor.
- Medium (Valued as 2): The resource is considered of importance to either startup or investor.
- High (Valued at 3): The resource is considered of importance to both the startup and the investor.

According to Wade & Hulland (2004), substitutability directly affects the resource value. When a resource can be substituted, its value will diminish when substitute resources are developed (Wade & Hulland, 2004). Therefore, to calculate the overall weight of each resource, sustainability values were negated to match the inversely proportional relationship between value and substitutability.

Resource	**Value**		**Rarity**		**Substitutability (-)**		**Total score**	
	Pre-investment	Post-investment	Pre investment	Post-investment	Pre-investment	Post-Investment	Pre-investment total	Post investment
Outside-in								
External Relationship management (Govt)	**2**	**1**	**2**	**1**	**-1**	**-1**	**3**	**1**
Market responsiveness (Customers)	**3**	**3**	**1**	**1**	**-1**	**-1**	**3**	**3**
Spanning resources								
DSS Business partnerships (social capital)	**2**	**2**	**1**	**1**	**-1**	**-1**	**2**	**2**
DSS planning and change management	**3**	**3**	**3**	**3**	**-1**	**-1**	**5**	**5**
Inside-out resources								
Document Driven DSS	**3**	**2**	**1**	**1**	**-1**	**-1**	**3**	**2**
Knowledge Driven DSS	**1**	**2**	**3**	**3**	**-1**	**-1**	**3**	**4**
Data-driven DSS	**2**	**3**	**1**	**1**	**-1**	**-1**	**2**	**3**
Model-driven DSS	**3**	**2**	**1**	**1**	**-1**	**-1**	**3**	**2**

DSS Security	**1**	**2**	**3**	**3**	**-3**	**-3**	**1**	**2**
Technical team	**3**	**3**	**2**	**2**	**-3**	**-3**	**2**	**2**

L= Low (1), M=Medium (2), H=High (3)

Table 5.1 Extended Research framework – Resource weight.

6 Conclusion

This chapter summarizes the research thesis by highlighting prominent findings. The first section describes how the thesis has answered the research question and fulfilled the purpose stated in chapter one. The following section presents the key findings and the third section concludes that there is a need for more in-depth studies of the role of decision systems as a resource in the startup and investor ecosystem with the advancements in big data.

6.1 Research Question and Purpose

This thesis is built on the notion that startups face several changes such as fast growth, planning and uncertainty and may need the support of VCs to grow and expand. VC funding is an attractive method of acquiring investments compared to other sources because of the increased size of investment that they offer. Prior studies have focused on the strategic relationships, teams and innovation as key competencies of startups signaling investors. Prior studies have also highlighted the role of IS resources as a key drive for a company's competitive advantage. Prior studies have also highlighted the role of DSS in the contribution of more effective, timely and informed decisions. However, prior studies have not focused on the role of DSS as a resource in the startup and investor ecosystem. The nature of DSS complements startup characteristics of rapidity, fast scalability and high risk. Therefore, this led us to the following research question:

"*What factors influence investors to invest in startups based on their existing Decision Support System Resources*"

The purpose of this thesis was to explore the different factors that influence investors when it comes to investing in startups based on their decision support systems so as to contribute towards a guideline that can be used with young budding startups who want to attract larger investments in the future through VC funding based on their DSS resources. The thesis has contributed to the field of information systems by combining the ANT with the RBV theory to highlight the actors and networks in the startup and investor ecosystem with relation to DSS interaction. It has also allowed for the creation of a framework that highlights the resources that a startup can use, with considerations of both IS and non-IS resources and their weight in contribution to attracting investors. Through the conducted interviews, we were able to collect information from investors and successful startups which allowed us to answer the research question basing on factors and attributes that make DSS a resource.

The key findings are summarised in Figure 5.1 and Table 5.1. Section 5.1 and 5.2 discuss the different actors and networks defined from the Actor Network theory based on their interaction with DSS. These findings are then summarised in Figure 5.1 through highlighting key factors that contribute to DSS as a resource and Table 5.1. through key DSS attributes that increase the value of the DSS resources and non-IS resources. These findings help in answering the research question by highlight key factors identified during the data collection and analysis phase that affect the investor's perception of a startup with relation to DSS resource types and attributes over different phases of investment.

6.2 Key findings

The relevance and utilization of DSS resource types changes with time based on the DSS topology that included both IS and non-IS factors.

The relationship between DSS and Strategy

The strategy of a startup is determined by the its internal management and investors through mutual short and long-term visions and can be influenced by the startup's social network ties. From our thesis, we find that there are two ways that DSS can support strategy. The first way is through evaluating the current startup's resources, examining the existing resource attributes and devising strategies through comparing existing DSS capabilities and attributes based on external opportunities to achieve immediate competitive advantage that should be sustainable over time. The second way is through support strategy by using DSS to provide market intelligence from collected customer and market data that can drive a startup's strategy through the creation of new commercial opportunities, product and process improvements and pivoting.

Sustainable competitive advantage with DSS

DSS resources play a propelling rather than leading role in creating competitive advantage and ensuring an investment is secured in the pre-investment phase. A startup will depend on its DSS resources to present and certify its investment needs through accurate estimations that support its investment plans and justifies the investment size it seeks. Investment size affects the due diligence processes implemented by investors with higher investments attracting audits of a startup's existing processes and DSS resources. External factors such as industry type, investor type and investment size dictate the value of a DSS resource type needed to facilitate compliance. In the post-investment phase, DSS resources take the leading role in maintaining sustainable competitive advantage through relationship management between startups and investors by enabling transparency and performance monitoring.

DSS in change management and planning

DSS resources usage spans internal and external change management and planning. Externally, market responsiveness is achieved through iteratively collecting customer data and feedback to populate DSS resources and through defining Key Performance Indicators that enable performance tracking. The populated DSS resources and defined KPIs support validated learning by allowing a startup to test different elements of the startup vision. Informed decision-making influences startup's product roadmap through suggested product improvements, improve prediction capabilities and accurately plan for additional resources– factors that positively influence change management and planning.

DSS utilization and impact is influenced by culture

DSS management and security practices executed by a team are affected by the internal organization size, reporting structure, data content value and the startup culture. Internal culture is influenced by a startup's internal management, its social capital networks (such as advise from Angel investors and board of advisors) and investors based on the relationship and contractual terms between startups and investors. Contractual terms determine the frequency of reporting from DSS and the responsibility each party assumes to make strategic and data driven decisions from existing DSS resources. Implementation and enough utilization of DSS resources is linked to a customer centric culture. A customer centric culture can be driven by hiring a team that shares the culture and location of its market hence the preference of many startup interviewees to hire locally instead of outsourcing. An agile culture supports market responsiveness and eases scalability when implementing change and a data-driven culture allows for iterations and prioritized use of DSS resources to evaluate, test and monitor startup performance and trajectory.

6.3 Future research

This thesis suggested that every startup seeking to attract VC funding and maintain a good relationship with VCs should consider DSS as a resource that can be used to show the credibility and compliance of the company, to innovate and improve its products and processes, to make better predictions and planning and to acquire market intelligence that supports strategy. The utilization of DSS resources in a startup depends on how the management, investors and social capital influence based on their perception of the DSS resources value and usefulness. We believe that the considerations highlighted in this paper provide an explorative starting point for research where future and more explanatory studies could investigate the relative strength of DSS that each consideration has within the startup and investor ecosystem, other collaborative and strategic partnerships and other IS resource attributes that were not tackled in this thesis.

Furthermore, this research has expanded on an existing framework that borrows from the ANT and RBV theories with a focus and attributes and factors affecting DSS resources to provide sustainable competitive advantage in the startup and investor ecosystem. It will be interesting for future studies to focus on factors that influence big data as a resource contributing to a company's differentiation and competitive advantage strategies. For practical implications, it should be acknowledged that different startups may come with specific considerations which are outside the scope of this paper. However, we hope that the findings we presented can serve as foundational guidelines for young startups that intend to attract VC funding in the future by utilizing DSS resources when faced with a need to finance rapid growth and expansion. This research has supported our previous notion of the role of DSS resources in the startup and investor ecosystem and has allowed us to expound on IS and non-IS factors of influence when it comes to a startup's DSS resources for competitive advantage.

Appendix

Appendix 1: Interview Guide

Introduction *5 min
General introductions of both parties to establish rapport
Explain our research motivation,
• Discuss and confirm briefly the interviewees' profile due to prior knowledge of their background and current role • Confirm if we can record the interview
Clarify any other concerns the interviewee may have.
General questions/Ice breakers *7 min
1.Generally, what kind of Startup IT Resources appeal to an investor?
2. How do investors verify that the data provided by the startups is correct? (During pitches). And WHO verifies.
3. Do Investors have internal tools which they use to help them select Startups to invest in? With so many companies that have great pitches, ideas and a ready market, what makes a startup stand out to the investor?
4. What are the key factors that an investor looks out for when investing in a Startup? What selection criteria do they use?
Theme 1: Outside - In Resources
Subtheme a: External relationship management *5 min
(1). Do external relationships which a startup has with the government and its social capital (Angel investors, Board of governors, accelerators) matter when an Investor wants to invest in a startup? (2) If no, why? If yes, why? What about after they have already invested?
(3). How do investors verify that a Startup has a good relationship with? • The Government

• Social capital (Angel Investors, Board of Governors? Accelerators)
(4). How would an investor verify that a Startup has good relationship with the society (customers) using DSS? How do investors verify that the Startup's product has been received well by the market?
Subtheme b: Market responsiveness. *7 min
(5). Does a startup's capabilities to collect, analyse and report their data efficiently, effectively and in real time affect the decision of an investor to select a company? And why?
(6). What are some of the information system business intelligence capabilities that attract investors to consider investing in a Startup?
(7). Does it matter to the investor whether key business reporting is done in-house or done by a contractor/3rd party on behalf of a startup
Theme 2: Spanning resources
Subtheme c: DSS Business partnerships (In-house) *5 min
(7). Do investors care about the way Startups handle internal data collection, analysis and dissemination within its key departments before and after they invest in the Startup?
(8). How do investors track that their investment is being well utilized within a Startup over time?
Subtheme d: IS Planning and Change Management *5 min
(9). Do investors verify that a Startup can maintain its systems to handle anticipated massive growth?
(10). Do investors investigate how Startups model and anticipate growth? How do investors confirm market growth predictions done by a Startup are accurate?
Theme 3: Inside-out Resources
Subtheme e: DSS Infrastructure *5 min
(11). Do investors care about the internal infrastructure (managed in-house or outsourced) of a Startup's data driven and model driven systems? Why/Why not?
Subtheme f: DSS Technical skills *5 min
(12). Do investors care about the technical skills and experience of the people working with Decision support systems/IT BI Team? Why/Why not?
(13). Do investors care if this talent is in-house or outsourced?

Subtheme g: DSS Development *5 min
(14). Do investors care about a Startup's appetite for trying out new DSS technologies (data/model/knowledge/document driven model)? Why/Why not?
(15). What are some of the new technologies attracting investors at the moment and why?
Subtheme h: DSS Security *10 min
(16). Do investors care about how a Startup's data is security before and after investing? What measures do they take with regards to this?
(17). Do investors care about where a Startup's data is stored?
(18). Do investors require Startups to carry out security audits and at what stages, and how often?
(19). Do investors investigate the Security and Data policies of a Startup? How?
Conclusion
(20) What are some of the ways IS/DSS have helped gain competitive advantage?

Appendix 2: Interview Transcript [Rsp 1]

Rsp1: Respondent 1

Line	Person	Content
1	Researcher:	In what kind of startups do Almi invest? and What are the key factors that an investor looks out when investing in a Startup?
2	Rsp1:	Almi invest often in companies that's only 123 years old. But occasionally, they have been around for five, six years. And then, of course, then they have built their own reporting system in some kind of way. Because they have, already have had shareholder shareholders and a board putting, But I, we don't look at that as a specific instrument, what we look at is the KPIs that are important for this kind of company driven by the business model. And then we say that, well, you need to follow these things are these things, yes, it company driven by users, then that needs to be addressed. You need to find the KPIs for addressing the cost for getting the users and what can you overtime, the life cycle time, you can make a value of each user, just so as you get the grasp of what what kind of figures we want them to look at. So then they need to collect the data, and some kind of way and, and present that. And that is something that we

		would like the company to follow over time, because that's something that bills becomes valuable for the company, that's how to dress, a value for a company. can be can be many things, not only the revenue, the revenue is one sort of way of expressing that, well, there's some kind of value, and you know, as. an economics, and then you know, there, you can put some figures on that was that this kind of companies were five times that. And this company's worth seven times that, then there is another value, if you have number of users that you can address, and you maybe can sell something more to those users over time. And then there could be some other value not expressed in the company value. financials.
3	Researcher:	So if a company gives you their data, for example, with the with the example you gave of like if they're driven by the customers, and they come up with costs and data that supports that, how do you as an investor verify, and see that that data they have given is correct and accurate, and is actually something that is doable.
4	Rsp1:	And we try to compare with other companies. So so we have 350 investments, and we have colleagues all over Sweden. So we tried to find do we have in our portfolio, and the other company that's similar close to or based on knowledge that we've been invested in another company with that kind of relations, or building value, then then we try to find that we go out to the market, and ask someone who's involved in that kind of company. And ask them, is this the reasonable cost for for customer acquisition, for instance. So so that's what we're trying to compare it.
5	Researcher:	in order to compare do you use some data systems, from investors, and
6	Rsp1:	we don't have that we don't have it like a system in our own. Because that more, our systems are more driven out what we need to report for the where we have our funds from. So so that that's not that kind of detail, is not because that is more, you know, nice knowledge, and then we have we get that knowledge when we need to address that. Okay. And,
7	Researcher:	yeah, I just had a question in what Mona asked in terms of the internal tools you have as investors, if you have any internal tools that help you make your decisions faster, in terms of selecting which steps to go with a bit setups know, to go in, but I think you answered that. It's the just your knowledge and experience, more or less is that and
8	Rsp1:	that happens that that over time, that tends to be certain types of companies? If there is a problem, what's the problem today? Yes, the climate, then there tends to be couple of companies in that area. What's the problem today? Well, in healthcare, we don't think we have the best healthcare in the world even if someone says so. So,

		there are many companies coming up with with new ideas, and then you build up the knowledge also, because you get some input from that, from that and then you read things that are driven by organizations maybe, for instance, could be different kind of organization, but within that certain field. So that's where we tried to find our and we talked to investors or later stage investors also, what what are they interested in and what kind of how far must accompany go before before they would be interested in investing. So that's what we try to figure out, okay, the early stage, when we are addressing an investment is this investment enough to to take the company to reach the next goal, because maybe you need in a first round, you need 1 million euro, your stick figure. And next round, you would like to have free million euro, then you need to know was a investors who will invest 3 million euro, what they want to they need to see a company. And that is often driven by figures proven the business model. Okay. The next question, and this one, I have another.Okay.
9	Researcher:	Next question we have is just to do with how can startups relate to the extent externally with people like governments or their social capital? So if they have other investors, angel investors, if they are linked to a startup accelerator incubator, do those factors play any role in you deciding to go with a startup?
10	Rsp1:	When we invest, we want to see some kind of unique idea should be scalable. The needs to be heard.It's not only programming some code, getting a program, and pretend we were trying to consider is that easily done? Or is that something that that is a hurdle to get there? And how large is that herb? Does it cost one or two or 3 million Swedish? Does it cost 2030 minutes, which, and then obviously, if it if it takes 2030 million investment, then there's a bigger hurdle. But the hurdle could also involve, and that's the most important thing, the team, what individuals are involved in this team and their capabilities, working as a team. That's the most interesting thing that we consider. Because that's what we've found out after 20 years of investment, that it's not always these unique uniqueness and the scalability, but it's the team performing. And if the team doesn't perform, it doesn't happen. You can have the best idea. But if it doesn't happen, so so that's a very important thing. Your question was around where we find and the relations in combination with incubators and the Rosa. So it could be companies sitting at an incubator, but it could also be companies outside that we find interesting. So there's, there's no, absolutely need to do that. But sometimes they they have maybe got some more knowledge of how things should be driven. If they are close to an incubator, that is something that that is good. It's based on their that their they're what they've done before their knowledge from what have you done that before? And then we also believe that if if you made a failure and not succeeding, that is also something that is good. Because then you've tried something it didn't work out, and why didn't work out? That's also interesting to

		understand.
11	Researcher:	I think what I'm getting is that it may not be as a heavy, like, it may not be a reason for you to go with a setup because these other more important but not important, but other factors that you look at when you're trying to this to this might not be that much big factor for you here, what we understood.
12	Rsp1:	No, no, there's not a big factor where you're sitting away or that
13	Researcher:	it has, has been backed by a couple of investors before you're going to want to invest in it as well. I think that that? Absolutely.
14	Rsp1:	Yeah, that's a very important factor. What investors are involved, are they capable of making more investments in the company? Or is it just a one off investment, and that's what we consider when we invest, that early stage, companies probably will need one or two or three rounds of capital, before they succeed. And if we invest in in stage, in the first round, and the CO investors don't have the capability of following, then there's a lot of, we have to take a lot of risk in the company, and it's not good for the company. If if we, the company needs to go out and find new investors all the time, because then they can focus on the business. So that's why we consider very much in the early stage and talk to the companies that that find the right investors, we might be the right investors or not.But you should think about your situation, and be think of a company of going forward. And that needs to be sustainable, and sustainable is not sustainable in the world is a sustainable companies is for me, is that you actually have your own revenue, and you are not need the support of the investors in the long run. That is what we in the early stage, think about, when is that? When is that going to happen? And the investors that today, many investors come from investing in publicly noted shares. And they have the interest of maybe selling a little bit earlier, then, and then we are used to because we know that these companies the money we put in there that needs to be in there for five to seven years. But but so that that's one issue that we're dealing with, in early stage, talking to all investors and the founders, that that journey, how we going? And what do you believe? When do you want to sell your shares? When do you need to sell your shares? And what are your expectations? Okay, so we talked very much about expectations.
15	Researcher:	Sometimes I okay, I heard on your website that you have acquired, your companies that you have invested in have been acquired by Google and other companies. So I'm just wondering, like when you getting an investment and you're going in with a company? Is it like usually a mutual agreement for you to say, okay, the end goal is to be acquired? Or how how, how do you come up with the decision to do that?
16	Rsp1:	Yeah. It's a very different philosophies. Yeah, you could say, some

		investors say that we can't think about that, in this early stage. We can't think about that. But I think one needs to think about that. as a, as a founder, you need to think about it as what kind of investors are, am I involving in this company? And what are my expectations of that is my expectation as a founder, that I would like to sell the company's in seven years? It's fine, fine. But every startup must understand that when we invest or, or other investors, they have the interest of selling their shares at some point, that's why we make an investment. We're not making an investment to be there for 30 years.That's not in our business model. So we say, Well, our goal is five to seven years, that we sell our shares, if everything goes straight rocket cylinders, so some companies, some companies, maybe not make it, and they are maybe sold back to the founders or something else happened, or they become a reasonably good company, but not the rocket that were looking for. And to be sold to Google or Apple or any one of those. But those companies that tend to, to go really well. And that depends on the industry, obviously, also, some industries are more conservative, it takes maybe 10 to 1520 years to build that kind of company, but the ICT area, technology, that that that maybe and software, that's that tends to be a little faster, a little bit faster, could be five to seven years. But the companies we we make the best investments in actually companies that we might have had in our portfolio for 1015 years. So so it's it's very hard to say, when is the right point to sell. Okay, so so we try to make an agenda together. But if we can't make that, then the path going forward for the company is that to be listed at some point, obviously, then you need to understand the market for that.
17	Researcher:	when is the right time to do that?
18	Rsp1:	Again, the company needs to be sustainable, because the stock market values different companies, for instance, a company in life science, solving cancer problem, they have a lot of expectations. But there's not too many, that makes it all the way because creating that new Again, the company needs to be sustainable, because the stock market values different companies, for instance, a company in life science, solving cancer problem, they have a lot of expectations. But there's not too many, that makes it all the way because creating that new pharmaceutical that that takes 15 years. But the stock market likes that. But a company that actually goes to have a nice revenue, to sell the company that often leads is when we have an agenda together to sell to try to do that within the company. And then we have a process probably take two years, from the day to say, Okay, fine. Let's now if we have an ambition to sell the company in 2021, we should start now and making that process.
19	Researcher:	So the next question we have is about how startups handle the market and how they scale. So this one is just a in terms of how setups, their

		capabilities to fast collect data, analyze it, and then report it efficiently to you. So the question here is, as an investor, how often would you want to be communicated to with a startup based on their performance? and things like that? How often would you want? And would you just, would you want to verify they, what's they give you? Or would you believe them, just with the data they present?
20	Rsp1:	Often, we're built on trust, everything is built on trust. So, for reporting, we say, Well, if if the company has been working for two years, or something like that, normally is reporting every three months, some kind of management report, and we say, that's the financial reports every three months, then we can say that every month, the CEO, sends an email saying what happened last month software. So we have continued in the company, and that's, that goes to the ones who's in the board. And, for the shareholders. In startups that vessel lack of information. When you say, if you're not in the board,you don't interact with the companies that often as a shareholder. So I think that there needs to be a good reporting, but that's not really working
21	Researcher:	really matters to you, when you decide, like to the investors, this reporting skills, like what startups have, does, it really matters to the investors?
22	Rsp1:	Yes, If a company needs more money, then needs to build trust with the shareholders. So and coming back to the shareholders and saying you're valuable, I respect you, I give you information. So I actually spoke about that this morning, to someone on the phone to always give respect, that is also here, because an information is respect, sending information, and then the information could be confidential. Of course. So that's, that's a hard point to to, to take, how much information should I send to a shareholder, that that is outs little bit on the side of the company. So so that's why they don't send too much, and maybe they send to less. And,and these early stage companies 10, more to have a meeting for the most important investors, if they're not in the board, and they are a large investor, who's not in the board, they take a meeting and present instead of sending information. So that's how things are done. Because it's so easy that that inflammation goes forward to someone else. And that is, that is something that's very important that if a company will whether the founder feels like an investor is using information, some kind of way for their own purposes, then not.And then we need to say in the board, this is confidential, this is not use this information in any other way. Without going back to to the company and asking for permission.
23	Researcher:	When a startup has three or four investors, how do they manage the reporting of the different kinds of investors and the different kinds of inflammations and the different kinds of KPIs that the investors are

		interested in?
24	Rsp1:	I think, again, we are often as we often are, one of the larger investors in the early stage, we often are in the book. So that's why we get quite a lot of information. When we come to a point where, after three, four years, if a company have gone, later stage investors into the company, maybe we are not involved in the board. And then we have in our shareholders agreement, we say that well, you should report every three months.So we get some information. So that's, that's in an agreement. What happens if we're not involved in the board. And then again, if I think it's dealt like that, the, the the investors that are important in this face, for the company, are working closely with a company. And there could be some other investors, private investors, business angels, that are exactly not not working that close. But but they are important, but then there needs to be reporting. And I think that's the thing that they're, they're, there should be dealt with a little bit better. That kind of reporting than we are today. But that was a there's a lot of issues to take care of, for for the CEO, and the company. So that's why I think that has been maybe not, not too much reporting. They don't like that. Because they like to do things like to do business, reporting, old stuff, history, and not interested. Nothing's interesting. And that's why we try to set the agenda when we work in the board, we try to set the agenda was set the rules, but let's set the rules or what we need for to know about the history
		and make that when we come to board meeting, you send that information to us. Seven days ahead.And then we can take care of that information quite fast in the meeting and discussing discussing the strategic what what point are we going forward? What's happening more, and focus on going forward? The history that is done, we can say, Well, you didn't succeed here. You made it. You haven't made it enough business here. We say, What do we want? But what are you going to do forward? That's the most important thing. So how are you dealing with the things that that didn't happen? according to the plan yet?So let's focus on that instead. And that could be sometimes it's quite tough discussions. Within the business development team, that's often the most important thing in these companies.
25	Researcher:	Because I'm also wondering if if a company sees that they're going to break even in one year, and they'll have 5000 customers in, say, seven, seven weeks. So that's just an example here. But as an investor, how do you how do you verify that? I know you have mentioned that you look at the market and the industry, and also consult with other investors to see if that's feasible. But what if it's just a really good idea that can actually blow up? Would there be any kind of where you can be paid that information?
26	Rsp1:	If a company report, yeah, they have revenue, and they have customers. They foresee that, that's the hardest thing. Yeah. what I've

		learned is that, do the company have enough resources? If you say, well, we're going to take 20 new customers in 2019. We're making an investment in 2018. If I, if I then say, what,how long time does it take to get a new customer? And I think about that. And that certain industry? What are the time going from selling point to to a buying point? How long is that curious? some industries, that's if you don't have a budget, a customer have a budget for doing that. You're not going to sell anything? So that's, that's questions that we ask the companies before we invest, how long is the selling period? When do you believe that the customers are ready? Do they do they have they really acknowledged that they have a problem that if they don't do that, they're not going to buy. So that is also something that you need to consider before selling, if they don't know about the problem? if it's a company of five people, there's four people working with the development and technical things. And there's only one the CEO selling, is it feasible that he or she is going to make to sell to 20 companies? And that's why I mean, why do the company have the right resources to perform? So that's, that's the thing that it's very important. addressing what kind of team are we? Well, that's the technical team. And this is the sales team. And sorry, but there's no one in the sales team. And we also look at the amount of revenue in Excel files. So famous, well, we're gonna sell for 12 million next year. Okay, and how many resources I have selling? Okay, you're a half half person this year selling? And how could that go into 12? million? because well, selling to 60 or 70? clinics in Sweden? And how many? Do you need to visit 60 of them? That's not possible, you're not going to have that kind of revenue. So that's things that we try to understand and address.
27	Researcher:	So most of the predictive analysis is done with Excel.
28	Rsp1:	Yeah. Trying to understand, is this possible? And that's really, that's really quite easy to understand if it's possible or not. Okay. So, so many companies, we tends to be too much revenue too early. Not really understanding that it takes a long time. Time is always the issue.If it takes one or two or three years, before the customers ready, you never know. And you know, about this curve? That early stage? Always some customers that love you technology. Yeah, but the most of them doesn't. Most of them needs to be secure. Yeah, before they buy. So that's, that's another thing where, what, what customers are you addressing? That's, that's, that's also something Have you the understanding for the customer? Now the customer? So that's hardest thing to do? Like getting into the mind of the customer? where they are? One could say that that's, that's the biggest problem we have. is not having technical solutions. Yeah. It's happening. Understand the social justice,
29	Researcher:	okay. And when it comes to the kind of resources that company has,

		in terms of both their departments and their staff, as well as the infrastructure, and how they, they build things in their technology that they using, do you as an investor mind, if it's in house, if it's done by them? Or if they outsource and have it done by another company? Does that really affect your kind of? Like, what do you think about it? If a company, if you have a company that manages everything to do with their infrastructure in they have a team, compared with another company that outsources everything?
30	Rsp1:	Its often is, tends to be if it's system that you're building up inside? For instance, with the sales, for instance? And should you use, first of all, they use free where whatever free where you can find us? And so it's a tend not to buy software systems, that that larger companies, so they don't have that kind of structure at all.
31	Researcher:	So this is setups that are just beginning and looking to grow or setups that have been around for at least two years.
32	Rsp1:	Yeah. Okay. even longer, looking free, where everything that's free, that's good. So they don't tend to use when it was that, then I think the companies need to be 1520 people, that's when when they tend to get more structure, companies that have 10, up to 10, to 15. And sometimes even 20, also using the free will, but then if you have five people working with sales marketing, then Okay, now where we, we are not sitting together, we're spread. So we need to have some kind of system, so we get everything into the system. That's when when that happens, but if you're only two or three people working closely, then it's easily done. But I agree that it should be a structure, because when you're starting to get out into the market and getting to know more companies and people, then you need to structure it a little bit more. But still there can be used some free were even there. But then you have to migrate that to another system a bit later stage. But because that problem is and then in the technical field, they also use freeway system, to to not not for the development, some some powerful kind of help, and also, but in structuring how they're making their technical development, that is also use every free where you can find to do that.
33	Researcher:	can make it they're using so much free where systems and how they're securing their record. Are they doing anything? And also, when it comes to reporting the sensitive data that you mentioned,
34	Rsp1:	yeah, that's absolutely an issue. But that might not be enough addressed. For instance,now, I'm not down to working in the company, so on so but obviously about the trying to have secure whatever security, we can have two separate even using email, that's so unsecure. So so I don't know, you never know who's been around here. And fishing our emails, yeah, Sunday. But it's, again, it's very much built on trust, I believe in the companies.But we try to when it comes to

		the board, we tried to have solutions, there are some companies having solutions, online solutions. So so we collect the important documents that we use in the board reports and so forth, in that kind of system. And that also, that it makes it easier. So, so when when, when I'm dealing with a company, I can log in with my bank ad. So I get the full report. But obviously, that could also may be made and due diligence of each each system to understand is this a secure system.
35	Researcher:	So when you give a company invest money, and they put in say that they use the big chunk of it to be if their security and move from the free were to something that they can actually build themselves to make their systems more secure? Would that be a cause of let's say, they have not met their targets? Then they would have done use the money for expansion or something like that, but they used it to make sure that their IT systems were secure. Would that be? Wouldn't be good? Okay, wouldn't be good.
36	Rsp1:	having the best secure systems, that's not enough focus. The most important thing is taking care of your intellectual property. And doing business. Okay. And that is that needs to be protected. because that's, that's very valuable. So, when it comes to the kind of systems that I guess, that you're addressing, I think that that is something that is not very much used in these early stage companies, the companies need to be at least three to five years old, before they buy. And they all and before they buy this kind of systems, and all boils down to what can be what we when we get most of the money using our money. And that is up to each company to to figure out that money juice fast.
37	Researcher:	And the companies that are jumping on things not jumping, but moving along with trends, and not not just trends like future of technology, like things like big data, artificial intelligence, as an investor, do you find the more attractive to invest in compared to those that are just using a normal kind of technology?
38	Rsp1:	Yeah. If if the market trend for investments is, is using big data to make artificial intelligence, obviously, that's something that we try to address, even if we are in a company having certain technologies that that that could be addressing that. So we we understand that the business model forward going forward? We probably be. So we, we need to build that kind of intelligence in the company. So it becomes more scalable. Yes. So and that's it's a scalability, that's everything. And artificial intelligence will be be used in any every kind of way. every industry that that's the only thing we absolutely know. And then we invest in those companies that have the, again, the uniqueness.So it doesn't come up like mushrooms in loomed Guttenberg stuck on making the same kind of artificial intelligence. That's not that's a trend. If someone finds this is the market trend, then that tends to be

		a lot of entrepreneurs thinking about that? Yeah. But it's it's really into certain industries, you need to have a depth and understanding.
39	Researcher:	And then, do you require setups to do audits before you invest? Or after you have invested like a in it audit some security audits?
40	Rsp1:	we can. It's more of understanding of the technical solution that the company has. So it's not of the system used, not the IT system that the companies use, but the technical solution that they are selling. That is very important. So understanding if if our technical solution is scalable, because sometimes you can address we have the solution, and we can address maybe 10,000 customers. But what happens, and the aim is for the company to having 1 million in there. Does the system work? Have they told it the right way? And that's that's some kind of Judaism. That's something that we do before we invest. But we can also do that going forward, as if we have an idea. We're feeling unsecure. What do we have? So I think that that's, that's something that we do know, their technical solution that they are selling. Is it a good motor or not?
41	Researcher:	So if you do the audit, would it be done by me? Or you would run with it?
42	Rsp1:	If it's technical due diligence, then then we'll use software to do that, who have knowledge, knowledge, in depth knowledge, we don't have that in depth knowledge within. Okay.

Appendix 3: Interview Transcript [Rsp 2]

Rsp 2: Respondent 2

Line	Person	Content
1	Researcher:	M-survey has attracted quite a bit of funding, what are some of the things you think, made M-survey, very attractive to the investors?

2	Rsp 2:	I think is just really product, I think you've probably heard this a lot this product market fit, making sure that what you what you are? Well, this is my investors. So, the problem you're solving exists and their buyers to the solution of that problem. Right. So, it's very specific to know exactly. And obviously to know, there's a market opportunity for it, right, because I mean, investors are not based on charity, they're, they're based on getting returned for the investment. So, they want to see exactly what the future holds for the product or service that you are building.
3	Researcher:	And the product that you have is a product that's linked to like it's an IT product
4	Rsp 2:	So what I'm surely is, is, it's an integrated customer experience platform. And what that means is that we're trying to solve a very large problem on the continent, which is access to your customers a business. So before we exist, businesses used to get feedback from their customers by pen and paper. But the problem with that it's not scalable, and it's very hard to grow and get data to understand things dynamically. So we provide a technology that allows them to get this information in real time to know the sentiments of their customers at every location, whether you are in the most rural part of Kenya, to the urban parts of Kenya. So, you know, that's what we provide to businesses. And now also thinking about the longer term of this, we're kind of helping businesses to use data more effectively, you know, organization to be more agile around data. So it helps us to really build that case for that without technology.
5	Researcher:	Okay. And when you give out, when you're pitching to an investor, and you quote, a couple of information, like data in terms of growth, and customers, you're going to attract in the next couple of years, how do the investors verify the data you give them?

6	Rsp 2:	they talk a lot to our customers. And I mean, they do their due diligence, right? So when they talk to customers to figure out exactly what problem we're solving, and then to, you know, they also talked to the team members, right? To see exactly how aligned we are on division of our growth. So there's a lot of components of their due diligence, that kind of verifies where we're going, but at the same time, you know, it's, you know, just want to also note that a lot of these things based on, you know, prediction, right assumptions based on some data inputs. So you've seen some kind of historical data, and you predicting the future based on that historical data. So a lot of this stuff is still, we still need to act upon that, to make it happen. So despite, you know, you're giving an investor production model of what the future would hold, you still need the bandwidth and the team to activate that that projection model.
7	Researcher:	Do you have external relationships with angel investors?
8	Rsp 2:	I mean, that's how we started. Recommend startups, you know, use that route? I mean, the reason why is because angel investors, typically, from my experiences, the folks who have actually started something before, right? Oh, you know, it takes a shorter time for them to understand what you're doing. And also, they hold two functions, whether one they can kind of support you on, you know, what you're trying to do with a very early stage to help you solve the problem. And to the pretty much, you know, they don't dabble right now, I say go don't dabble. I say that nicely, in the sense that they know, it's very, very difficult that the early stages, I mean, all stages of growth, startup is very difficult. But at the very early, early stages, they know that you need to be committed to the customer to really solve the customers problem to find product market fit. So they'll kind of give you that bandwidth and step out of your way to do that. Right. But there are there for you, when you're stuck. And you're looking for a mentor to kind of advise you on the things that you where you're stuck.
9	Researcher:	And you have a board of directors as well. And do you think this kind of network of having angel investors and a strong board might contribute to you attracting bigger investors?

10	Rsp 2:	Yeah. So yes, we do have a board. And the board kind of pretty much guides and helps us things about strategy, when we need to raise new money and all that stuff? When you are a young investor .Yeah, right. I mean, investment community, and you just need validation. Right? So now, there's a lot of folks who are looking to see, you know, who's investing, why they're investing? And, you know, do I trust that person's decision to invest? Right? So, you know, obviously, if you've seen someone on the board of a company that has significant experience building, you know, many companies before and taking them public, or even actually, acquisition, obviously, that's going to, that's going to trigger an attraction, right? Because they're like, Okay, this person has seen a lot in their whole experience. So why would they invest? I need to, I need to really consider this investment. So I think, yeah, it's all attracting nothing, you know, for us, we've been very, very, very intentional about getting strategic investment. Because, you know, we believe that the money, money is great, but the thing for us is getting money that could go so folks behind that money can offer additional value, right? Because there's a lot of money out there. But it's also getting folks who kind of resonate what you're doing, align what you're doing and, you know, have a specific value proposition that they bring to the whole vision.
11	Researcher:	From the conversation we've been having so far, it seems like in M-survey is very customer focused. I was wondering what kind of systems you use to manage your customers, because I know, the product helps customers to manage their customers. But I'm also wondering how m-survey manages communication and a good relationship with their customers?

12	Rsp 2:	Good question. So for us, we were very customer centric, the customer and the customer keeps the lights on right? with our customers, you and have a business. So for us, we are very meticulous about, we have a customer success department and customer success departments make sure they monitor to know exactly the customer successful on our platform, if they're successful, what resources do they need to be successful? And also monitor is exactly you know, how, how can we grow our offering, specifically, our software offering, right when the customer says hey, you know, I wish I had XYZ, right? So that helped build additional value for customers. And you know, something we do every quarter, you know, we tap we check in with our customers, we get a pulse, we get a net promoter score on our customers, from our customers to know exactly how we're doing. Right? Would they recommend us to have another business, so or friend or family, so I think these are the things that we're, we're doing now we can do a lot more, and intend to do a lot more, but we're gradually getting more intimate with our customers.
13	Researcher:	And when it comes to reporting and collecting and analyzing data, what are some of the information that you share with an investor in terms of how the company is growing? How the company's performing?

14	Rsp 2:	Sure. We have very, very interesting metrics, right? I mean, life-time value customers, customer acquisition costs towards like them value, you have also, you know, your annual gross recurring revenue, because we're a software as a service. So software, as a service, you want to know that, you know, it's a compounded growth rate, because what you're trying to be you're trying to get as many customers over time, right? And the recurring revenue is growing over time, right. So say, for instance, the first year, you're getting two customers, right? They give you the service, just say that they giving you $1,000 a year, right? So second year, they're also those two customers going to give it $2,000 a year, but then you have other customers that come into the pipeline, that also gives you $1,000 each, or you're looking at that compounded growth of the year of the year. So you need to really kind of articulate that to investors to know that actually, there is a x percentage growth rate, which is attractive, because now you know, you're looking at your retention metrics, right? meaning how, how will you retain new customers, meaning that customers are not falling off to you know, same thing, which is kind of analogous, it's churn, make sure you're not turning? So there's a lot of metrics that we report, obviously, the financial performance, right? You know, looking at how, how the business is doing compared to compared to opposite, you know, your optics cost versus your, you know, your revenue. So, there's a lot of comparative metrics that you use for investors.
15	Researcher:	Before you get the investment, would an investor ask for an IT audit?

16	Rsp 2:	Yeah, it depends on what stage. is depends on what stage right? For us, it's, for very, very early stage angel investing. And see investing. Typically, you don't get that, right, because they know that you're kind of figuring things out, you don't have like, really stable systems when it comes to technology, right? Because you, you're still, you're still in this discovery mode, to some extent, right. I mean, you already discovered or, but you're more series, a series, B, okay. Okay you're more in that experimentation mode, very high experimentation and very fast, agile movement in the very beginning. So they understand that things will break, blah, blah. But, you know, something we did very early was to really provide, you know, a demo of the platform and the technology so they can see the technology. And I think, you know, from a surface level to know exactly what the technology does. But from an audit as far as, you know, wisdom explored, how, how do we kind of log our passwords and all that stuff comes at a later stage?
17	Researcher:	I have two questions; how often do you report to an investor about your performance? And how did you come up with the KPIs that you'd be reporting to the investor with? Did you do that? When you were agreeing to partner, or this came of a time when you were seeing the business grow?
18	Rsp 2:	Good question. So we, so we're investors, so we have different tiers of investors. Right. So our board members, we report to them every month, our overall investors, we report them to every quarter, and then we have everyone gets a yearly report. Right? So we keep the traffic, increase the frequency and the touch of our reporting. Right. And in, you know, the question, as far as how do we come up with our KPIs is, you know, our investors actually helped us with that, right, you know, they looking at what they are looking to, you know, what they want to see, right, what, because at the end of the day, you may think that, you know, this is important to investors, but, you know, they, they know what's important to them. So we asked them, you know, we have a lot of metrics, we have a lot of data, what's, you know, what are the top three metrics that you'd like to see. And we just pretty much put it together based on that
19	Researcher:	Okay. And the next question is, like, operationally as savvy, do you have a specific Business Intelligence team that deals with reporting, or it's detecting that just like the dev team that does development is the one that does the reporting.

20	Rsp 2:	When you say reporting, because we have different types of reporting, financial reporting, product reporting, tech reporting. okay, financial reporting. So we have a finance team and the finance team monitor the finance team, there's a growth analyst. So the growth analysts pretty much compiles all the data for that, right. They take all the sales data, they take all the you know, the, the growth metrics, and they pretty much compile that stuff and create a narrative that it's easy for me to send to investors after I would say edited today and make sure that it's, it's clear.
21	Researcher:	From my understanding, you have an analyst for each kind of data.
22	Rsp 2:	Yes, so we have. So we have two main analysts, and they both good analysts. So one is on the products, and one is on the finance. Right? So the Golden analyst sits on the products, they keep a tab on why is our product sticky and how our customers use our product, right? Because we look, we continue looking for those aha moments where we're seeing, you know, wow, our products, our customers seem to log in every Thursday, right? Our customers, they have a behavior with their login be the beginning of a week and the end of every week, right? So these are metrics that we use to identify why. Right? Why are they doing that? So we can kind of, you know, make it easier for them to do their, you know, use the platform. So these are two different types of roles, but they kind of keep tabs on the growth of the business from a product perspective, and also from a finance perspective.
23	Researcher:	And is there a time when the different kinds of data are used together to come up with the different kind of realization, for example, teaming up the sales data with the product data? Is that common? Or they're just reported separately?

24	Rsp 2:	No, I think we do that. I mean, obviously, from month to month, but what we do, you know, we have the heads of departments a meet to discuss these. So what are we seeing in the products? And, you know, is there more commercial value we can try for, for our customers? So that obviously links to finance and the commercial team to decide exactly, hey, we're seeing some kind of behavior here. Seems that the customer would want XYZ, how can we interview the customer to make sure that we understand what their desires are because of the behavior we see on the platform? And it is a commercial opportunity, right? And then if there's a commercial opportunity, how do you quantify that commercial opportunity? So then, you know, discuss that with the finance and say, Hey, you know, if, if they were to develop this, you know, what type of value proposition this would be? And how much could we charge for it? So there's, there's a constant growth in iteration of what we're doing. I mean, what we do is not set in stone. And I say that in the sense that we have a product that works very well, it's it needs, it drives value for our customers, you know, it's helped customers with retention, and really, really looks at what, how much money the customer is about to lose. Right? And, and for us, you know, that's a lot of value already. But we, you know, we want to be ahead of the curve in the sense that, what next what the customers want?
25	Researcher:	And when an investor gives you a certain amount of money, do how do you as a setup, ensure that you're showing them that you're utilizing the money accordingly? Do you use that with reporting? Do investors really care to see that your systems are able to handle that growth or they just trust you to get that?
26	Rsp 2:	Done Yeah, you definitely have to look at? I mean, obviously, there's something they call you look at your optics, right? So you can be optics, with the budget it looking Okay, great, our burn rate, which is how much money we're bringing your month, you have to you have to tell the investors that so they know exactly how much money you need, right? You know, every month, you're you're looking at how you spend is going based on your prediction. Right? So for us, it's, it's, it's pretty much looking at execution, you know, are we doing the things that we said we will do with the money. And every every month, we have our monthly board calls, which, you know, just kind of looks out, looks at how the business is done, looks at how we doing financially, and they have a good idea of how the money's been put to use today. Very, I mean, it's know we have a very, you know, we have a relationship with our investors, so they know exactly what's what's going on within the business. Okay.

27	Researcher:	Something else I wanted to ask is, like, if you project and say that you're going to have 5000 customers at the end of the year?
28	Rsp 2:	I think it's gonna mix. Right. I think if you look at the type of investors you get, I mean, you can get very folks over on the strategy side, folks on the tech side, right. And you get a mix of questions from different investors. Could you hold one second? I just want to make sure. And give me one second. I'll be right back. Okay. Hi. Hi . So yeah, so yeah, I'm back. I have about 15 more minutes just to save manage time.
29	Researcher:	Okay. Okay. We'll try to do it as fast as possible. I had asked the question about, yeah, when you have predicted that you're going to have a certain kind of growth, if you're interested in knowing if you systems can handle that kind of growth? Different kinds of investors?
30	Rsp 2:	Yeah, I mean, yeah, different investors come with different questions. Right. And I think, yeah, there's some investors are saying, Hey, you know, you have the, the technical, technical expertise, you have the technical ability to do XYZ, and obviously, you, you let them know, you feel let them know, and go out and feel confident in, in your, your ability to execute, right. So I think,I think for us, I mean, you know, you said 5000 customers, it's stuff's going to happen anytime, you know, and if you It seems like your background is engineering, and I think from a perspective of a, you know, things will happen, even you predict 5000, like, wow, okay, we didn't, we didn't anticipate the throughput would be this month for 5000 customers, you have to re-engineer because we have to re-engineer our systems, actually, because our throughput had to be increased. Right. So we had to re-engineer our systems many times. Right? And we keep doing that. And, I mean, you probably heard the early days of Facebook, you know, and things crashed and that they had. So I think it's it's, it's, it's, it's a point, whereas, yes, yes, the projection model shows that you hit 5000. But now you're also trying to build a company, right? And you're trying to build a company that doesn't exist. And you don't have a book that says, hey, you do XYZ now. Right? You're pretty much you're pretty much learning on the job.
31	Researcher:	And your internal, like, your internal structure, your team of analysts, and take Tim, do you prefer that they are in house or outsourced?

32	Rsp 2:	Definitely in house, I mean, for us, it's very important. Very important for us to have, because, you know, we're very customer centric, right? And you can't have we can't outsource that. Right? So if, without Come on, yes, they, they can use this feature, we don't want to delay that, or we don't want to put extra variables or you know, create huge, huge barrier for us to get that to them. Right. And, you know, intimacy with your customers very early. Very important. And I, you know, I know, there's some, there's some things that you can outsource. But I think for what we're doing, we're rebuilding things from scratch, it's very difficult to outsource that. Because when you want to own the IP, you want to own the growth, you want to own the software, you want to you want to throw it away, when it doesn't work, you want to rebuild, it's very, it's, you know, you want to be agile, right? And I think agility comes with, you know, having things in house. Right? And, you know, it's, you know, I'm a big proponent really owning and managing that. Because even if you think about outsourcing, will you will you outsource with outsource to right? You think out, you know, if you're going to outsource across your geographical lines, you're looking at culture bias or culture disparities, right? So you know, think about an engineer, say in Belgrade, trying to develop what you're trying to translate to them in words, and they're not seeing it, you know, that's, you know, you're losing value. Right? So for me, it's very, very important to have our engineering team in house.
33	Researcher:	And when you're, let's say, you're pitching to an investor, and you have to show some of the backgrounds of the people in the company, do you go through the tech team, to the level of detective or it's always senior management level only? because, like from our thesis, we realized that investors are curious to know about who is in the team, what their backgrounds are. So for smaller startups, it will include everyone, but for em survey, I'm sure it's quite a big company. So, I'm just wondering to what level Do you include, like, experience? At what experience level Do you include to show that. go in ensure, like, this is the tech team, we have this is the experience is that the analysts we have this is the background? Do you go to that level?

34	Rsp 2:	I mean, we do two things, we definitely show them the leadership team. But the beginning and then, you know, they will definitely want to interview the leadership team. And within that interview, then they can ask very, very detailed questions, right, you know, a what type of engineers do? What type of product team do you have? What type of you know, salespeople do you have? I mean, they ask questions within that interview. Right, they can get more granular, but we, we try to just, we definitely try to recruit the best. And when I say the best is that folks who, you know, they have the skill set, and they also have the mindset, right, and the mindset for us is very important, because not everyone has worked, has worked in the startup, right. And, you know, you have to be ready to know that, hey, things are not going to exist, and you may need to build it. In a sense that, you know, the structure may not be in place, but you need to find that processes and structure that would help us grow. So I think for us, it's just really having really talented people, you know, with computers, and you know, who can really think about the future where we're going, and really put things in place to help us grow?
35	Researcher:	Also out of curiosity, what technologies do you use to show predictions like with your data?
36	Rsp 2:	So we're from a prediction perspective, you know, the growth analyst, they use, we use a technologies, they use pretty much prediction models that they built themselves, right. So they'll kind of pull data from, you know, the CRM, financial software, and kind of put that together and make sense out of it on the analyst. The product side, you know, they're constantly in using, you know, stuff like intercom and Google Analytics and other this different type of software, I can look at behavior on our platform. So there's the software that they're doing, but they're constantly iterating to find the best solution. Okay. And one of the we're about to finish, one of the final questions is,
37	Researcher:	when a startup is trying out new technologies, for example, okay, I is not very new right now. But like, if you like in your position, you're able to tell investors that you're looking into, like a very kind of new technology or something that is just hitting the market? Does that get them excited? Or it does not really matter? Or

		this just goes back to? Now, you mentioned the different kinds of investors
38	Rsp 2:	So So again, so I haven't quite got the question. You're saying, as far as the new quote, unquote, technologies, what do you mean, how do you define that?
39	Researcher:	For I was just giving an example, for example, with a how companies are being very creative with the data they have using their data to come up with, say, a new product or something that has not been thought of before, like something disruptive.
40	Rsp 2:	Yeah, I mean, you know, if you can explain the reason why you're doing what you're doing, I think we, you know, there's, there's a difference between following the trend versus following what your customers want. Right? And we, you know, we're both we, you know, we, we really focus on what the customer wants, right? And what products we believe, if we build can offer value to the customer. And these are the things that we take to our investors, right. I mean, if you look at our stock, and the product, roadmap and where we're going, it's basically the trajectory of how we, how we anticipate our customers to be needing data in using our platform. Right? It definitely includes, obviously, because we're in the data. Field, it's it definitely includes data space, sorry, definitely includes AI and machine learning and automation, right. So I think, I think for us, it's based, it's really based on really showing that pack clearly. And not to say, oh, we're going to throwing AI into this. And it's like, Okay, why? Well, I mean, simple, simple, predictive, you know, algorithm can probably do the same thing, or, you know, a simple I don't know, this, instead of like, because I, you know, this, it's very, the perception of AI is going to solve everything, right? I think we believe that it's, it's, it's both AI and human, are both computer and human, that's really going to solve problems, right. So you know, you're looking at automation and information that really guides those Decisions, decisions that humans need to make. Right? So we have for us, it's all about really articulating the product roadmap for us, for what our customers and where our customers will go.

41	Researcher:	Okay. Okay, as a company? What are the measures you take to make sure that your data is secure?
42	Rsp 2:	Well, we use pretty much data security and privacy is a big thing. I mean, you see, you hear so much stuff going on in industry now. Right? That, you know, we have audits, we also have ethical hacking processes. And also, we use industry commercial grade standards to get this done. Right. So very, very important that we keep on top of this with, with our data privacy and security
43	Researcher:	So for this, do you use another company to do the audit? Or
44	Rsp 2:	We have to use an outside company, right, because it's a perspective of knowledge and to be external companies, right? Because this is a neutral, right. So it's best to have with any kind of audit, financial audit, technical audit, anything to have an outside company do that. The same with the ethical hacking
45	Researcher:	Okay. Okay. But just to summarize, because I had initially told you, our research question was to see if the it sources of a company that important to an investor, I think, from talking to you, my analysis would be that it's important in terms of reporting, but in terms of attracting the investment initially, it's basically to do with the kind of product that you have.
46	Rsp 2:	Yeah, I think, yeah, I think for us, it's basically, you know, because it resources we have that's defined as, like, what it resources this the way I understand it is like, what it resources you're using, but I mean, we're building all products. And now, I think that's a different approach. Right. And I think for us, you know, we find that there are things that we need we do with ourselves, right. And I think, you know, because mark is a very unique, I mean, they're fragmented, you know, things are very complex, and they are unpredictable, right? I mean, software that you use for other markets may not work in these markets because of the unique nature of our markets
47	Researcher:	so thank you. Thank you so much for taking the call with us and we wish you all the best.

48	Rsp 2:	Okay, thanks. Appreciate it. Yeah, we do this research to share the research with you later on. No sure that's fine, and all the best with your research as well.

Appendix 4: Interview Transcript [Rsp 3]

Rsp3: Respondent 3

Line	Person	Content
1	Researcher:	To start with please let us know something about your back-ground?
2	Rsp 3:	my background is, I worked for M-Kopa, which is a solar power company, in Kenya, and intensity. And as no startup anymore. It's, it's about a $60 million revenue company now, with about 800 900, Seth. And I started out with two partners in 2011, and grew to where it is today, including helping build the IT support systems in advising the requirements, and then doing a lot of the fundraising, as well. So that's most of my pedigree is there. And I've recently joined us, the CEO, and other I guess you can say, startup, it's a company that's been around for a while, a few years, but is still reasonably early stage with a few million dollars of revenues is called M- Kopa, which does payment clearing ser-vices for here in Kenya. And I recently joined the US and CEO as of just a few weeks ago. So those would be my two bits of kind of credibility related to this question. So they're profitable and are able, able to survive off their own resources since 2015. And off just the profits of the business, which is a good position, but but part of my task, having been hired by the board is to basically grow the company faster than the pace that it's been on, no doubt, that will be raising capital for growth.
3	Researcher:	And in your experience, what are some of the factors you think, make a setup attractive to an investor? You know,

4	Rsp 3:	I think it's a two at the very early stages is sort of a combination of the idea and the team, probably the team, the team being maybe more important, because there's lots of good ideas out there. But it's, you know, the confidence in the investor as to whether the team is going to be the one that's going to be able to execute it on an idea. Because, you know, as you guys would know, often, you know, you start with one idea, we find out, it was sort of things by, don't work, but other things are much more interactive than we thought, and you sort of pivot and change the model. And so the team that can basically carry out that kind of execution is probably the most critical thing, you know, there's got to be a decent idea behind it as well. So very early stages, that determines what gets funding. As you move a little further on, you know, the next thing is kind of proving sort of product market fit that you actually have something that customers are willing to pay for. That possibly one day can make profits for the business. So let's just say hypothetically, you're making widgets, and you, it cost you $20, or $20, to make them. But maybe once the huge you think you can, you can make them for $10 each, because you'll have the benefits of scale. Well, if your customers are only willing to pay $5 for that widget, then you still don't really have a business even at scale, because you can't get that glow. But if the customers are willing to pay north of that $10 that you can get to then then you probably are in business. So I say those proof points would be the next thing. So the idea and the team. And then as you actually get out there in the market, it's around whether whether customers are willing to if they like your products, and more importantly, are willing to pay somehow for it at a price that you can make money at in the long run, once you once you get much bigger, you know, investors often don't care much about the losses in the early years, as long as there's a plausible roadmap to profitability.
5	Researcher:	Okay, and then another question I have, like, as a setup, are usually strategic about the kind of investors you are looking to attract? How do you choose the investors to talk to him say that I wanted to invest in my company?

6	Rsp 3:	Yeah, I mean, you know, I would say, if you have that luxury of being able to choose your investors with some startups, you know, they can speak to anybody who has money, potential money to interest is certainly good to kind of align the, the, you know, the vision of the investor, like whether they're going to be hands off, or hands on, you know, if they want to invest in actually, basically, for position all the time, right? The investor, you know, if you have an investor that wants to basically take your money on three years, or start taking dividends out in three years, and maybe you're in a business, this much longer cycle, let's say you're the forestry business, you know, and you're not going to pay them out in three years, then, you know, you got to make sure that there's match between their timeline and in your timeline. And then I'd also say, the better investors are the ones that can grow with you. So say you raise a million dollars from an investor today, that's great. But you know, if you basically things go well, with your company, maybe you need another 5 million, a couple years now and 10 million couple years on from that. So it's always better if you can sit with the same investors and they can grow with you. It doesn't always work like that. But additional capital to time arises on on sort of exit or profitability, similar sort of vision for how the company should be run, if they're going to trust the management to do it, or if they want to take an active role. And then, and then, what was the third one area forgot? Oh, yeah. additional capital? I'm, like, totally able to grow with you. There's probably other considerations to that I'm not thinking of. Okay. Okay.
7	Researcher:	In terms of, as a start up the kind of relationships you have with, say, the government or your board of directors and other investors, does this play a key role in? Like, when you're talking to an investor? Would you tell them about if you have angel investors, if you're linked with the startup community, like a social capital? Do you raise that as a way to make yourself marketable to investors?
8	Rsp 3:	So there's a number of questions here. The first is, was the relationship between government and then with directors and then start at Can you ask him? How did you tie that together?

9	Researcher:	yeah. So there's the relationship with your board of directors, there's also the relationship with the other investors that you have maybe angel investors as well. And the startup community, if you have that kind of relationship, and people like the government, like just your social capital? Yeah, does this topic when you're trying to close off with an investor,
10	Rsp 3:	those relationships you mentioned, I'd say, your investors in your board, or the top of your priority, and that's because your investors are the ones that you've taken money from, so you have a responsibility. And then they may have appointed someone to your board of directors, she might also have independent members of your board. But those are your major stakeholders as founder. I mean, I guess, your board of directors in particular, because they could fire you, you know, they typically would have the right to fire the management, I mean, depending on what you negotiate it, but that would be pretty typical. So those are relationships where the critical, I'd say, whether you need government relations or not might depend on what what kind of business you're in, what you're looking for, I mean, if you're in a regulated business, then you'll need sort of some relationship with the regulator, maybe others in government. space, maybe you might not need government relations, unless there's some benefit, maybe the government has some program that gives tax rebates, that just startups, you know, this doesn't exist in Kenya, I can picture in Sweden that they would basically be trying to create a friendly environment for startups to located in Stockholm, rather than London or San Francisco. So they probably sorts of program where you can access grants or things like that. So in that case, you need those sort of government relations. But if you take what we did with him, Coco solar, we are an unregulated space. And we're operating in a country that didn't really have any government incentives for startups. So we didn't really have any sort of Government Relations at all. You know, and still today, not really, there's not really much contact with the government of any kind. You know, which, you know, tends to be good, I'd say, I'd say if you're operating in Africa, like, do you want the government involved in your business or not involved in the balance of things, you probably do not want them involved? Because, you know, I mean, Kenya is a very well run country, but in other countries in Africa, when the government gets involved in businesses, it's often not very good for the entrepreneur, the founder. And then the last one you asked was the startup community, I mean, I would say, you know, different different entrepreneurs take a different approach on this, you know, I will say to being well known in the startup community might help you to raise funds might help you find employees, it might help you to find partners, if there's other businesses that you need, you know, you need something an input

		into your business, that there's some other startup that does. So that's probably where it's more valuable. And basically, those relationships, I would say, if it doesn't get you any of those, if it doesn't get your money, employees or partnerships, you can be networked in the startup community, but it's kind of luxury, you know, you may as well you can join the Rotary Club, or the, or the, you know, Freemasons or other other sort of networking things for your own in your own time, or golf golf club or something like that, you know, you know, I'd say being networked in the startup could be could be a way that you meet more investors that you might not have come across otherwise. Find employees or partners, if that's
11	Researcher:	So the next question that I have is, in terms of, if you have several investors as a setup, how do you manage reporting different kinds of KPIs and different kinds of operational information to the different kinds of investors? You know,
12	Rsp 3:	I was saying, you, you before one set of metrics to all your investors, and you get them to agree to it, when they sign on to the investment in whatever the investment agreement is, at the time, they wrote the check to your company, in Brazil, these tiny investment agreement documents, and ideally, you've laid out the reporting obligations in there, and there, you haven't left that open. Because, you know, I think if you leave that open, where each investor can just request whatever, you know, information they want, in whatever format they want, you know, then all of a sudden, you know, a lot of your job becomes sort of administration of these different requests where, you know, I think ideally, you say, Okay, here's what we're going to report to you on a monthly basis, number of new customers, number of global blog number of this, some of that, and then that's basically in the investment agreement. And then if a master has a special request, they can give that to, you know, you might feel an obligation to deliver it, but there's not a contractual obligation, you know, ideally, put that into the contract. And basically, every Lester signs onto the same set. And at the time, you know, one investor might say, Hey, I really need to know how many women you have employed, because that's really my. So you add that to your list, and you just know, you got to produce that every month, or whatever it might be. And that's part of what we do. And you know, once you sign up for, you produce the recording, once you send it out to all the investors, you can occasionally, hopefully, rarely, one of them has a special request saying, we really love to know x y, Zed, and then you can

		see if you can accommodate it, but but you don't have a legal obligation to accommodate it, you know, you basically satisfy your contractual obligation when you deliver.
13	Researcher:	Yeah, it makes a lot of sense. And something else that I wanted to ask was, when you give the when you give, when you present the data to the investors, do they ever ask for, like, a kind of audit to verify the information before? Like, is there an audit before an investor signs up with you to make sure that the data that you have given the is correct and accurate, or it's based on trust?
14	Rsp 3:	I mean, often before they invest, that's when an investor would conduct a process that's referred to as a due diligence process. And in may include a formal and audits of, you know, certain of your numbers, they might, you know, if you've been saying you've got, you know, you're getting signups so 1000 new customers a month, they might, you know, basically have asked for extracts and your data systems to verify that somebody's been involved with third party, like, they might even involve one of the, the actual big sport 400 firms. So, you know, when you get to bigger investments, often, they will do that. So they'll come in and say, we're conducting our due diligence process, and we're thesising in Price Waterhouse Coopers to basically do part of that, for us, and they might want to actually do like a mini audit of your financials, or your, your IT systems or, or other things, others, others maybe more go more on trust, all of them would ask for some, you know, as part of their process, they, they would have some sort of data requests and their due diligence. Really, I guess the intensity of those requests kind of vary based on the investor type. And, and also probably the size of investment, once you get up to certain size, you know, 10 million $20 million coming into a company. And that's where, you know, the, those investors, especially if they're managing funds for third parties, they might want to bring in a big four firms just to cover their ass, right? They want to basically show that they've done the proper, you know, diligence, whatever, whatever. But then you have other investors that are just like, shoot from the hip. They like it, they met the founder, they think he's a charismatic guy seems to know what he's doing, and then get off the track, you know, like, I guess it's sort of everything in between.
15	Researcher:	and apart from the data, do they look at documentation and things to do with compliance? You know,

16	Rsp 3:	some my defense, I probably depend probably, how would you know how regulated you are as a business? So if I'm just like, imagine, I'm just selling some app through the Google Play App Store. And I have some developers, and we're basically charging 99 cents for download. You know, there's probably not many compliance issues or regulatory issues involved in that, you know, you know, if the if the Google Apps, Google Play App Store and the apple, whatever the apple one is, are willing to accept it, then there's probably there's probably no like a levy. Name, they probably want to try it. If you got a start up, it's known. No doing drilling for geothermal energy in, in the volcanic areas of Kenya, like, that's gonna be a pretty regulated business, right? Yeah, you're an investor there, you're one know that, you know, they, you've got all the land that you're going to drill on, you've got all the proper lease and title permits whenever and I would say that the compliance could be some of the biggest parts of the of the processes like do these guys have, these guys actually got everything they need and are not going to be shut down by the government? So So I guess it would depend on how outcome intensive the businesses, but you know, if it's, if it's a business that would be regulated, or has a lot of rules around it, or is, you know, doing extractive industry of some kind, or whatever, but I'm sure that, you know, investors will want to know, they're going to want to audit the compliance with their mind and then have them company shut down. Everyone and don't have beforehand, but you know, there's a range of risks here, you know, like I said, like, the lowest risk is I developed some out some, like Candy Crush Saga competitor, and I'm so madly, the chance that any regular never shuts it down is pretty much nil. So the there might not have any interest in doing any compliance part of the audit. Okay. Okay. And another thing, like for a setup, when when I set up a company has the capabilities to very much collect, analyze and report their data efficiently. And in real time.
17	Researcher:	Do Do you think that startups that fail to report about the key performance metrics on a regular basis would like would Is it possible for investors to pull out at a certain point, if you do not, if you do not feel like reporting capabilities? Or what would happen?

18	Rsp 3:	Well, I mean, I'd say hypothetically, yes, because these are typically in private contracts. So you, you and I can write a contract, where you're going to give me $1,000, for me to develop my candy crush app. And if I don't have 500 users, by this time, you know, two months from now, I have to pay back half of it or something like that we can we can run into a contract, whatever we like, you know, it's it's, you know, a contract is just between two willing parties, you can write in whatever you want. So hypothetically, yes, they can say you don't have these KPIs, you can give us our money back. Practically, though, most are putting in kind of long term equity with a lot of trust of the management's going to do what they say they're going to do. And if they miss targets, you know, it's part of the risk of the business, but the investor doesn't get the right to take their money out. And the reason why it practically that that's the way it happens more often is, if the investor calls and then the right to take their money out, you know, in most cases that would just bankrupt the company, because they were already spent it they hire some programmers, they are some developers, they buy some web hosting. It's based on some servers somewhere, they rent, office space, the money's just not sitting there in the bank account, they you know, the startup isn't really put the money in work. So if if there was a trigger that said, if you don't have this KPI you pay back our money, you know, it would effectively mean insolvency, the company and most investors now Hey, we're sort of taking this risk away. And so we don't, we're not going to structure in any rights to get our money back. Whatever you write whatever you want into the contracts, you know, yeah, because if you don't if these KPIs, you have to sing happy birthday to my wife. Or something too ridiculous. But But you know, you could say, you gotta pay taxes part of this, if you don't, I mean, I always say this, you know, I'd say a more plausible one would be this, like you said, the proceeds was going to be, we're going to, you know, buy this piece of real estate to develop this. And then for whatever reason, you couldn't buy that real estate, because the seller just wouldn't sell, you know, the investor might have said, Well, if you don't end up buying that piece of real estate, then you gotta send back 75% of our money or whatever, because that's what that was for. We didn't just give you that $2 million to run your bank. Yeah, you know. So what I will say, is not very high, won't be very common, would be very comfortable.

19	Researcher:	And us as a company, how do you handle the E like, the internal way you collect data, analyze, and be able to show it to a different kinds of investors, because there's different types of departments, different kinds of finances, Operation costs that are being utilized by default? How do you handle the different types of reporting from different departments to have one concrete report that you can send to investors?
20	Rsp 3:	Right, where I mean, ideally, the founders or the entrepreneur, has an idea of what the important bits of information are, like, there might be all sorts of, you know, this information you gather. So let me give you an example, my, my album, that I'm going to sell on the, for 99 cents on the Google Play Store, yeah, there might be some information. You know, the time of day gets downloaded the usage when somebody downloads it. But the most important one, by far would be how many people have actually downloaded and paid you as a 99 cents. So that would be the big top line, you know? What, if he doesn't, maybe the investors help p or, you know, you're telling us about how much I use it, the obvious, but since you're selling it for cash, we care more about this. Or if you're, the more people use it, the more ads they see than maybe the amount of use the outfits is the most important bit. So you know, kind of going between those two, and then, you know, my geothermal example, it could be like how much, you know, kilowatt hours of electricity did your plant produce? And what price did you sell it for it to the to the electrical company, um, you know, those would be the really important ones. So, you know, I think there's always going to be, you know, a million bits of data that you'll analyze through your information systems. And I think that the savviest entrepreneurs are the ones that know which ones are important. So make sure you gather those in the first place. Don't have things that are variables that are important to your company, that you just don't gather, that's, that'd be bad. And then, and then when you were born to the investors, you don't hit them with here's 5000 different metrics, including the number of sick days taken a number of this that, you know, you hit him with a bit, the big three to five, that are actually going to dry up there, you know, the value in their investment in the value of business? That makes sense?
21	Researcher:	Yeah, it does. And from your, from your experience, is it easier to collect and analyze this data with having one central team that does the analysis or having different kinds of analyst in different teams? You know,

22	Rsp 3:	this is always sort of the question when there's a lot of things like this about, like, how much to centralize how much management is centralized? And how much is sort of devolved down to the individual teams? And I don't know if there's a right answer, it's like, kind of, it's on a continuum. You know, like, one example might be say, you're a business that operates in three countries. And your headquarters is one of those three is like how much power do you dissolve down to the local countries to set prices and policies and how much you centralize it, and I'd say the data and gathering and curation will be one of those. It's like, dude, you centralize your analysts and your data people as a sure a service, and then have kind of standardized reports. And if somebody wants a new report, and it's the sales department that wants that report, they have to put in a request. And if the, if the HR department wants a different report, they have to put in request, and then it gets managed centrally 40 lenders do their own sort of data collection management? And I don't know if there's a right answer, it's certainly a wrong answer is 100%, in one way, or the other is is always probably somewhere on the continuum. And it would depend on the type of business and the type of data and in my example, a second, you're like HR, maybe they just do their entirely selves, because they weren't geothermal energy like that the data systems don't have anything to do with HR, you do manage to sit days on your own spreadsheets, and you could produce your own pie graphs and whatever, whatever you want to do. We're, we're the ones using the power, we got this big centralized management system that shows the all time of the power plant and print the real time pricing and all of this and that maybe that gets kind of centrally sort of managed, but you know, you let the HR people do their own sort of analysis. I don't know, it's probably not a very satisfying answer. But yeah, there's not I wouldn't say it's like the best, there's the best practice one way or the other, and I'm sure it varies by business, you know, like Coca Cola is not going to let its Kenyan bottler decide different variations on the recipe. So they've sent, you know, the that, right, like, they're going to control the quality, but they probably let the pricing you know, if you're gonna sell it for 35 shillings, or a bottle, or whatever it might be, you know, cool in Atlanta is maybe not gonna, you know, basically have an opinion on that, or promotions that they do and things like that.
23	Researcher:	Yeah, it as a start up, like the data that you have collected in the data that you report, what are some of the decisions that you have made with the help of the data like, to be able to move the company forward?

24	Rsp 3:	Yeah, I mean, ideally, you know, ideally, this kind of informs the, the strategy, and that sort of roadmap of the company, if you have a future price, you know, the data that you gather, through customer research, or just kind of the uptake of the products and forms, you know, performance, basically, where you want to invest more, you know, that that ultimately, you know, the use of the data, ultimately, ultimately, in the long run, it's got it, you know, should end up with more money in the bank. So it's, you know, not just for the, the beauty of data analysis, you know, so it's, you know, you're, you've got, you know, I've got, I'm selling these three apps, I expanded for my candy crush out, and now I've got two others, and I find one is just wildly more popular than the other. And so maybe that that informs, and when I do research, I find out people love that type of app for whatever reason. So maybe, you know, I focus more investment into that one. Because that seems to be a big winner. You know, ideally, it leads to better management and financial decisions and lead to more money in the bank.
25	Researcher:	I want to ask, okay, and like you said, you collect data from different departments, right, so what kind of tool any BI tool you were using for collecting all this data from different different departments depending on the need.
26	Rsp 3:	So, you know, in general, these things are referred to as like a management information system or MRIs, or, or sometimes you'll, you'll hear a call an earpiece system, inner enterprise resource planning. And those are the ones you know, usually that Europeans are the ones sold by vendors, such as Oracle, or SAP, SAP, or others, Microsoft Dynamics, you know, whereas basically, you know, you know, most companies are going to have a payroll since got a payroll module, and most companies are going to have an accounts receivable, somebody's going to hold in line. So it's got that logical work, send out reminders, and, and whatever. But you know, if you're, if you're a car company, then you've also got to very carefully track your, your, your, you know, inputs from your suppliers, so it tracks all your parts that go into your car. So sad Oracle would sell these huge master systems that would help them manage their business, and then pull reports like, you know, it will pay more to our sparkplug supplier, this month than the last. And that's because I don't know cobalt prices, whenever your information system kind of shows you that you realize, okay, we're paying a little bit more. So, but you know, a lot of companies like we're working on Coco, Coco and Cola, they develop an in house, you know, and so they just get a lean team of programmers who build that, that system, you know, when I pull reports here, and Coco, Coco, and when I did it in

		Coco, I was pulling it off of an internally developed system. But ultimately, they're basically doing the same thing. It's busy getting the information to manage my business, and sometimes the customers interface with that technology. And like here at Coco cope, all the businesses we deal with actually use a customer facing version of that app. So they might have an Android app where they sort of manage their account, that's kind of coming out of steam engine that I can pull reports from and see, you know, I was just this guy transacted or whatever, where him Coco solar, that was mostly for the internal use of the staff in managing kind of the customer care functions. The customer itself didn't belong on to our system. So it kind of depends on what business, you know you're in, it might, the technology might be just for the use of the employees to better manage the business. So customer care, when they make a phone call to a customer. And ask, you know, how they liked the product, they can see in the system, jot down the notes from that call and say, I spoke to the person at 3pm on this day, and here's what they said. So it might be just internally or the customer themselves might get into a version of that, you know, system, from your other, you know, from the other end, that would be what they think of an example like, I don't know, so you use a certain tax return software for preparing your taxes, the customer is actually logging into that software system. And then the company that rises system is probably running a bunch of analytics across their customer base using that, you know, that's, that seems that the back end of that same system. He's doing?
27	Researcher:	And in terms of modeling and predicting, like estimations for the future for the business, how often is that done? I know, it could be done at the initial stage when you're trying to sign in the investor. But after you have signed in the investor, how often do you share with them predictive information, instead of the actual one?

28	Rsp 3:	Yeah, you know, I think, you know, ideally, it's a continuous sort of process. And, you know, basically learning about what the markets actually doing, and then changing your sort of forecasts and estimations both on your customer side, I how many customers are going to sign up for this, and your cost side, like, oh, we're paying a lot more for this than we thought. But, you know, realistically, your, your investors are not going to want to hear like a new forecast every two weeks. So you know, often, it'll be like, you'll give a full year forecast. And then maybe you revise it a bit mid year, because you, you have six months of results, and you learn some things that you didn't know the beginning of the year, this is going to cost way more or this, this is going to cost less, and then you revise it. So you know, I will say, you know, for your investors on board, maybe two or three times a year, you might revise projections. But ideally, you know, internally, I guess internally, hopefully, you know, the information is continuously harvested. And you know, that's really just the expectations around the business in people's heads are at least the entrepreneur, the founder said, and then maybe once or twice a year, that if the founder will revise those projections to the investors?
29	Researcher:	And have you found that like, if a company is that has the knowledge and knowledge base or a knowledge system that just has information about how the company does its processes, and how a company like the different kinds of departments that what they do, and just having a knowledge base of things like the product and the customers? Do you think that is a sort of advantage for a company to have
30	Rsp 3:	an advantage? A lot of startups don't do it, because they're just too busy and getting out the customer product and not like documenting internal stuff, you know, because a lot of startups you just move really fast. And you're focused really on your are the customers liking and buying your product and your your last document. saying, Oh, you know, I'd say most startups, they move so fast that they're not documenting stuff along the way. And they kind of catch up later. But I mean, I have heard like, oh, but like Uber, I heard this, for example, that they have an extensive sort of knowledge base. And when they roll out in a new country, like when they first came to Kenya, that the you know, the basically, that has the playbook and you know, can be revised locally for local conditions. Maybe in Kenya, you can pay through a mobile phone based money system. And you know, you can, but there's a bunch of kind of playbooks for how do you sign up drivers? How do you how do you set up a department to inspect the vehicles to make sure they're safe? And all this becomes kind of the, the basis for the rollout in additional territory. So, you know, I know

		some some companies do that, that's become one of their big competencies is, you know, over rolled out super fast across a huge amount of territory, probably because they did so well documented in this processes. But other companies just, you know, get moving all the stuff. And, you know, they kind of catch up later on documentation. So, yeah, I mean, I think in general, it's an advantage, but a lot of times, it's a really lean team, not too many people, and you just have to kind of your focus mostly on the customer stuff. So you're not, you don't have somebody lighting up procedures. Mm hmm. Okay. That's a very good point. Because for sure, even though the interviews we've been having no one has spoken about knowledge driven systems, and if they are trying to implement it or not, and why they're doing here.
31	Researcher:	the next one is just about the infrastructure in the security of the data that company has, and what amount of say an investor has in if, like, where the data is stored, and how the data is stored, and things to do with the data security of both the investor information, customer information, company information.
32	Rsp 3:	Yeah. So okay. So, you know, before the investment, you know, the investor has a lot of saying, while they have basically written their check yet, because, you know, if the startup is easier to get the money, and so you have an investor that just is really curious deeply about data privacy, you know, they just think that data privacy is the most important thing. So, you know, they can basically say, well, we're not going to release our money, unless you're going to, unless we're sure you're up to these standards, and they can even send them in a auditor, who will just audits, data privacy stuff, you know, yeah, yeah. So, um, so before the investment, that's when they would have most of that same because, you know, you sign that contract agreeing to certain things. And as a condition for the investment, I would say, you know, after the investment, you know, obviously, this is going to be things around security and not being hacked, and I'm going to be important to any investor. But again, depending on the type of business that could be more or less important, like for the business I'm in now Coco cope with it actually manages cash, on behalf of lots of companies, the actual security of our system is extremely important. And as I go to seek investment, I'm sure these are going to be some of the big questions that get asked. And I'm sure as I meaning school boards, our board of directors don't really want to know, were there any incidents, did any, were there any hacking attempts were any successful, you know, things like that, I think those things will be really important to the investors, you know, after the investment is made, I'd say, you know, the way they would influence those discussions is just in their board

		of directors position, where, you know, they can introduce it as important topic, they can try to influence management's. If they didn't think management will sing as seriously, they can, you know, ultimately basically say you, you have to do this if the boat, you know, if the, if the board votes and gets the majority, or whatever it is to prove it, you know, they, you know, they can force things onto the the idea is the board can force things onto the entrepreneur, or the founder of the management's team missions. And
33	Researcher:	Okay, the final question I have for you is just from my experience, because we see, like, there's a very big trend of investors who like to invest in companies that are dealing with an IT product.
34	Rep3:	So based on like, what, why do you think that is the case and not like any other kinds of, like, for example, like the service industry, very few people are investing in that they many people are investing in companies that have an IT product, because you know, it price tend to be zero marginal cost, it means if I developed my app, then, you know, my programmers developed my app, they think the costs are all behind me, I have four guys that wrote up my little game, and then, you know, sort of the cost to me are the same whether I saw one download, or a million downloads or a billion dollars. So you know, it product offers the possibility of the sort of explosive returns, that sort of venture capital investors are looking for, where the service business or more traditional businesses, you know, it's bound by gravity of, you know, the fact that, you know, if you're running on, you know, I don't know, you know, making those widgets, plastic, it's like, I gotta basically get suppliers, and I have shows coming across the ocean from China. And all that is not going to do like what, you know, the big examples, always like Instagram, or whatever that, you know, launched and had like, a million downloads within like, a week or whatever, you know, investors like love that kind of story. And a lot of the venture capital industry is shooting for that type of investor, though, I wouldn't say, especially as a start off, because, you know, most, you know, most startups are going to fail. And if they can get one Instagram in the mix, and I got a huge winner, right, it doesn't matter if 99 or 50 of the early investments fail, they probably made up all their money, and then somebody hitting on that one that really exploded, where if they're investing in the service industry, it's like, you know, they might have a big success, but that big success is growing at two or three times per year, he was not going from one customer to a million customers a week and as a service business just scale like

		that. If you are involved, you know, consulting company or law firm, it just it can explode like that. So I think, you know, a lot of venture capital gets directed to those zero marginal cost businesses. Cruising another unit of your product costs the company nothing, but I can gather the same revenue, where if you're making widgets, or or, you know, whatever it might be on the way, you know, you have to actually pay to produce each year. So that make sense.
35	Researcher:	Thank you so much. I really appreciate that you took the call in such short notice.

Appendix 5: Interview Transcript [Rsp 4]

Rsp 4: Respondent 4

Line	Person	Content
1	Researcher:	Can you tell us more about your background?
2	Rsp 4:	I graduated four years ago, Since then, I've been working with sales for one and a half year, and after that, I started at elevation, which is the Lund University innovation system. And for about, I think eight, eight or nine months ago, now, I started working at Lu holding, which is the investment company that invests in incoming ideas from the university. So it's it's a separate entity, but it's still somehow part of the university.
3	Researcher:	So how is it different from? What makes it a separate entity?
4	Rsp 4:	the reason for that is that the university cannot own anything as because of it's regulations, it's not allowed to invest in companies, which is well, why we have this holding companies separate. So if you look at the different universities of Sweden, many of them have different innovation systems. Some of them also have these kind of holding companies, investment companies on the side.
5	Researcher:	So the investment company consists of other investors as well as the university?

6	Rsp 4:	No, I wouldn't say as it is owned by the government.So I wouldn't say no, other investors investing in our investment company
7	Researcher:	I'm just curious to know what kind of companies like in which field, have you found yourselves investing in based on the ideas of this students?
8	Rsp 4:	we invest in very early stage, where the risk is considerable, it's very high, and most often other investment companies or angel investors. They think it's too early. So that's why we kind of exist, because no one else wants to invest in this stage, we do it. And since company started back in the 90s, we have invested in about hundred 10 companies so far. Where we divide them, of course, into different sections as depending on which faculty they are from. But also if they're a researcher, the students. So most of the companies we have invested in our research based I think about 95%. of research based. Yeah, so it's it's researchers. findings, and perhaps have some patents are ready to build a company kind of.
9	Researcher:	so this is different from because I know there is a way that university can sponsor a researcher to just do research. But this is different because it involves patterns.
10	Rsp 4:	I think like Italy we have something in Sweden, called the exception of the teacher, translated in English, but that means that the researcher is the one owning the IP that they do. The research about, in all the countries, the universities own it, they own the intellectual property.
11	Researcher:	I just want to confirm that, because you are linked to the university, your main focus is a lot of research based companies, and you're looking to innovate and how you track your innovation is through the patents, and the number of patents you get from the researchers.
12	Rsp 4:	I wouldn't say we track innovation through patents. But patents is it's useful in order to if you have done some research. And it's the way to protect it from someone else doing it. Okay, so I wouldn't say it's the measurement of tracking innovation. Not least or not the measurement of tracking our success rates.
13	Researcher:	So how do you track your success rate?
14	Rsp 4:	we track it through and do different ways. One way is, of course, that we need to survive, we don't get any more cash from the government. So we need to live on our exits, so to say. of course, we track all the financial numbers. And then of course, since then, the major things the major part why we exist is due to commercialize the learnings and the knowledge at the university, we do track that we succeed with that. So that let's say you you're a researcher with

		cancer, or some some tech products or something, it's our task to help them to come out with it in the world. we create, we take a product to market so that more people can benefit from it.
15	Researcher:	And in your in your portfolio, do you have companies that are just like profit making companies are not really based on patents or research?
16	Rsp 4:	Of course, now we knew. I would say a lot of our companies, they do need a lot of cash before they get positive and the cash flow. But to keep in mind is that we? I see. So your question number four, like the key factors, selection criteria, and one of them is scalability. So that we only invest in companies that have or IDs or patents that have a big upside, which in many cases mean that it will take a while before, before you get cash back.
17	Researcher:	So if I'm a company and they come to you, and they tell you that we will scale like four times in the next two years, how do you as an investor, confirm that kind of claim.
18	Rsp 4:	Of course, we we investigate the market. We do our own research, of course. And we we have some we have kind of a big network with people within different types of markets and niches. So in many cases, we we ask them and what they think about it. And then of course, if you know your customer already, we're looking we're looking into company, to the best to be most often talk to the potential customers to get their important their view.
19	Researcher:	invested in companies that are already operational, or your main focus is the ones that are just starting and have a product or an idea that they want to start working on.
20	Rsp 4:	most often, it's companies that don't have the product, they don't have any customers. But in this case, for a lot of for the for the students, startups, narrow look closer to market. Soon, in some cases where we have invested in student startups, they already have some customers, but need to refine the product market fit and yeah, work on the business model, kind of
21	Researcher:	So how long do you support this kinds of startups?
22	Rsp 4:	shots we most often Yeah, we normally invest very early, where it's not always that there's a team behind perhaps it's just a researcher. which then means we need to work kind of, we need to engage yourself and help them quite a lot. So normally, we help the companies can quite much for the first second year. And when we see that the team is there. We have the board in place, perhaps some more external financing, then we see that okay, this is we have done what we know, now it's time for someone else to to get their hands dirty within the company. Okay, so we what we do is

		we set the ground for the company in order to to start growing and kind of, and then you setting the ground and helping them figure things out. And funding them of course
23	Researcher:	do you usually expect them to do a bit of reporting on their side about how they're using the money? How the growth is going along? Do you set for them any kind of KPIs?
24	Rsp 4:	Of course we do, we do have board meetings by between four and eight, or meetings in each company per year, and a lot of meetings in between as well. Where we have different KPIs for different time, time. different faces, kind of. And regarding the financial reporting, we always use. I wouldn't say we forced, but we we make our companies use an external accounting services.Which send us reports. Whenever we want, they're using the cash kind of
25	Researcher:	so you use what way? Do you use the external? financing system?
26	Rsp 4:	Yeah, Main reason for that is because the researchers, they hate do accounting, they don't know how to do it when external financing in the future, look at the company. It's good that it's in order. That's why counting should be in order, and it should be in a monitor. All the legal documents should be in order. So we help them kind of help set the ground in order to make the company attractive, attractive for future investments.
27	Researcher:	with your experience and background, what do you think, like, you have mentioned two things you have mentioned that the first thing is making sure they are compliant legally and financially. And that helps them to be competitive in the future for other investors. So I'm just wondering if there's also other things that you think would, help a startup like in its growth stage, work at becoming more attractive to investors, apart from from those two factors you mentioned?
28	Rsp 4:	I would say for an investor to to to, or, to start, when we invest early, try to build the company tried to set the structure in order to fund the company to raise more money. So let's say we start by putting in 500,000 crowns. Yeah, our aim is that within a year or two, depending on the plan for the company, of course, to raise another couple of million crowns. So we were there with the 500 we put in, we tried to build a structure in the company so that it will be able to raise larger money.
29	Researcher:	What are some of the characteristics you think that that should have to be able to raise, like to attract a lot of money, say in the if I was a startup and I was working hard to be able to be very attractive to investors in the next two years? What are some of the things that I would definitely have to work on as a startup?

30	Rsp 4:	a lot of investors looking at the team, of course, it needs to be a team that can do this. Investors look at they need to trust the team And of course, there needs to be there needs to be a return on investment, because investing in this stage is high risk, which means if you go well, the reward should also be high. So there should be a scalable, business model. Some investors do prefer that there are some intellectual property like patents, but not all of them. And then, of course, it comes down to the ideas, which, of course is important as well. But in this stage, It will change during the journey. So I think investors will look for what you have done so far. Who are in the team, we're kind of you have any other investors from before? It was in the board? What kind of credibility do we have? Is there someone else believing in in the ID, that creates tournaments? Of course, and listen to the way we have a lot of like data driven projects and people trying to make decisions from data instead of their own? Like people trying to read decisions from data?
31	Researcher:	Do you think some investors are inclined to companies that have good reporting systems? Or are data driven in the decision making? Does that ever come up as a subject of discussion with investors?
32	Rsp 4:	The short answer is no. But if it's an important part of the company, let's say you do ecommerce, where you need to track where you have a lot of KPIs to track everything in order to see if its profitable. And where to cut costs. In that case, I would say it's important. But let's say you're a researcher doing a lot of research, you need to find the product market fit for one or two years, like in that case. data driven systems now, I wouldn't say that's important. Yeah. Okay. It depends on what area the startup is acting within.
33	Researcher:	And then you also mentioned that this that the investors would go with, like a start up they trust. Yeah, so how does an invest in? Like, how do they know which that up to trust,
34	Rsp 4:	and we try not to throw a couple, of course, when a startup looking for funding, they meet investors, some investors, they, they bound on a personal level, and they start to get to know each other and trust each other. A lot of companies that we have in our portfolio, they meet investors for half the year, morning to keep in touch and build a trust. And then they start to raise money with their semester
35	Researcher:	For a setup lets say for six months, what would they be doing during that six months to build the trust?
36	Rsp 4:	We meet them and talk about the business how it goes, ask for advice. Because these investors that invest they have a lot of experience. From building companies, products, they're keen to talk to these investors, even though they're not willing to invest. Okay.

		But they are, they do have valuable feedback to give. And the investors, they always a lot of cases, they think it's fun to interact with the startups because they that gives them knowledge about new areas and what's up coming.
37	Researcher:	So it's just like, a long period of how do you say, you know, when you get employment, and you have the first three months to yourself, it's sort of like that,
38	Rsp 4:	For a couple of cases that are that I have seen where investors put in quite a bit of money, but don't really know the company. They know someone within the company, so earlier investor or someone in the board creates credibility. Okay, so I'm a friend that's in the board for this company. And that startup is within my area of expertise, perhaps or I know a lot of the area and I think their ID is super hot, it's on the right way. can be the next big thing. And then if you have some on the inside,
39	Researcher:	So how investors verify the credibility of this external relationship, like with the board of and what startups claim to be dissipating?
40	Rsp 4:	Well, all this information who's in the board, it's possible to see in line for everyone, it's official information. So it's easy to Google to see. Okay, are those people really in the board or not? And regarding earlier, early investors, we have something called shareholders register. It's a register where all the shareholders for each company is yet registered all new shareholders in the company and how much how many shares they have?
41	Researcher:	And all companies are by law. expected to have that?
42	Rsp 4:	Yeah, they need to have that. So a lot of investors asked for that register.
43	Researcher:	So is it like an online document or it can be offline?
44	Rsp 4:	A lot of our companies, we have them online, because it's easier for us to keep track of them, but doesn't need to be online, it can be just a paper in the office But that gives the information of who was chairman was with shareholders, you have any company right now. And the information regarding board members, and the CEO is always available online. For more information about like the size of customers, a company have people look at, like, for example, if I had a mobile application, and I had it on the Play Store, and I had a very bad rating of like everyone was just giving it a thumbs down, thumbs down and with investors go to such nitty gritty is to confirm that customers are they like the product, or it will just be customer interviews I think in this in this particular case, or if you look at the startup journey, my knowledge is within

		early stage and perhaps when you get some customers, but Okay, yeah, further down the road when talking to VC companies as a venture capital firms when we invest, like everything from 20 million and crowns to a couple of hundred million crowns may do a lot more investigation regarding numbers. So I guess they will be more keen to see those kind of things.
45	Researcher:	But I think in if we would have a startup, which will have a might have an app that has customers?
46	Rsp 4:	the investor investors, they will, they will investigate how the app is going. The traction.
47	Researcher:	So do startup capabilities for analyzing and reporting affect the decision of an investor? select that kind of startups that have strong capabilities of analyzing and reporting?
48	Rsp 4:	I wouldn't say it's a yes or no question. I would say it's, once again, it depends on what kind of startup if it is key for the business to be able to do that. Yeah, the startups or the investors will look into it. But if it's if it's not, no, I don't think so.
49	Researcher:	what is some of the information system business intelligence capabilities? You think that could attract the investors?
50	Rsp 4:	that's a tough question. so I think in these early stages, investors, they don't expect the companies to have a full structure on and reporting reporting systems. But they do require that the company have the documents in order for safe servers.
51	Researcher:	yeah, in the early stages of investment, it's mostly to do with the documentation and the kind of compliance as startup has.
52	Rsp 4:	Yeah, all those papers should be the order. And that's kind of when we help the companies we have to set up. Okay, so got that structure and have all the shareholders agreements,and insurances and all that stuff. And, when the startups go to the VC investors would invest as a career something like an audit for both their IT systems, data systems, financial systems, does that usually happen before and in, like, when as when a company setting to mature and attract VC funding? This is my knowledge from quite on quite a huge audit or due diligence company in all different stages. And the companies at the LU holding.
53	Researcher:	How many of them have been able to attract VC funding? You know, from the 100? Until
54	Rsp 4:	I think Mostly five?
55	Researcher:	Why do you think so?

56	Rsp 4:	if research companies, which is the logic part of our portfolio, they, they don't, not always they don't create customer based products. They, they create a technology, which might fit into apple or IBM or something
57	Researcher:	So if to attract VC money, you need customers, you need data that's here
58	Rsp 4:	For our cases, it's not that common that you have that. if VC money is not possible, which is very interesting, because I think for our research, we had naturally put into consideration like companies that are out to do research and patents, you are really focusing on companies that have customers. So it's good to have this kind of background. And this kind of knowledge about a different kind of business model is kind of unique for holding companies that are related to the different universities. So if you look outside the university, there will be a lot more companies that have customers, then then the journey looks a bit different.
59	Researcher:	do the investors care about like how startups are handling their internal data and how they're integrated with the other departments? like the financial, like, their r&d? And how the data integrated between them? So do the investors really care about how they're doing this thing?
60	Rsp 4:	Yeah, I feel like I don't think so. Like, the topic is that investors are the structure is that job investors, at the top, the owners of the companies, then the investors may choose a board, which then leads the company, the CEO of the company. So if it's more important that you choose the right board that has the knowledge needed, so the investors in a lot of cases they trust, they trust a board, and they trust them that they have the knowledge in order to put the company or to take your company in the right the right direction, direction. So we do all these kind of different systems. Yeah, that's needed within the specific, specific area that startup is the board should know and they should act upon that.
61	Researcher:	And when you when you helping the startups to, like, set up themselves and be ready, like for the future, do you help setups with things like how to predict? Like, how far do you go to help the data? Do you help them with knowing how to make predictions in the future? How to anticipate growth? Like, do you also offer them advice and things like that?
62	Rsp 4:	Yeah, we do that, of course. More or less, in order to raise money, you need to predictions, and you need to have a budget. So we help them with that. But if it's just very specific area where we don't have the knowledge, we we we try to find the right people to put in the board that has the knowledge.I can help. Okay. So for us, it's about creating the structure in your company putting the

		board together. And the team as well. And perhaps we don't have all this specific knowledge within this specific area. But then we look. And we try to find people that have
63	Researcher:	do investors really care about if they're managing in house, or they're outsourcing their resources?
64	Rsp 4:	Once again, if it's if you're dealing with a lot of let's say personal information, because everybody talks about GDPR. Now, there's the responsibility is within the board, that it's well structured. If that's the case, that you do have a lot of information. Yeah, I would say the investors. Perhaps we care about that. And if you do have a lot of code, investors will later look into it. Okay. Is it open source? Or is it something you're coding yourself? What kind of licenses? Do we have almost been faithful?
65	Researcher:	Yeaah. Thank you for answering us.

Appendix 6: Interview Transcript [Rsp 5]

Rsp 5: Respondent 5

Line	Person	Content
1	Researcher:	Please give a brief overview of your company
2	Rsp 5:	We are a logistics platform that is connecting customers, with drivers and owners of different sizes of week or starting with bikes to bus pickup trucks up to trailers. So I am country manager for merchants business unit that is dealing with small medium package that the various packages, and package customization specifically for my channel, so sellers, starting, again, very small business up to big commerce platform.
3	Researcher:	With your experience, what do you think are some of the factors that make you attractive to an investor?

4	Rsp 5:	So first of all, we saw a real market problem, which is enabling economy in Africa, Sub Saharan Africa, and enabling economies to basically operate in optimal way, and drastically decrease the cost of logistics for them. Also, the difference is that Africa logistic is very fragmented. And our goal is to consolidate logistic partners in one place that is very easy and very fast for the customers to find their transportation solution. And this is same time, we are very tech heavy and productive on our end. So two thirds of our team is engineering team. Which means that we really pay attention to building long-term long-lasting submission is using technology for their customers, which also makes it hard for a prospective competitors to join the market fast, and be as efficient as we are. So so far, we have five years of productive building products under our belts, which, yeah, so for new starters, is pretty difficult to replicate the model very fast, especially when we're talking about consolidation and customization and bashing of the of the good leaders. So for data, you need to switch predict, and you need a scale, so start making sense for business. And then, another bit that is important is that it's pretty easy for current investors and prospective investors to try our performance because we, we provide a live data dashboards that connect directly to our assistance and show that's a true image of what's going on at the platform at any given time. And some performance easy for them to crack and easy to verify, as well.
5	Researcher:	Do investors ask for IT audits initially or would they trust the data you are showing them? How do they verify the data you show them?
6	Rsp 5:	They usually trust the data we are showing them. So also depends on the stage of the conversations. But usually the data we pull ourselves and we send it to them, I suffice for them to make decisions. But the further we go into conversations, the more likely they're gonna actually want to come or send someone to actually verify the data.
7	Researcher:	When it comes to the KPIs. Do you usually send reports to investors or the board? Like frequently say monthly or quarterly? And in terms of the KPIs that you report, who is the one who decides what KPI should be reported?

8	Rsp 5:	Yes, absolutely. Okay. Yeah, so basically executive. So basically, funders and commercial director discuss together which passion to make process to, to record and the investors was measuring stick on it.
9	Researcher:	What do investors do with the data you give them?
10	Rsp 5:	So, I cannot really answer because I'm not working directly with investors. So it's so commercial director, who is my boss is participating in board meetings, where, but my understanding is that they go through reporting, they go through performance, and basically question and different. You could be different decisions for different projects or performance in different areas based on the data, okay.
11	Researcher:	Many investors like to go for companies that have a strong IT team or a company that is dealing with an IT product, and you mentioned that your company has two thirds of its total human capital is dedicated to tech? So in your view, do you think investors prefer to invest in a company that has a lot of tech resources, or is dealing with a tech product.
12	Rsp 5:	We are tech startup. So this is the core of our product. Business without the team we have,I think, the reason is that there is there is less and less things you can do these days without I can basically take allows you to properly monitor your performance search for efficiencies. And also, that creates higher, let's say higher barrier to entry for the competitors, because usually takes take some time to properly build and set up
13	Researcher:	As a company why do you prefer your tech team in house instead of outsourcing?

14	Rsp 5:	First of all, and we are trying to hire and focus as much on hiring local teams as possible. So this is more of a, let's say, a social mission to make sure that we work with best Kenyan developers, it would be easy, probably easier to outsource work to some software house in India and then faster. Don't worry about hiring directly here. But so we try to give jobs locally and engage local people. Considering that the tech is a product, this is not just addition. And this is part of our product for security reasons and ownership reasons. We better have it in house and have full control over what's build was going on and who has access to what information.
15	Researcher:	Ok. Ok, so it's about data controls and data governance. Okay. And also, I wanted to ask, like, in terms of your reporting, as a company, these different departments and it comes to reporting these different kinds of reporting like this financial be these the finance the part of the operational bit and trying to show investors that the money they have invested is actually being put to good use. So I just wanted to ask how your reporting and analyzing team is, is captured as a company.
16	Rsp 5:	We have a team that's partially doing that, they usually provide the right sources for everyone else to, to pull their data from. So, let's say I asked to data person, and then I request and building specific queries on Mecca base that we are using for to present data here and I asked for particular queries to be built. And then based on these queries, I, myself as a country manager, I built my own performance report. And then basically, we populate data together with every country manager, we have marketing. And so everyone just populates the are beating to the report, as he said to investors, just like top level, top level report.
17	Researcher:	Is your company linked to any angel investors or partnerships that you think has helped to make it more attractive to, like, later on later stage investors?
18	Rsp 5:	I believe that awaiting their winner of the spark funds competition, where it's obviously it's, it's Safaricom on competition, help the business, because we immediately got a big name, and big investor on board, which helped to validate business and have further conversations, and brought on board one of our biggest customers. Together, so because we serve Safaricom, so definitely that that helps. early on.

		Okay
19	Researcher:	And what you what tools do you use for analyzing data? And do you use predictive analytics as well as to predict like, for example, in three months time, you have gotten a certain kind of revenue, and what to see is for predicting as well.
20	Rsp 5:	We don't use predictive tools. We do just market analysis. And as you can see, of the opportunity, that's a missed opportunity. So our and basically potential with our current customers, we calculate based on retention rate and market opportunity, we estimate and forecast sales in the upcoming months. Hmm
21	Researcher:	So for this, you would use like a basic to like Excel?
22	Rsp 5:	Yes exactly
23	Researcher:	And in house, which business intelligence tools do you use for reporting?
24	Rsp 5:	We use Metabase
25	Researcher:	Is there a particular reason you chose meta this as to that, or it was one of the light what what was the reason for choosing Metabase?
26	Rsp 5:	easy to work with is intuitive fellows to write questions in SQL. I think, I don't know if this is free. Were liking a full sense of it. But I think we do not pay the licenses. So that's an important factor. Because now we grow like crazy. We have 80 to 90 people and not wanting to get to obtain on a tool that requires substantial licensing. From every single user. No cost was very important part of it. Okay.

27	Researcher:	Do investors ever have, like queries about how secure your data is and where your data is stored?
28	Rsp 5:	Yes but they do not get into details. They just ask “Is your data secure?”
29	Researcher:	
30	Rsp 5:	
31	Researcher:	is in investors, normally, I see that for small startups, they're interested to know who the founding team is, and the backgrounds and if the founding team has had experience with the coming up with other startups, but I'm just wondering for a company that is as large as Sandy right now, if they are still interested to know about the technical skills of not only the founders, but other people as well in the company. And to what level?
32	Rsp 5:	Yeah, so I usually speak to potential investors as of today, country managers for business units us to come and to present their vision and strategy for their respective business units, for example, so they speak with senior management,
33	Researcher:	Okay. Could break down for me who those people are.
34	Rsp 5:	Yeah, so definitely this week with the cofounders. So now, it's CEO, CFO. And one of the country managers for business units are cofounders. And he's always speak with CTO. They speak with commercial director and we country managers for each business. They are focused on enterprise Business Unit. Okay, so yeah. So my sound is what I mentioned earlier, that's you and medium packages, yes. Myself. Then enterprises, vast pickup truck deliveries, usually for distributors, or producers of fancy goods. And then you have her phrase, which is important. And transit of trailers, you know, the containers. Okay. Okay.

35	Researcher:	And in this is usually interested to know what kind of technologies you're working on or building or what kind of technologies are supporting your data? Like, do they really care about the kind of technology you use?
36	Rsp 5:	Yeah. Yeah. So they do not go into such detail. They ask a general question is like, Do make sure that your basic, you know, sir, yes, like, Okay. This is the level of conversation.
37	Researcher:	Okay, so it's just in terms of taking on at least some of the things you should be compliant with, but not really following to a level of detail that they're auditing.
38	Rsp 5:	Yes exactly
39	Researcher:	Okay thank you, I have no further questions
40	Rsp 5:	Thank you and all the best

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