

INSIDE THE BLACK BOX OF THE GOVERNMENT SUBSIDY SELECTION PROCESS

A qualitative study on how and which signals influence external assessors
of government subsidies in the government subsidy selection process

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Abstract:

New ventures and their positive effect on the economy and society have received great attention in recent decades by scholars and public policy makers. However, the prospects of new ventures are uncertain and most of them fail within a five-year period. This has led to governments all over the world developing subsidy programs to support new ventures' growth and development. Scholarly literature in the field has largely focused on subsidy programs effects on the economy or the effects the subsidy programs have on new ventures. However, despite the selection process being highlighted as crucial for successful allocation of public funds and is central in VC/BA literature, there is limited understanding about the government subsidy selection process. This study therefore aims to open the black box of the government subsidy selection process. To do so, this study uses a qualitative case study with semi-structured interviews to capture how and which signals influence external assessors of government subsidies evaluation of key criteria when evaluating innovative new ventures. This study shows three key findings: First, this study finds that the key criteria used in VC/BA including societal impact is for the most part applicable in the government subsidy selection process. Second, the findings further show that the evaluation of key criteria is influenced to different extents by signals of human capital, endorsement, language, and reliability. Finally, the findings show that the context of the selection process has a big effect on how and which signals influence the evaluation of key criteria. Findings from this study contribute to theory and practice as they provide new insights to the research field and increase the understanding of the government subsidy selection process.

Keywords: Government subsidy selection process, Signaling theory, Innovative new ventures, Public Policy

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Definitions of Terms

Concept	Definition
Public Policy Maker	A person responsible for or involved in formulating policies, especially in politics (dictionary.cambridge)
New Venture	Small firms that are in early stages of development and growth (Henrekson & Johansson, 2010).
Innovative New Venture	<i>“High-growth firm is a small start-up in a high-tech sector that grows rapidly over a sustained period through some favorable quality inherent to the firm—a new advanced technology, a brilliant marketing innovation, or an extremely capable staff.”</i> (Worldbank.com)
Business Angel (BA)	<i>“A high net worth individual, acting alone or in a formal or informal syndicate who invests his or her own money directly in an unquoted business in which there is no family connection and who, after making the investment, generally takes an active involvement in the business, for example, as an advisor or member of the board of directors”.</i> (Mason & Harrison, 2008, p. 309)
Venture Capital (VC)	<i>“Venture capital, defined as independent, professionally managed, dedicated pools of capital that focus on equity or equity-linked investments in privately held, high growth companies.”</i> (Gompers & Lerner, 2001, p. 146)
Government Subsidies	Government initiatives that offer financing for new ventures to support their growth and development (Lerner, 2000).
Government Subsidy Selection Process	The process of evaluating and selecting the eligible and most relevant ventures according to the evaluation criteria (Vinnova.se).
External Assessor of Government Subsidies	Technology and business experts appointed by the government subsidy program, that assess the applications and provide an overall recommendation to the program’s internal group (Vinnova.se).

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1. Introduction

1.1 Background

In the last few decades, public policy makers around the world have shown interest in new ventures' effect on society (Lerner, 2013; Shane, 2009; Nightingale & Coad, 2014; Autio & Rannikko, 2016). These effects have been described as a 'magic bullet', contributing to job generation, bringing new innovative ideas to the market, and promoting economic growth (Van Praag & Versloot, 2007; Shane, 2009; Storey & Greene, 2010; Henrekson & Johanson, 2010). Scholars suggest that the positive impact of new ventures can be explained by a minority of *innovative* new ventures accounting for a majority of the positive impact on society (Storey, 1994; Van Praag & Versloot, 2007; Mason et al., 2009; Mason & Brown, 2013; Henrekson & Johansson, 2010).

However, the prospects for new ventures are uncertain and most of them fail within a five-year period (Sarasvathy et al., 2011; Jenkins et al., 2014). The reason for uncertainty and poor outlook is usually summarised by the term 'liability of newness' (Stinchcombe, 1965). Liability of newness explains the high failure rates among new ventures as a result of inexperience, lack of trust between the entrepreneurs and absence of a proven track record for the business (Stinchcombe, 1965). Scholars suggest that this leads to new ventures entering at a socially lower stratum (Söderblom, 2015). Consequently, new ventures signal uncertainty and fragility that leads to outside resource providers, including employees, customers, and financiers, being less likely to engage with new ventures in economic exchanges (Kazanjian & Drazin, 1990; Fisher et al., 2016; Söderblom, 2015).

The realisation about the importance of innovative new ventures for society and their frailty, has led governments all over the world to develop subsidy programs providing financial aid to support their growth and development (Söderblom, 2015). Data shows that industrial countries invest considerable amounts of resources to support the growth of innovative new ventures (Söderblom, 2015). This is especially true for the European market, as data reveals that Government subsidies make out between 4% to 10% of new ventures' external financing (Hogan & Hutson, 2005; Siqueira et al., 2018). Despite the great number of resources industrial countries have invested into government subsidy programs, there is a limited understanding of the government subsidy selection process. This is surprising, as scholars suggest that the selection process is a crucial driver behind success of allocation for public funds (Minola et al., 2017) and is central in early stage investing research (MacMillan et al. 1985; Muzyka et al. 1996; Tyebjee & Bruno, 1984).

There is reason to believe that there are similarities between the selection process of government subsidies and early-stage investing, especially with VC/BA, as they both finance new ventures with strong growth prospects with high risks and in situations of uncertainty. In such situations, research suggest that investors use various investment criteria as an evaluation method to assess the quality and future potential of the new ventures (MacMillan et al., 1985; Tyebjee & Bruno, 1984; Kaplan & Stömberg 2001; Fried & Hisrich 1994; Mason & Stark., 2004; Maxwell et al., 2011). However, in early-stage investing, there is a limited amount of information about new ventures, and investors' evaluations are to a large extent based on subjective and non-verifiable claims made by the entrepreneurs (Maxwell et al., 2011; Colombo, 2021). Signaling theory explains how two parties reduce information asymmetries and uncertainties by looking for signals about each other's underlying qualities (Spence, 1973).

Thus, to reduce uncertainties and overcome information asymmetries, scholars suggest that investors look for signals about qualities of new ventures and entrepreneurs, to predict the likelihood of the new ventures succeeding (Colombo, 2021; Ahlers et al., 2015; Arthurs et al., 2009; Connelly et al., 2011).

This thesis therefore explores the selection process of innovative new ventures in government subsidy programs. More specifically, the authors aim to explore the evaluation of innovative new ventures amongst external assessors of government subsidies through the lens of signaling theory using a qualitative, single case study approach.

1.2 Prior research and research gap

To begin with, there is a rich body of literature on the selection process and criteria used in VC/BA investing (MacMillan et al., 1985; Tyebjee & Bruno, 1984; Kaplan & Stömberg 2001; Fried & Hisrich 1994; Mason & Stark., 2004; Maxwell et al., 2011). Furthermore, several scholars have documented how prospective investors use signals to evaluate new ventures in situations with high uncertainty and information asymmetry (Colombo, 2021; Ahlers et al., 2015; Arthurs et al., 2009; Connelly et al., 2011). Lastly, as public policy makers have invested more resources into supporting new ventures, scholars have shown interest in government subsidies in the last decades (Söderblom, 2015). Prior research on government subsidy programs can be categorised into two streams. The first stream of research concerns the complex effects of government subsidies on company performance (Buisseret et al., 1995; Clarysse et al., 2009; Hsu et al., 2009; Autio and Rannikko, 2016) and the second stream of research concerns the effects of government subsidies on new ventures growth and follow-on financing (e.g., Lerner, 2000; Feldman & Kelley, 2006; Meuleman & De Maeseneire, 2012).

However, despite the great amount of public resources invested into government subsidy programs, and scholars suggesting the selection process to be crucial for successful allocation of public funds (Minola et al. 2017), as well as the selection process being described as central in the rich body of VC/BA research (Fried & Hisrich, 1994; MacMillan et al., 1985; Tyebjee & Bruno, 1984), there is a limited understanding of the government subsidy selection process. Therefore, this study addresses the research gap through the following purpose and research question.

1.3 Purpose and research question

Thus, the purpose of this thesis is to open the ‘black box’ of the government subsidy selection process. As there are reasons to believe that the government subsidy evaluation criteria share similarities with those used by VC/BA, and that the process is characterised by a high degree of uncertainty with little information available about the innovative new ventures, the authors aim to explore the selection process through the lens of signaling theory (Spence, 1973). More specifically, the authors aim to explore *how* and *which* signals influence the evaluation of key criteria to increase the understanding of the government subsidy selection process. Consequently, the purpose of this thesis leads to the following question.

Research Question:

How and which signals influence external assessors of government subsidies in the selection process when evaluating key criteria?

1.4 Expected contribution

By answering the research question, this thesis aims to make several contributions. First, this thesis aims to contribute to the sparse literature on the government subsidy selection process. Second, the thesis aims to complement the literature on signaling theory with an empirical study featuring the setting of a government subsidy selection process. Third, this thesis aims to test the applicability of the most common evaluation criteria used in VC/BA, in the setting of a government subsidy selection process.

On top of academic contributions, this thesis aims to offer insights about the government subsidy selection process to aid public policy makers in making government subsidy programs. Furthermore, this thesis also aims to increase the transparency of the government subsidy selection process and their evaluation to guide potential future applicants of government subsidy programs.

2. Literature Review and Theoretical Framework

The following chapter frames three research fields which are used to explore the government subsidy selection process. First, a review of sources of financing for new ventures with a focus on government subsidies is presented in section (2.1). Second, a review of evaluation criteria used in VC/BA including societal impact is presented in section (2.2) followed by a review of the selection process for VC/BA in section (2.3). Third, a review of signaling theory in selection processes is presented in (2.4) followed by a review of quality signals in section (2.5) and a review of signal strength in section (2.6). Lastly, synthesis of research connected to the research gap is presented in section (2.7) followed by a presentation of the analytical framework guiding the data collection in section (2.8).

2.1 Sources of financing for new ventures

The sources of financing have considerable impact on new ventures survival, growth, and performance (Berger & Udell, 1998; Carpenter & Petersen, 2002). There are many ways for new ventures to obtain funding with the main source of funding usually being the entrepreneurs themselves, friends, or their family (Berger & Udell, 1998; Robb & Robinson, 2014). However, for many new ventures, access to external funding is key for the business to expand, survive and succeed (Bozkaya et al., 2008; Cassar, 2004). The most common external funding for new ventures includes commercial debt (typically comes from commercial banks), external equity capital (typically comes from VCs and BAs), or from government subsidies (Samuelsson et al., 2021). In recent years there has been an increase of new sources of finance for new ventures, including crowdfunding, peer-to-peer lending, mini-bonds, and private debt (Block et al., 2018; Tuomi & Harrison, 2017). However, these new types of financing still only make up a small fraction of the total new venture financing (Samuelsson et al., 2021) and will therefore not be further discussed in this section. Instead, the following section will present the most common actors in external funding, BAs, VCs, Commercial banks, and Government subsidies. Due to the purpose and scope of this thesis, the emphasis will be put on government subsidies.

2.1.1 Business angels

A Business Angel is often a high-net worth private individual who invests their own money, expertise, and time into a few very early new ventures (Mason & Harrison, 2008; Sohl, 2015; Buzenitz et al., 2017). BAs usually invest small amounts and tend to invest in companies in

close geographical proximity (Avdeitchikova, 2008). These deals are usually not attractive to later stage investors, such as VCs, because of the high degrees of uncertainty associated with ventures in such an early stage. The primary reason for business angels to invest is economically driven, aiming for sizable returns through sales of shares to a third-party (Riding, 2008). Consequently, when BAs evaluate an investment, they are primarily looking at the possibility of the new venture succeeding and delivering a good return on investment. Scholars suggest that 4% to 20% of the total new venture funding comes from BAs (Berger & Udell, 1998; Robb & Robinson, 2014).

2.1.2 Venture capital

A Venture Capital (VC) company is a type of investment company that invests in early-stage private companies with strong growth potential. VCs tend to favour having a smaller stake in the companies they invest in, but often demands the possibility to have influence in the strategically important decisions (Kaplan & Strömberg, 2003; Cumming, 2008). As VCs focus on high-growth scalable ventures, they tend to look for innovative technology companies, common in industries such as, IT, biotechnology, clean technology, or internet related services (Gompers & Lerner, 2001; Fraser-Sampson, 2010). Few companies tend to meet the desired characteristics that VCs are looking for which is why venture capital is a rare source of financing for new ventures (Robb & Robinson, 2014; Berger & Udell, 1998; Ballou et al., 2008). Just as with BAs, the primary reason for VCs to invest is economically driven, looking for returns on investment through sales of shares to a third-party (Riding, 2008). However, different types of VCs have emerged that differ due to the investment goals that permeate their perception of relevant ventures. One more common variant is impact VCs. Impact VCs strive to create a societal or environmental impact in addition to seeking financial returns. This is reflected in the companies they invest into which usually are new ventures contributing to the sustainable development goals of the UN (Miller & Westerly; Block et al., 2021).

2.1.3 Bank loans

In contrast to commonly held belief, debt-based external funding is the most common source of funding for new ventures (Berger & Udell, 1998; Cassar, 2004; Robb & Robinson, 2014). Debt-based funding usually comes from commercial banks and scholars suggest that it accounts for between 30% to 40% of new ventures' funding portfolio (Berger & Udell, 1998; Robb & Robinson, 2014). Contrary to external equity capital, commercial banks do not make their return through sales of shares as they usually don't take equity as payment for their loans. Instead, commercial banks make their return on interest paid on the issued loan.

2.1.4 Government subsidies

To facilitate access to financial resources, the government can intervene in the capital market. The purpose of government intervention is to correct two types of market failures. These market failures occur when (i) firm knowledge can be copied by competitors in such a way that leads to the firm not being able to fully capture the benefits of its investment (Nelson, 1959), or (ii) when a firm has better information about the potential of a project than the outsiders, and therefore the outsiders are not able to justify the risk (Stiglitz & Weiss, 1981).

A common way for the government to intervene in the capital market is through subsidies (Autio & Rannikko, 2016; Lerner, 2000). Subsidies can be defined as *“a gift that has the aim of either ‘stimulating’ or ‘supporting’ some sort of service or activity by the recipient”* (Beam & Conlan, 2002, p. 341). Subsidies differ from both equity and debt and is often referred to as

‘free money’, meaning money that new ventures don’t have to pay back. Government subsidies in the European market make out between 4% to 10% of new ventures’ external funding (Hogan & Hutson, 2005; Siqueira et al., 2018).

The role of the government stimulating new ventures through offering financial aid is disputed. Lerner (2013) reasons that one of the pro-arguments for government intervention lies in the correlation between technological innovation and economic growth which is also widely accepted by scholars. This is highlighted in Morris Abramowitz’s (1956) classic study on economic output in the economy and in the study of Nobel laureate Robert Solow (1957) suggesting that change in how inputs are used is the crucial driver of growth. Lerner (2013) further suggests that the market correction of government intervention enables a healthy entrepreneurial and venture capital market contributing to economic growth in society. However, the pro-arguments for government intervention relies on the assumption that governments “*can effectively promote entrepreneurship and venture capital*” which is debated amongst scholars (Lerner, 2013, p. 257). The arguments against government intervention in the debate are usually based on two things: (i) The risk of governments simply getting it wrong, usually due to political influence or hubris which leads to allocating funds to new ventures in vain or (ii) exploitation from the private and public sectors leading to misallocation of the subsidies (Lerner, 2013).

As more resources have been invested into supporting new ventures through government subsidies, scholars have shown an interest in the field that can be divided into two streams (Söderblom, 2015). The first stream of research concerns company performance (Buisseret et al., 1995; Clarysse et al., 2009; Hsu et al., 2009; Autio and Rannikko, 2016). Measuring the effects of government subsidy programs has proven to be difficult due to validity concerns and cost associated reasons when conducting the studies (Autio & Rannikko, 2016). However, Autio and Rannikko (2016) showed in their study that government subsidy programs have a significant positive effect on economic growth.

The second stream of research concerns the effects of government subsidies on new ventures. Research suggests that selective government subsidies programs can provide positive signaling effects for the new ventures to uninformed parties (Lerner, 2000; Feldman & Kelley, 2006; Meuleman & De Maeseneire, 2012). Other studies have also found that government subsidies have a positive impact on growth for the new ventures (Lerner, 2000; Almus, 2004; Colombo et al., 2012; Koski & Pajarinen, 2012). Finally, scholars have also shown that government subsidies can have indirect positive effects on new ventures follow-on financing by other debt providers (Hottenrott et al., 2018; Martí & Quas, 2018) or investors (Lerner, 2000; Feldman & Kelley, 2006; Cumming, 2008; Conti, 2018; Söderblom et al., 2015; Howell, 2017; Giraudo et al., 2019; Hottenrott & Richstein, 2020; Zhao & Ziedonis, 2020).

Despite VC/BA and government subsidies being two fundamentally different sources of financing for new ventures, there are reasons to believe that key criteria used by VC/BA in the evaluation of new ventures is applicable in the government subsidy selection process. This is as VC/BA and government subsidies often finance similar types of new ventures with strong growth prospects, high risk and little information available about them. Thus, the rich body of literature about investment criteria in VC/BA can provide guidance in understanding the selection process in government subsidy programs. Therefore, section (2.2) will cover the most common criteria used by VCs/BAs in early-stage investing including societal impact to reflect the additional goal of social welfare with government subsidy programs.

2.2 Common evaluation criteria for VCs/BAs

The selection process of venture capital investors has been in constant interest among scholars since the 1970s (Wells, 1974; Tyebjee & Bruno, 1984; MacMillan et al., 1985; Muzyka et al., 1996; Mason & Stark, 2004; Maxwell et al., 2011; Gompers et al., 2020). It is regarded as the most important activity before making an investing decision and therefore VC/BA investors spend significant time evaluating their proposals against key criteria (Tyebjee & Bruno, 1984; Fried & Hisrich, 1994; Maxwell et al., 2011; Gomper et al., 2020).

Due to limited- to no performance history of new ventures, VC/BA investors are constrained to evaluate them by their current business plans and qualities (Tyebjee & Bruno, 1984; Maxwell et al., 2011). The investors try to evaluate whether the addition of their financial resources would contribute to a successful investment outcome by examining the quality of a new venture's economic activities, and the firm's capabilities to conduct these activities (Ahlers et al., 2015; Courtney et al., 2017; Steigenberger & Wilhelm, 2018). Accordingly, VC/BA investors use various investment criteria as an evaluation method to assess the quality and future potential of new venture proposals (Tyebjee & Bruno, 1984; MacMillan 1985; Bachher & Guild, 1996; Mason & Stark, 2004; Maxwell et al., 2011; Gomper et al., 2020). This is a well-established topic with extensive research on the most frequently used criteria by VC/BA investors (see table 1). In summary, the most frequently addressed evaluation criteria can be assembled into following categories; 1) team, 2) product, 3) market and 4) financial considerations (e.g., Tyebjee & Bruno, 1984; MacMillan 1985; Bachher & Guild, 1996; Mason & Stark, 2004; Maxwell et al., 2011; Gomper et al., 2020). In addition to these four criteria, a fifth criteria, societal impact is presented. Societal impact represents the additional goal of societal welfare for government subsidy programs and is based on previous research on early-stage impact investing.

2.2.1 Team

According to previous research, the assessment of team qualities and characteristics is indispensable in the new venture selection process for VC/BA (Bachher & Guild, 1996; MacMillan et al., 1985; Muzyka 1996; Mason & Stark, 2004; Gompers et al., 2020). In a study by MacMillan et al. (1985), it was concluded that five of the ten most frequently rated criteria were related to the human capital characteristics of the team. In similar fashion, Maxwell et al., (2011) and Gompers et al., (2020), expressed that VCs/BAs emphasise team characteristics as the most important success factor. When summarising these studies of VC/BA evaluation criteria, the following five *team* criteria was most frequently mentioned: 1) *Capacity and competence balance*, 2) *Demonstrated leadership*, 3) *Relevant venture & industry experience*, 4) *Ability to evaluate & react to risk*, 5) *Commitment, personality & authenticity* (MacMillan et al., 1985; Bachher & Guild, 1996; Muzyka, 1996; Mason & Harrison, 1996; Mason & Stark, 2004; Gompers et al., 2020).

2.2.2 Product

VCs/BAs investors' evaluation of a venture's product(s) varies due to individual strategies, firm-specific criteria and the maturity of the venture (Tyebjee & Bruno 1984; Bachher & Guild, 1996; Mason & Stark, 2004; Maxwell et al., 2011). However, several criteria are frequently emphasised in these studies such as, the level of differentiation, which is made of a product's uniqueness, patentability, technical edge and profit margin (Tyebjee & Bruno 1984; Bachher

& Guild 1996; Muzyka et al., 1996). Furthermore, the growth potential is also deemed as important with several scholars highlighting proprietary features, competitive advantage, and potential to gain strong market position as important criteria (Tyebjee & Bruno, 1984; Bachher & Guild, 1996; Mason & Stark, 2004). Concluding these studies of product evaluation criteria in new ventures, the following four criteria are the most frequently mentioned: 1) *Quality*, 2) *Proprietary or patentability*, 3) *Level of differentiation* and 4) *Growth potential* (e.g., Tyebjee & Bruno 1984; Bachher & Guild 1996; Mason & Stark 2004; Maxwell et al., 2011).

2.2.3 Market

In previous research, market and industry factors are frequently mentioned among the key criteria to evaluate when comprehending the potential of a new venture (Tyebjee & Bruno, 1984; Mason & Stark, 2004). Scholars highlight market size, growth, entry barriers and attractiveness as some of the most important criteria when evaluating a new venture (Tyebjee & Bruno 1984; Mason & Stark, 2004; Maxwell et al., 2011; Gompers et al., 2020). When summarising the studies of VCs/BAs market evaluation criteria, the following three was the most frequently mentioned: 1) *Market size & growth*, 2) *Market dynamics & competition*, 3) *Market acceptance* (Tyebjee & Bruno, 1984; Mason & Stark, 2004; Maxwell et al., 2011; Gompers et al., 2020).

2.2.4 Financial considerations

As new ventures often have limited financial track records, VCs/BAs have less data to use in their financial evaluations (Tyebjee & Bruno, 1984; Maxwell et al., 2011). When summarising prior studies of VCs/BAs financial criteria there are two different perspectives: (i) the financials of the business, and (ii) the investor's exit possibilities.

(i) When VCs/BAs evaluate a new venture's financials it is commonly centered around assessing its business model and forecasts (e.g., Mason & Harrison, 1996; Mason & Stark, 2004; Maxwell et al., 2011). This typically involves evaluating the new venture's resource allocation, processes, and economic model, as well as assessing the rationale behind these calculations (Bachher & Guild 1996; Mason & Harrison, 1996; Mason & Stark, 2004; Maxwell et al., 2011).

(ii) When VCs/BAs evaluate future exit possibilities, they usually assess the current value of the business to understand the size and cost of the investment (Mason & Stark 2004; Maxwell et al., 2011). Additionally, VCs/BAs tend to conduct various projections of the investment's rate of return in relation to risks and liquidation possibilities (MacMillan, 1985; Bachher & Guild, 1996; Mason & Stark, 2004; Gompers et al., 2020).

Taking both perspectives into consideration, the key financial concerns for VCs/BAs are 1) *Business model*, 2) *Realistic forecast*, 3) *Cost & size of investment*, 4) *Expected return in relation to risks*, 5) *Ability to cash out* (MacMillan, 1985; Mason & Harrison, 1996; Mason & Stark, 2004; Maxwell et al., 2011; Gompers et al. 2020).

2.2.5 Societal impact

When evaluating a new venture's societal impact, impact investors look at the severity of the addressed societal problem and the potential scale of impact in the solution (e.g., Block et al., 2021). However, impact investors also emphasise the importance of generating financial returns in addition to creating societal or environmental impact, to allow for increased societal impact

over time (Chowdhry et al., 2019; Block et al., 2021). This is related to the possibility to scale a social innovation with the purpose to increase its societal impact (Grossmann et al., 2013; Block et al., 2021). In impact investing the entrepreneur's authenticity is described as critical, as it in this context refers to how credible the entrepreneurs are in their persuasion of addressing a certain societal problem (Block et al., 2021). In conclusion there are four main criteria that are frequently assessed in impact investing, 1) *Societal impact*, 2) *Survivability*, (3) *Impact scaling*, (4) *Authenticity* (Miller & Westley, 2010; Grossman et al., 2013; Block et al., 2021).

Below are the five highlighted main evaluation categories including their sub-criteria compiled into one table (see table 1).

Category	Criteria	Literature support of criteria importance
Team	C1. Capacity & competence balance	MacMillan et al. (1985), Tyebjee & Bruno (1984), Fried & Hisrich (1994), Bachher & Guild, (1996), Muzyka (1996), Mason & Harrison (1996), Mason & Stark (2004), Miller & Westley (2010), Grossman et al. (2013), Gompers et al. (2020), Block et al. (2021)
	C2. Demonstrated leadership skills	Tyebjee & Bruno (1984), MacMillan et al. (1985), Fried & Hisrich (1994), Bachher & Guild, (1996), Muzyka et al. (1996)
	C3 Team's venture & industry experience	Tyebjee & Bruno (1984), MacMillan et al. (1985), Fried & Hisrich (1994), Bachher & Guild, (1996), Muzyka et al. (1996), Mason & Harrison (1996), Mason & Stark (2004), Miller & Westley (2010), Maxwell et al. (2011)
	C4. Ability to evaluate & react to risk	MacMillan (1985), Fried and Hisrich (1994, Bachher & Guild, (1996)
	C5. Commitment, personality, & authenticity	Bachher & Guild (1996), Fried & Hisrich (1994), Muzyka et al. (1996), Mason & Harrison, (1996), Mason & Stark (2004), Maxwell et al. (2011), Block et al. (2021)
Product	C6. Quality	Tyebjee & Bruno (1984), MacMillan et al. (1985), Bachher & Guild (1996), Mason & Harrison (1996), Mason & Stark (2004), Maxwell et al. (2011), Gompers et al. (2020)
	C7. Proprietary or patentability	Tyebjee & Bruno (1984), MacMillan et al. (1985), Maxwell et al. (2011),
	C8. Level of differentiation	Tyebjee & Bruno (1984), Bachher & Guild (1996), Muzyka et al. (1996) Mason & Harrison (1996), Mason & Stark (2004), Block et al. (2021)
	C9. Growth potential	Tyebjee & Bruno (1984), Bachher & Guild (1996), Mason & Stark, (2004)
Market	C10. Market size & growth potential	Tyebjee & Bruno (1984), MacMillan et al. (1985), Fried & Hisrich (1994), Bachher & Guild (1996), Muzyka et al. (1996), Mason & Harrison (1996), Mason & Stark (2004), Maxwell et al. (2011)
	C11. Market dynamics & competition	Tyebjee & Bruno (1984), MacMillan et al. (1985), Fried & Hisrich (1994), Bachher & Guild (1996), Muzyka et al. (1996), Mason & Stark (2004), Maxwell et al. (2011), Gompers et al., (2020)

	C12. Market acceptance	Tyebjee & Bruno (1984), MacMillan et al. (1985), Bachher & Guild (1996), Muzyka et al. (1996), Mason & Stark (2004), Maxwell et al. (2011),
Financial considerations	C13. Business model	Mason & Harrison (1996), Maxwell et al., (2011), Mason & Stark (2004), Gompers et al. (2020), Block et al., (2021)
	C14. Realistic forecast	Bachher & Guild (1996), Mason & Stark, (2004), Maxwell et al., (2011)
	C15. Cost & size of investment	Tyebjee & Bruno (1984), Mason Harrison (1996), Bachher & Guild, (1996), Mason & Stark (2004), Gompers et al. (2020)
	C16. Ability to cash out	MacMillan et al. (1985), Bachher & Guild (1996), Muzyka et al. (1996), Maxwell et al. (2011)
	C17. Expected return related to risks	Tyebjee & Bruno (1984), MacMillan (1985), Fried & Hisrich (1994), Bachher & Guild (1996), Muzyka et al. (1996), Mason & Stark (2004), Maxwell et al. (2011)
Societal impact	C18. Societal impact	Miller & Westley (2010), Grossman et al. (2013), Chowdhry et al. (2019), Block et al. (2021)
	C19. Survivability	Chowdhry et al. (2019), Block et al. (2021)
	C20. Impact scaling	Grossman et al. (2013), Block et al. (2021)
	C21. Authenticity	Chen et al. (2009), Miller & Westley (2010), Block et al., (2021)

Table 1. Most common criteria in VC/BA including societal impact

2.3 Selection process for VC/BA

Having explored the most common criteria for VC/BA investors including societal impact, the following section will address *how* these criteria are evaluated.

The average VC firm in the empirical study by Gompers et al. (2020), usually receives 200 proposals every year but generally only decides to invest in 4 of the new ventures, equalling a 2% acceptance rate. The global VC firm ‘Andreessen & Horowitz’ has an even lower acceptance rate as it receives around 4000 proposals yearly and eventually approves 20 of these, resulting in an acceptance rate of 0,5% (Snyder, 2014; Stanford Graduate School of Business, 2014). The majority of the proposals are coming from the VCs network of inbound referrals, whereas around 30% are proactively self-generated (Gompers et al., 2020; Stanford Graduate School of Business, 2014). To reduce the applications to a manageable quantity for in depth evaluation, VC/BA investors usually conduct an initial quick screening of ventures according to their specific requirements before initiating a more rigorous selection process (Fried & Hisrich, 1994; Clark, 2008; Gompers, et al. 2020). If the new venture passes the initial screening VC/BA investors start a more thorough process of comparing the new venture against criteria. This process is often referred to as a due diligence process and is perceived as a necessary evil due to an often-complicated process of investors thoroughly examining and understanding a business’ operations, team, structure, assets, ownership etc. to ensure that the information is consistent with the expectations (De Cleyn & Braet, 2007).

To obtain more in-depth information about the *team*, VC/BA investors emphasise social interaction with the new venture. Usually VC/BA investors conduct a series of meetings with the entrepreneurs as the selection process evolves and have two main goals with these meetings

(Fried & Hisrich, 1994). The first goal is to increase their understanding of the business, and to closely assess the entrepreneurs' knowledge of their business, market, industry, the investment proposal, as well as potential future pitfalls. The second goal with the meetings is to assess the personal characteristics of the entrepreneurs (Fried & Hisrich, 1994). Accordingly, when evaluating the team, Balachandra, (2020) underlines the activity to conduct meetings as central to obtain sufficiently comprehensive information about team criteria.

When VC/BA investors evaluate the *product(s)*, its differentiation is central but requires a continuous comprehensive understanding of the market, the competitors, and customers. In addition, the long horizons of product development can lead to a difficult assessment of the products (Bachher & Guild, 1996). To make this more manageable, VC/BA investors tend to focus on specific market or product niches to become experts in its competition and demands (Tyebjee & Bruno, 1984; Bachher & Guild, 1996). This results in different goals among the investors due to their individual strategies and firm-specific criteria (Tyebjee & Bruno, 1984; Bachher & Guild, 1996; Maxwell et al., 2011).

When evaluating *market* criteria in new ventures, some VC investors find it hard to assess the target market as the venture might pivot into other markets or customer groups (Bachher & Guild, 1996). However, in general investors consider the market to be critical when evaluating new ventures due to the tangible predictions of the market growth that easily can be translated into projected financial returns (Bachher & Guild, 1996). Scholars Boocock & Woods (1997), suggest that the assessment of market criteria can be done in a more objective way than other intrinsic qualities of new ventures, such as entrepreneurial characteristics, making the market criteria more important for the overall evaluation.

When VC/BA investors assess the *financial* criteria, their firm-specific goals and risk tolerance directly affect their evaluation of the new ventures (Tyebjee & Bruno, 1984; Bachher & Guild; Gompers et al., 2020). For instance, Gompers et al. (2020) highlights in their study, how a third of their sample of early-stage VCs did not conduct any financial forecasts in their evaluation due to the uncertainty of the new venture due to its early stage. VC/BA investors differ from other types of investors since they are equity providers (Mason & Stark, 2004). Thereby, they are more exposed to the success and the failure of the businesses that they invest in, as well as risk of being illiquid if the business is not profitable (Mason & Stark, 2004). Consequently, VCs/BAs are looking at both the financial structure of the business, and the investor's exit possibilities (Mason & Stark 2004). Despite the similarities between VCs and impact investors, the goals of impact investors diverge. Because of impact investors' additional focus on societal or environmental impact, impact investors might neglect certain financial/equity incentives in ventures to focus on societal impact (Clarkin & Cangioni, 2016; Lerner, 2013). Therefore, common financial criteria such as various exit multiples and liquidation abilities might not be equally stressed in impact investing (Block et al., 2021). Prior research has also shown that impact investors are willing to sacrifice financial returns to achieve societal objectives (Chowdhry et al., 2019). This further distinguishes them from traditional investors, who are predominantly interested in financial returns (Block et al., 2021).

This leads up to the last evaluation criteria *societal impact*. As previously mentioned, these criteria are mainly evaluated by impact investors in their mission to invest in new ventures that contribute to society. For example, impact investors typically invest in new ventures that address global challenges, such as those that aim to reduce poverty or mitigate climate change (Gray et al., 2015; Geczy et al., 2021). Furthermore, impact investors aim to find an effective balance of the societal impact in conjunction with traditional VC criteria as these aspects often

are dependent on each other for the new venture to succeed (Minola et al., 2017). Hence, balanced criteria are used by the evaluators to optimise their investments in relation to their specific societal impact goal (Minola et al., 2017; Chowdhry et al., 2019).

Altogether, section (2.2) deals with what criteria are used in the VC/BA selection processes and section (2.3) deals with how VCs/BAs evaluate new ventures against key criteria. As highlighted in the selection process, much emphasis is put on interacting with the entrepreneurs and conducting a thorough due diligence process to better understand the new ventures and the entrepreneurs. However, despite the efforts to uncover as much information about the new ventures and entrepreneurs as possible, there is often a limited amount of public information available due to their early stage and lack of performance history (Maxwell et al., 2011; Colombo, 2021). Therefore, investors' evaluations are to a large extent based on subjective and non-verifiable claims made by the entrepreneurs (Maxwell et al., 2011; Colombo, 2021). Scholars further suggest that government subsidy programs often face different types of resource constraints (Takalo & Tanayama, 2009), which consequently could affect their ability to uncover more information about the new ventures and entrepreneurs. In such situations, with a high degree of uncertainty as well as information asymmetry, investors look for signals about new ventures and entrepreneurs' qualities, to predict the likelihood of the new venture succeeding (Ahlers et al., 2015; Arthurs et al., 2009; Connelly et al., 2011). Therefore, signaling theory becomes central in investigating the government subsidy selection process.

2.4 Signaling theory

New ventures often fail to obtain external financial resources from prospective investors due to uncertainties and information asymmetries concerning the entrepreneurs and the new venture's qualities (Amit, Glosten, & Muller, 1990). Scholars suggest that this is especially the case for *innovative* new ventures, as they often have unproven technology, early prototypes, non-verified market demand and sometimes lack factual evidence about the quality of the underlying business (Murray & Marriott, 1998; Nagy et al., 2012). In such an early stage, investors' evaluations are to a large extent based on subjective and non-verifiable claims made by the entrepreneur as well as the entrepreneurs' ability to develop an appealing narrative to prospective investors (Maxwell et al., 2011; Colombo, 2021). This contrasts with later stage investments, where more reliable market-related information is available to the investors (Elsbach & Kramer, 2003).

Signaling theory was originally developed by Spence (1973), in a study about the labour market concerning how job-applicants reduce information asymmetries and uncertainties by conveying information containing signals about their education. Spence (1973) showed how high-quality prospective employees distinguished themselves from low-quality prospective employees via signals of underlying qualities about the level of their education (Connelly et al., 2011). Since then, signaling theory has been applied to a wide range of scenarios and has been described as central in decision making processes between new ventures and investors (Busenitz, 2005). An effective way for entrepreneurs to reduce uncertainties and information asymmetries to attract investors, is by signaling underlying qualities about themselves and the new venture (Ahlers et al., 2015; Arthurs et al., 2009; Connelly et al., 2011).

Although the concept of quality is central to signaling theory, the meaning of quality can be interpreted in several different ways (Connelly et al., 2011). In this study, quality refers to "*the underlying, unobservable ability of the signaler to fulfil the needs or demands of an outsider observing the signal*" (Connelly et al., 2011, p.43). It is important to note that the information

conveyed with the signal is not unobservable, but the quality that the receiver associates with the signal is what Connelly et al. (2011) refers to as unobservable in the definition. By looking for signals, financiers try to evaluate the underlying qualities of the venture's business and team to see if the financial resources would contribute to a successful outcome (Ahlers et al., 2015; Courtney et al., 2017; Steigenberger & Wilhelm, 2018). Consequently, the better new ventures are at signaling underlying qualities about their business and team, the more likely they are to receive financial support (Prasad et al., 2000). The signaling relationship between signalers and receivers is illustrated in figure 1. In the context of government subsidy programs, the signalers are the innovative new ventures, and the receivers are the external assessors of government subsidies.

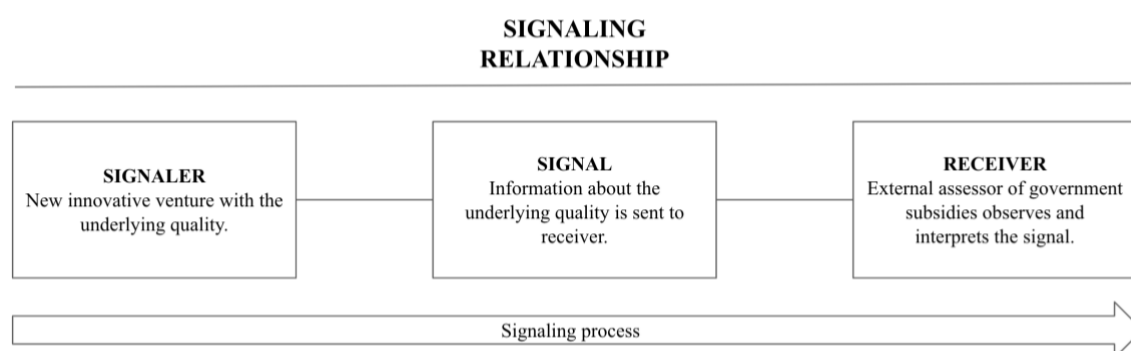


Figure 1. Illustration of the signaling relationship between innovative new ventures and external assessors of government subsidies inspired by Connelly et al. (2011).

There has been a growing body of literature on a wide range of signals from new ventures conveying the underlying qualities of the business and team to prospective investors (Colombo, 2021). Research on signaling theory in an investment context ranges from early-stage financing like Crowdfunding and new venture to later stage financing such as private equity and IPOs (Colombo, 2021).

When going back and forth between empirical data and theory to understand how and which signals the external assessors of government subsidies use when evaluating innovative new ventures, the authors identified two major categories as most explanatory for the government subsidy selection process. The first category, quality signals, features two types of signals about the new venture and team: human capital signals and endorsement signals. The second category, Signal Strength, also features two categories of signals: language signals and signal reliability. Below follows an in-depth review of the two categories.

2.5 Quality signals

Although the entrepreneurs know about the true qualities of the innovative new ventures and themselves, the external assessors of government subsidies do not, so information asymmetry is present. To overcome this information asymmetry, new ventures can signal to the external assessors of government subsidies about their underlying qualities. In literature (Colombo, 2021), *human capital signals* and *endorsement signals* are described as two main ways for new ventures to reduce the information asymmetry and signal qualities about the new venture and team.

2.5.1 Human capital signals

Human capital signals concern signals about entrepreneurs' underlying qualities. More specifically, in this study human capital signals include education, experience, and passion. As previous studies have shown, team qualities like capacity, leadership and experience are indispensable in the venture selection process, especially for early-stage ventures (e.g., MacMillan et al. 1985; Block et al. 2021). Human capital theory was developed by Becker (1964) and Mincer (1958) to describe how investing in education and training adds to productivity. The theory of human capital can be defined as “*skills and knowledge that individuals acquire through investments in schooling, on-the-job training, and other types of experience*” (Unger 2011, p. 343). The skills and knowledge that individuals acquire are specific and constitute a competitive advantage (Barney, 1991). Therefore, scholars argue that human capital is a driving factor for innovation and economic growth in organisations, and key in explaining organisational performance (Bontis & Fitz-enz, 2002; Pennings, et al., 1998, Becker 1964). Consequently, human capital is the most frequently used selection criteria by prospective investors when evaluating new ventures (Stuart & Abetti, 1990; Zacharakis & Meyer, 2000). Due to new ventures often lacking performance history such as revenue streams or other tangible metrics, entrepreneurs' previous experience, education and passion serves as the primary signals (Grossman, 2005). Below follows an overview of previous research on the human capital signals education, experience, and passion.

2.5.1.1 Education

Scholars argue that there is a strong positive relationship between the founder's level of education and the new venture's performance (Cooper et al., 1994; Wiersema & Bantel, 1992). According to research, on top of education making the individual more productive (Becker, 1964; Mincer, 1958), individuals with relatively high education won't allow themselves to be connected to lower quality new ventures due to the opportunity costs (Gimeno et al., 1997). The opportunity costs for an individual with a relatively high level of education would be better paid employment or other potentially lucrative career paths. Therefore, scholars suggest that new ventures started by entrepreneurs with a higher level of education are more likely to succeed which makes education important for prospective investors when evaluating a new venture (Amit et al., 1995; Roure & Maidique, 1986; Hsu, 2007; Cassar, 2004). Thus, the signal of a high level of education makes the venture more attractive to prospective investors (Ko & McKelvie, 2018).

2.5.1.2 Experience

One of the main challenges for new ventures is commercialization (Ko & McKelvie, 2018). Scholars suggest that successful commercialization to a large extent depends on the entrepreneurs' ability to deal with uncertainties regarding product viability and market demand (Ko & McKelvie, 2018). Product viability and establishing market demand are all part of entrepreneurial tasks in new ventures (Becker-Blease & Sohl, 2015) and therefore scholars suggest that entrepreneurs with previous similar experience are more likely to succeed with their new venture (Stuart & Abetti 1990, p. 190; Ko & McKelvie, 2018). Literature further divides experience into two categories of industry experience and new venture experience.

Studies show that entrepreneurs with industry experience possess tacit knowledge, understanding of customer needs in the industry and social ties with stakeholders, making them more likely to be successful as entrepreneurs in the industry (Kotha and George, 2012; Cassar, 2044; Ko & McKelvie, 2018). Scholars further suggest that entrepreneurs with prior industry experience are more likely to uncover unexploited business opportunities in the industry (Cooper et al., 1994; Klepper, 2001) and are better equipped to face changing needs in the

industry (Boeker and Wiltbank, 2005). Consequently, when evaluating new ventures, investors look for signals about entrepreneurs' industry experience (Ko & McKelvie, 2018).

By having previous new venture experience, scholars suggest that entrepreneurs are more effective in selecting entrepreneurial opportunities with greater potential compared to inexperienced entrepreneurs, which increases the expected value of their new venture (Bhide, 2000). Studies show that learning through experimentation is one of the main ways for entrepreneurs to obtain knowledge (Ardichvili et al., 2003; Delmar & Shane, 2006; Jovanovic, 1982). Therefore, entrepreneurs with previous entrepreneurial experience improve their ability to evaluate potential business and market opportunities (Baron & Ensley, 2006; Gruber et al., 2008; Parker, 2006; Shane, 2000). This makes entrepreneurs with previous new venture experience more attractive for prospective investors and works as a powerful signal (Ko & McKelvie, 2018).

2.5.1.3 Passion

The literature on signaling theory in early-stage investments place great emphasis on the entrepreneur's passion for the investor evaluation (Colombo, 2021). Scholars explain passion as a combination between enthusiasm, motivation, and authenticity (Colombo, 2021; Block et al., 2021). Research suggests that signals of passion and motivation positively affect the chance of obtaining financing (Cardon et al., 2017; Chen et al., 2009; Mitteness et al., 2012). Scholars further suggest that communication through verbal or body language can evoke positive associations that can also increase the entrepreneurs' likelihood of receiving funding (Chen et al., 2009). Furthermore, studies also highlight that entrepreneurs who shows enthusiasm are more successful in obtaining financing (Cardon et al., 2017; Mitteness et al., 2012).

2.5.2 Endorsement signals

Third-party endorsement signals can be defined as "*interorganizational exchange relationships that can act as endorsements that influence perceptions of the quality of young organisations when unambiguous measures of quality do not exist or cannot be observed.*" (Stuart et al., 1999, p. 315). In other words, endorsement signals come from third-party relationships to the new venture, signaling underlying qualities of the business and alleviating some of the information asymmetry (Stuart et al., 1999). Below the authors outline previous research on third-party endorsement signals.

2.5.2.1 Third-party affiliation

By being affiliated with acknowledged third parties, such as customers or reputable VC investors, new ventures can signal underlying qualities through endorsements and obtain superior resources from other enterprises (Baum & Oliver, 1991; Podolny, 1994; Stuart et al., 1999; Gulati & Higgins, 2003). Third-party affiliations include strategic alliances, such as affiliations with other productive organisations that can have a substantial impact on the opportunities and constraints a new venture face (Gulati & Higgins, 2003). Previous studies suggest that the number of partnerships a venture possesses is positively correlated to the amount of venture capital financing it receives (Baum & Silverman, 2004).

Numerous scholars have also researched how new ventures can overcome liability of newness through third-party affiliation signaling legitimacy. Signaling legitimacy is usually done by establishing close ties with important organisations (Baum & Oliver, 1991; Venkataraman & Van de Ven, 1998). Examples of such close ties that signal legitimacy are networks with

suppliers (Ahlers et al., 2015), high-status customers (Bapna, 2019) and prestigious government grants (Söderblom et al., 2015).

Scholars further suggest that the quality signal of third-party affiliation tends to be more distinct to interpret than intrinsic values such as human capital, and therefore making the signal more valid and credible (Connelly et al., 2011). This is valuable for investors since third-party affiliation may be used as a signal to distinguish low-quality and high-quality new ventures (Bergh et al., 2014).

2.6 Signal strength

In literature, scholars refer to how signals are transmitted and how well they correspond with the underlying qualities of the signaler as *signal strength* (Connelly et al., 2011). The stronger a signal is, the more likely it is to influence the receivers' decision (Connelly et al., 2011) which makes it very influential in selection processes (Colombo, 2021). The strength of the transmission is suggested to be influenced by several contextual factors (Colombo, 2021). One central contextual factor that has been found influential in a similar context to the selection process of government subsidies is the *language* used by the signaler (Colombo, 2021). On top of the contextual factors, signal strength is also suggested to be influenced by how well the signal corresponds with the underlying quality, which scholars refer to as *signal reliability* (Connelly et al., 2011). Consequently, in describing signal strength, language and signal reliability becomes central to further explore.

2.6.1 Language

Scholars suggest that the language used by entrepreneurs has a big influence on the strength of a signal (Colombo, 2021). Previous studies have shown that this is especially the case for evaluation processes where written language is the main form of communication, such as crowdfunding (Colombo, 2021). Studies show that entrepreneurs with relevant experience better understand what investors are looking for when evaluating a prospective new venture and can therefore tailor their message to suit the investors' needs (Colombo, 2021). Using specific language to create certain impressions is well documented in entrepreneurship and communication literature (Colombo, 2021; Barry & Elmes, 1997). Furthermore, scholars Cornelissen & Clarke (2010), suggested in their study that the way entrepreneurs use specific forms of language, and metaphors influence investors evaluations. Researchers Parhankangas & Ehrlich (2014), found in their study of crowdfunding performance that by using positive language, entrepreneurs increased signal strength, which improved their chances of obtaining funding from BAs. Studies have also shown that good storytelling and narrative are two important aspects influencing prospective investors' evaluation of new ventures (Aldrich, 1999; Martens, et al., 2007).

2.6.2 Signal reliability

The reliability of a signal concerns how well a signal corresponds with the sought-after quality and the extent the signaler tries to deceive the receiver (Connelly et al., 2011). Thereby it can influence the receiver's interpretation of the meaning and strength of the quality (Connelly et al., 2011). Scholars suggest that the fit and honesty of a signal lies central in achieving high signal reliability. Signal fit can be defined as "*the extent to which the signal is correlated with unobservable quality*" (Connelly et al., 2011, p.53), and signal honesty can be defined as "*the extent to which the signaler actually has the underlying quality associated with the signal.*" (Connelly et al., 2011, p.46). Together, signal fit and signal honesty is referred to as *signal*

reliability (Connelly et al., 2011). As signalers often are incentivised to transfer positive information in evaluation processes, they sometimes produce false information to be selected (Johnstone & Grafen 1993). Exaggerating or being dishonest by not having the quality associated with the signal affects the evaluation of the signaler in a negative way (Connelly et al., 2011). Research further suggests that too one-sided signaling and avoiding any negative signals can potentially lead to unintended negative signaling, increasing the information asymmetry and uncertainty (Connelly et al., 2011). Scholars further suggest that this is especially true for innovative new ventures, since a more realistic depiction of the business typically includes both positive and negative aspects due to the uncertainty of being an *innovative* new venture (Colombo, 2021). Scholars suggest that showing vulnerability and self-disclosing information has positive influences on reliability signals (Maxwell & Lévesque, 2014). By making sure to communicate a more realistic picture, new ventures contribute to signal fit and signal honesty, making them more attractive to prospective investors (Colombo, 2021; Janney & Folta, 2003).

2.7 Synthesis of research

This thesis has so far presented and linked three different fields of research to target the limited understanding of the government subsidy selection process. First, sources of financing for start-ups were reviewed with a focus on previous research about government subsidies and its purpose. Second, as government subsidies and VC/BA finance similar types of new ventures, the authors suggest that literature on criteria used in VC/BA including societal benefits can be used to explore the selection process of government subsidies. However, as literature suggest that there is often a limited amount of public information about the new ventures in VC/BA selection processes (Maxwell et al., 2011; Colombo, 2021), and possibly even less in government subsidy selection processes due to resource constraints (Takalo & Tanayama, 2009), signaling theory becomes central to fully understand the government subsidy selection process.

Thus, as illustrated in figure 2, the identified research gap lies in the intersection between government subsidies, the selection process in VC/BA and signaling theory.

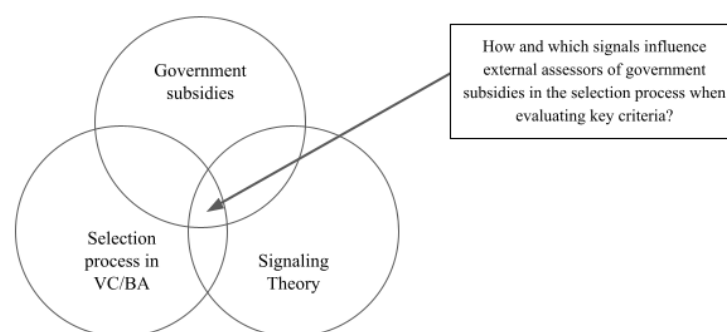


Figure 2. Illustration of the research gap.

2.8 Analytical framework

The theoretical synthesis above serves as a basis for the analytical framework illustrated in figure 3 below. The analytical framework has been constructed in an abductive manner,

incorporating new relevant theories as new themes have been discovered to gain a comprehensive understanding of the research question (Bryman & Bell, 2015).

The analytical framework follows the reasoning that when entrepreneurs apply to the government subsidy program, they send information about the business and themselves which contains signals and is then evaluated against criteria before the external assessors of government subsidies make a decision. The information sent by the innovative new venture contains signals about underlying qualities which can be affected by the strength of the signals, ultimately influencing the evaluation of key criteria. Therefore, to yield a deeper understanding of the government subsidy selection process, *how* and *which* signals influence the evaluation of key criteria is explored.

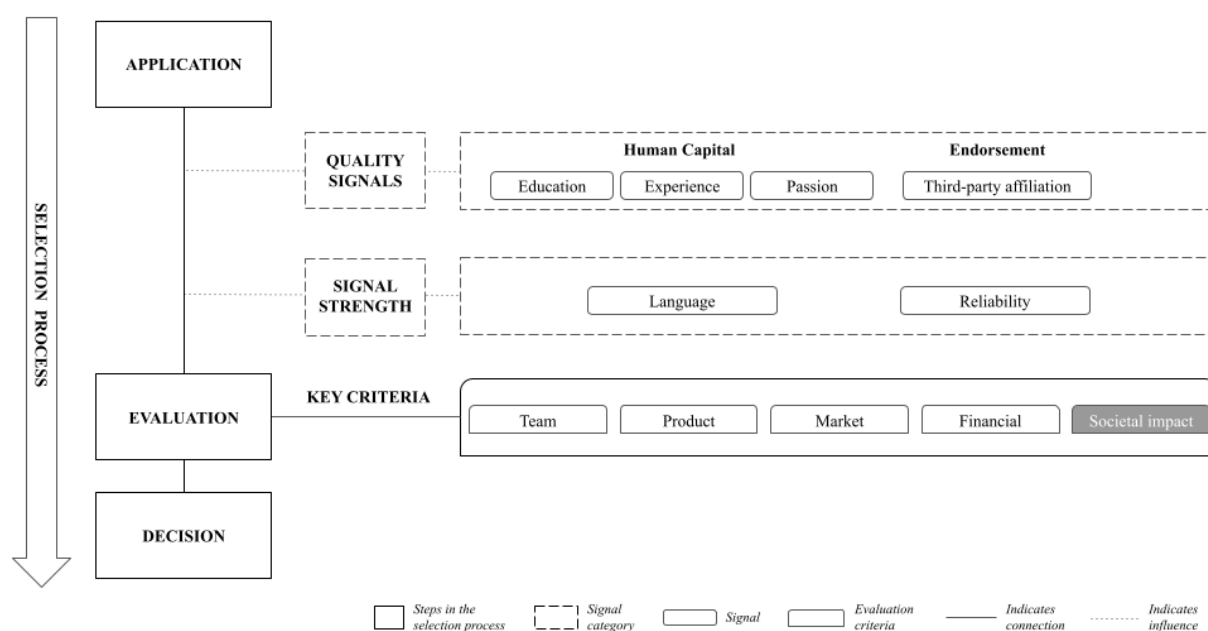


Figure 3. Application of the analytical framework on the research context. Note that societal impact is highlighted in grey to distinguish it from the most common criteria used in VC/BA.

3. Methodology

This chapter describes the research methodology by first explaining the choices of methodology together with the philosophical stance and how these fit with the research approach in section (3.1). Next the abductive research design is presented in section (3.2), followed by the data collection in section (3.3). Finally, the data analysis and quality assessment of the study's methodology is presented in section (3.4) and in section (3.5).

3.1 Research approach

To provide an insightful answer to the research question a qualitative study was conducted. An explorative case study was chosen to allow for in-depth understanding of the research gap, due to the limited amount of previous research about government subsidy selection processes (Yin, 2013). The choice of a qualitative study is supported by Bell et al. (2018), as a favourable foundation and strategy for explorative research on a research topic where there is limited

knowledge. The chosen theoretical lens, signaling theory, is related with subjective interpretations, signals, and norms, and therefore a deeper level of understanding can be achieved using an exploratory and qualitative approach (Drover et al. 2018; Bell., 2018).

This study applied the ontological position of constructivism, which is related to the postmodernist perspective that regards organisations and cultures as socially constructed entities, which allows for extensive investigation for rich qualitative data (Bell et al., 2018). An interpretivist epistemological perspective was selected to enable a deeper understanding of the external assessors of the government subsidies' experiences and reality (Bell et al., 2018). Although interpretivism is criticised for lacking generalizability, it was a fitting approach for this study's purpose to capture rich complexities of real-life situations (Saunders et al., 2009). The interpretive qualitative approach enabled a deep investigation of the complex nature of how signals influenced the evaluation process of the signal receiver, allowing for further understanding of how signals are interpreted and processed. In contrast to the objectivist's objective reality, this study focused on the social sense-making of the subjective experiences and understanding of the individual interviewees (Bell et al., 2018; Piekkari & Welch, 2018). Furthermore, due to the constant social construction and reconstruction by the individual actors (Bell et al., 2018), the ontological and epistemological perspective is well aligned with the study's explorative research of how each of the interviewees were influenced and assessed quality signals in the evaluation of innovative new ventures.

3.1.1 Abductive research approach

This study was conducted with an abductive reasoning approach, in which theory and empirical data have been collected in parallel and formed one after the other (Dubois and Gadde, 2002). Similar to inductive and deductive reasoning, abductive reasoning is centred around making logical reasoning and frame theories about reality (Bell et al., 2018). However, as inductive, and deductive approaches contrast each other by their theoretical and empirical processes, they both bring limitations to the researcher's structure (Bell et al., 2018). Thus, abductive reasoning was favoured in this study as it enabled the authors to uphold an open approach to new unanticipated empirical and theoretical insights (Alvesson & Kärreman, 2007). This approach was suitable for this study's purpose of exploring new patterns rather than focusing on confirming existing theory (Timmermans & Tavory, 2012). Thus, the authors used abductive reasoning to constantly assess and adjust their research process and theoretical framework to allow for an explorative empirical and theoretical analysis (Yin, 2014).

3.2 Research design

The research design incorporates the analytical framework used to collect and analyse data (Bell et al., 2018). After initial research in the field of innovative new ventures, their frailty and how public policy makers support their growth, the authors realised a gap of research regarding the selection process of government subsidy programs. Thus, the authors determined to conduct a single case study as it further enabled a deep and extensive investigation of an unexplored situation that could provide novel and rich findings to this research gap and the research question (Yin, 2014).

3.2.1 Single case study

A single case study design was used to explore the government subsidy selection process as it allowed for a deep and rich exploration of the reality and perspectives related to the phenomenon as well as the context intended to be understood (Flyvbjerg, 2006; Dubois and

Gadde, 2002). Further, using a single case study design to collect and analyse data, enabled the authors to investigate the research question's complexity and relevance in depth since it focuses on "what, "how" and "why" questions that generated the necessary answers for this study's research question (Bell et al., 2018; Dubois and Gadde, 2002). Thereby, providing a useful foundation of the rather unexplored research about e.g., government subsidy selection process. Due to the nature of in-depth analysis in a single case study, it also allowed for investigating the contextual factors that influence the phenomenon of how external assessors of government subsidies evaluate the innovative new ventures within the program (Yin, 2014).

The case study of the Vinnova government subsidy program "Innovative Start-ups Step 1", was chosen to examine the selection process of innovative new ventures in government subsidy programs. Vinnova was relevant for this study since it is Sweden's innovation authority and one of the largest government subsidy providers in Sweden (Vinnova, 2020). During the last couple of years Vinnova has invested over 3 billion SEK yearly in research and innovation subsidy programs, with the mission to "help to build Sweden's innovation capacity, contributing to sustainable growth" (Vinnova, 2020). The program "Innovative start-ups step 1" specifically focuses on innovative new ventures that are usually ignored by the private capital market as they are perceived to be too risky and are therefore in need of alternative financing to grow (Vinnova, 2020). Additionally, the program excludes any interaction with the applicants and asks the external assessors of government subsidies to solely base their evaluation on the content in the application. Given that this study aims to investigate the influence of signals on an individual level, a single case study was recognized as a better fit than using multiple cases. Further, since the authors also aimed to obtain a comprehensive and detailed understanding of the various signals and their influences of the external assessors of government subsidies evaluation, explorative depth was needed to answer the research questions of the study.

3.3 Data collection

The data collection describes how empirical data was collected to answer the research question. First, the interview sample is presented (3.3.1), followed by the interview process (3.3.2), and the final section of this chapter will outline how relevant data was collected through semi-structured interviews (3.3.3).

3.3.1 Interview sample

To select interviewees with relevant insights and knowledge to the research question, purposeful sampling was used. Thus, the interviewees were selected in a strategic way to ensure that the sample group was relevant to the posed research question (Bell et al., 2018). This allowed the authors to strategically choose interviewees to ensure quality over quantity (Bowen, 2008) as well as fairness through the sample to uphold authenticity to the study (Shannon & Hambacher, 2014). Furthermore, since the external assessors of government subsidies at Vinnova "innovative start-ups - step 1" program are anonymous because of confidentiality reasons, the selection of interviewees also relied on a collaboration with a contact person from the subsidy program that acted as an intermediary. This benefited the relevance of the sample and made the selection process less biased. Lastly, as there are a rather limited number of external assessors of government subsidies with experience of the selection process of the specific Vinnova subsidy program, the authors also used snowball sampling. This was conducted after the interview, by asking interviewees to either identify, or if preferred, initiate an introduction to whom they considered to be relevant for this study within the program.

To ensure the relevance of the sample, the authors made sure to only include interviewees that had experience of the selection process of the specific Vinnova subsidy program “Innovative start-ups step 1”. This was ensured through data triangulation of a third-party data check on linkedin, through the reference contact and/or by conforming with the external assessor of government subsidies of this requirement before the interview (Bell et al., 2018). Additionally, to achieve variety and balance in the sample group, multiple interviewees with varying experiences, academic background, age, and gender were approached. Therefore, this specific group of individuals was well suited for this study to obtain extensive and deep insights into the selection process in government subsidy programs. The number of interviews as well as interviewees was not determined before initiating the interview process, but instead once the authors considered that sufficient data had been collected. Thereby allowing the authors to modify the research process and data collection according to evolving theoretical and empirical findings (Thomson, 2010; Strauss & Corbin, 1998).

3.3.2 Interview process

Each of the selected interviewees were sent an informative email containing an introduction of the authors and a description of the purpose of the study. In total 22 interviewees were approached and interviewed, with each interview lasting between 23 and 59 minutes, resulting in circa 730 minutes of recorded interview data (specific data for each interview is outlined in appendix 1). Because of the COVID-19 pandemic, the interviews were conducted via “Microsoft Teams”, a video-conferencing platform. This was a useful tool to enable convenience for the interviewees who could be situated in a location of their own preference to speak freely while being interviewed (Bell et al., 2018). The Microsoft Teams platform also had useful built-in functions to enable the authors to record and transcribe the interviews in real time. The authors then followed up each interview by reviewing and adjusting them to ensure correct interpretation. The interviews were conducted in the interviewees and authors native language, Swedish, to ensure fluency and mitigate against language barriers that could obstruct informative responses (Baumgartner, 2012). Lastly, the authors regarded online face-to-face interviews as the most appropriate data collection method, to encourage rich and engaging responses from the interviewees (Eisenhardt, 1989; Bell et al., 2018).

3.3.3 Semi-structured interviews

The interview approach in qualitative research tends to focus on the interviewee's perspective which makes structured interviews less useful than in quantitative research (Bell et al., 2018). Instead, the coveted factor in qualitative interviewing is flexibility for respondents to elaborate on the interviewees, perception, thoughts, and motivations (Bell et al., 2018). To incorporate flexibility in the interviewing process, the authors applied a semi-structured interview approach to allow for adjustments of the interview direction depending on the interviewee's perception of aspects and concepts (Bell et al., 2018). This enabled the desired flexibility to investigate the interviewees perceptions and experiences in depth, for rich and detailed responses (Kvale & Brinkmann, 2014). It further enabled the authors to conduct probing techniques to capture and follow up on various nuances in the interviews, which allowed the authors to achieve a better understanding of their perception of aspects related to the research question (Bell et al., 2018).

An interview guide was developed to ensure that data was collected efficiently, aligned with the research question, and related to the theoretical constructs (Bell et al., 2018). The interview guide was initially formed closely to the theoretical aspects of signaling theory and VC/BA selection processes in conjunction with the evaluation criteria of the Vinnova “Innovative Start-

ups step -1” subsidy program. Then the authors conducted two initial pilot interviews to identify any misconceptions or flaws in the interview design, to allow for corrections and improvements before the main interviews were held. This provided the authors valuable information to enhance the format of the interview and how various questions were interpreted and the nature of answers that they could evoke. Hence, the pilot interviews provided important adjustments in the interview guide to encourage richer answers (Bell et al., 2018). Due to the abductive nature of this study, the interview guide was then continuously adjusted throughout the data collection process to ensure that insights from previous interviews were incorporated (Dubois & Gadde, 2002).

The aim of the interview guide was to allow the interviewees plenty of room to reply, while also mitigating against informational overload. This allowed for effective generation of relevant data to expand the understanding of the interviewees’ perception of evaluating innovative new ventures. The interview guide included broad questions regarding the evaluation process and the different criteria evaluated by the external assessors of government subsidies, in a context of Vinnova’s government subsidy program “Innovative start-ups - step 1”. Hence, the four main questions were aligned with Vinnova’s evaluation categories, Team, Relevance, Implementation and Potential. The questions were open-ended to encourage detailed and rich answers, and due to the semi-structured interview approach, open-ended follow-up questions could also be used to improve the understanding of the interviewees’ reasoning (Kvale & Brinkmann, 2014; Bell et al., 2018). The interview was rounded up by asking the interviewees to elaborate on any missed perspectives or questions. An overview of the interview guide can be found in appendix 2.

3.3.4 Ethical considerations

Ethical considerations of informed consent and privacy were integrated in the data collection and analysis to ensure the integrity of this study. Further, the interviewees were briefed about the purpose of this study, asked for their consent to participate in this study as well as for being recorded and transcribed during the interview. The interviewees were also informed about their permission to opt out at any time without stating any reason. Anonymity and confidentiality were prioritised for the interviewees to ensure open, genuine, and honest discussions about sensitive topics e.g., weaknesses among innovative new venture applicants and internal subsidy program improvements (Bell et al. 2018). Therefore, the authors’ names were anonymized in this study.

3.4 Data analysis

The data analysis was partly conducted in sync with the data collection. Each interview was transcribed in parallel to the interview to allow for instant review regarding various observations and viewpoints shared by the interviewees. This process of brief initial data analysis of the current data collection enabled the authors to assess the large number of emerging insights (Eisenhardt, 1989). Due to being an abductive study, this process was useful to make theoretical and empirical adjustments while collecting the data (Eisenhardt, 1989).

To answer the research question, it was fundamental to understand *how* interviewees evaluate different new ventures, and *which* qualities they perceived as more or less important among the Vinnova program’s criteria. Therefore, to identify, describe and measure the qualitative data, this study was influenced by the qualitative and interpretive research process presented by Gioia et al. (2012).

The data analysis was initiated by the authors assembling the data from the interviewees into a comprehensive matrix. Once they were familiar with the data, the authors started analysing the data separately to reduce biases and ensure the data quality per investigator triangulation (Bell et al, 2019; Nowell et al., 2017). Then the authors compared and discussed their first order codes to start extracting those of relevance, and then grouping them into similar categories by identifying initial central themes of the most important aspects in relation to the research question (Gioia et al., 2012; Corbin & Strauss, 2008). These themes included the qualities and signals that the interviewees consciously and/or unconsciously expressed essential in their evaluation of innovative new ventures. Then the authors agreed upon the set of second order themes and assessed them to be closely aligned with relevant research and contribute to the understanding of the phenomena observed (Gioia et al., 2012; Corbin & Strauss, 2008). In the last step of the data analysis, the authors organised the second order themes into aggregated dimensions (Gioia et al., 2012; Corbin & Strauss, 2008) and illustrated the specific order of the interpretation and dependency of the first, second order themes and aggregated dimensions as exemplified in figure 4. The selected empirical data that were used for the analysis were translated into English for increased uniformity.

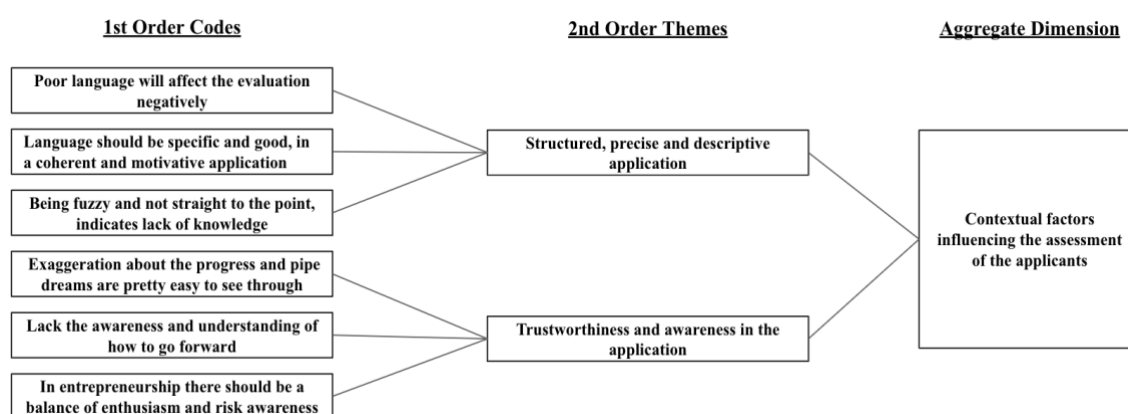


Figure 4. Excerpt from the data structure

3.5 Quality considerations

The suitable approach to assess the quality of qualitative methods is a rather divided subject among researchers (Bell et al., 2018). However, due to this study's qualitative and interpretive research approach, the authors assessed its quality based on its trustworthiness (Guba & Lincoln, 1985). Trustworthiness can be decomposed into four qualitative research criteria; 1) credibility, 2) transferability, 3) dependability, and 4) confirmability (Guba & Lincoln, 1985), and will be assessed below for the quality of this study.

3.5.1 Credibility

The criteria of credibility is deeply rooted in the aspect of social reality and the interviewees' perceptions and interpretation of the observed phenomena (Lincoln & Guba, 1985). To establish credibility in this qualitative research, it was critical to ensure that the theoretical findings were received according to good practice, and that empirical findings correspond well to the interviewees' perception of reality (Lincoln & Guba, 1985). Hence, to enhance the credibility in this study, a sample of multiple external assessors of government subsidies with

a variety of experiences were used for increased holistic responses and understanding. Also as mentioned, data and investigator triangulation were used to reduce bias and misinterpretations since the authors aligned and reassessed their perceptions from the interviews, which also contributed to increased credibility of this study (Kvale & Brinkmann, 2014).

3.5.2 Transferability

Transferability represents a study's generalizability to other cases and research (Lincoln & Guba, 1985). Qualitative studies are commonly criticised for lacking transferability as they tend to investigate phenomena or situations of more unique nature and therefore can limit the generalizability of the findings (Bryman & Bell, 2015). However, Flyvbjerg (2006), argues that contributing with rich information and understanding of a study's social world is important to achieve transferability. In such terms, this study has strived for transferability in the form of a thick description through detailed semi-structured interviews of interviewees experiences and perceptions in a government subsidy selection process context. Thereby, the authors aspire to enable other researchers to make their own judgement of this study's transferability in their contexts (Bryman & Bell, 2019; Lincoln & Guba, 1985).

3.5.3 Dependability

The criteria of dependability describes how the research findings are ensured to remain valid over time (Bell et al., 2018; Lincoln & Guba, 1985). The authors aimed to achieve dependability by using the inquiry audit technique. Thereby, the authors involved an external supervisor as well as fellow researchers to continuously assess the research process, the findings, and the relevance of the data (Bell et al., 2018). Data triangulation was also used by checking the external assessors of government subsidies career history to understand their professional and Vinnova subsidy-program experience. In this way, the authors aimed to increase the probability that this study produces the same conclusions if conducted by other authors at another time (Korstjens & Moser, 2018; Lincoln & Guba, 1985).

3.5.4 Confirmability

Confirmability considers how the findings of the study can be confirmed by other relevant parties and limit the influence of biases from affecting the data collection and analysis (Bryman & Bell, 2011). To uphold confirmability, the authors emphasised objectivity by using open-ended questions, investigator triangulation, snowball sampling, as well as anonymizing the interviewees names. This minimised the author's influence of conforming ideas collectively, and the influence of subjective values or beliefs to ensure confirmability (Guba & Lincoln, 1994; Bryman & Bell, 2015).

4. Empirics

This chapter outlines the empirical findings by first providing a description of the evaluation process at Vinnova in section (4.1), followed by two sections presenting themes that emerged from the data. The first theme presented is assessment of the applicants in section (4.2) and the second theme presented is contextual factors influencing the assessment of the applicants in section (4.3). For section (4.2) & (4.3) the external assessors of the government subsidies are referred to as interviewees and the innovative new ventures referred to as applicants. The names of interviewees have been replaced by pseudonyms to preserve the interviewees' anonymity.

4.1 Background of the evaluation process at Vinnova

The Vinnova subsidy program “innovative start-ups step 1”, is an initiative that aims to promote and contribute to a more experimental economy (Vinnova, 2020). This is conducted twice a year by providing subsidy grants of 300 thousand SEK to innovative new ventures with a strong focus on innovation and societal impact. Vinnova aims to provide financial resources to innovative new ventures to support their growth in early stages. To be considered relevant for funding in “innovative start-ups step 1” program, the innovative new ventures must comply with the formal eligibility requirements and provide the mandatory information in the application (see appendix 3). The number of applications differs by occasion, the most recent call of applications (in relation to this study’s completion), “Innovative start-ups step 1 - 2021 spring”, received 930 applications and accepted 168 of these. This is an acceptance rate of ca 18% and a total of 50 million SEK in subsidies.

The selection process in “Innovative start-ups - step 1” is initiated when Vinnova opens their call for applications and starts receiving applications from the innovative new ventures. To uphold a standardised quality of the assessment, Vinnova has developed four key pillars for the external assessors to relate to, and focus on the new venture’s relevance, potential, implementation, and team. The program excludes any interaction with the entrepreneurs and uses temporary external assessors together with internal program experts, acting as coordinators for the selection process. The external assessors are asked to only evaluate what is said in the application and minimise the use of external sources for additional information about the innovative new ventures. The assessment group consists of external assessors that are delegated applications related to their expertise and competencies. Each application is evaluated by at least three assessors that discuss their assessment before taking a decision.

4.2 Assessment of the applicants

Although the formal four key pillars highlighted in the previous section provided guidance for the interviewees, empirics showed that five other aspects of the assessment were commonly highlighted. These deviated slightly from the articulated criteria and were about the entrepreneurs' backgrounds & why, the difficulty assessing the entrepreneurs, the scalability of the solution, the applicant’s implementation plan and the applicant’s ability to solve global problems.

4.2.1 Entrepreneurs’ background & why

For almost all the interviewees, the entrepreneurs were central to the assessment of the applicants as they were such an important part of the business at this early stage:

"At this stage, you are not doing business with companies, you are doing business with people which is why the people are central to the assessment." (Interviewee 15)

The most frequently mentioned aspect highlighted by the interviewees when assessing the entrepreneurs was the importance of a broad background with complementary skills:

"I'm looking for a broad background with different complementary skills amongst the entrepreneurs." (Interviewee 3)

"To be completely honest, four recently graduated dudes from Stockholm School of Economics can write a great application, but they probably don't know anything.... It

becomes four similar brains that think alike and I am looking for four people that think differently.” (Interviewee 3)

Many interviewees specifically highlighted the entrepreneur’s professional background as an important aspect when assessing how they complement each other. The professional background was also often considered to be heavily linked to the entrepreneurs’ ability to execute the business idea:

“If you have done something similar previously or delivered something similar previously, then this shows that you are able to execute things.” (Interviewee 5)

“Team is a parameter that is closely connected to implementation and their ability to build great stuff. You look at who the entrepreneurs are and what they have done professionally before.” (Interviewee 9)

In some cases, especially if the applicants’ solution was of a technical character that required specific prior knowledge, the interviewees underlined the importance to have specific skills within the field:

“...and if they are then going to build a wind turbine, then it is of course very important that you have skills in the field and not just a part time hobby.” (Interviewee 10)

The interviewees also saw some value in the entrepreneur’s previous academic background. However few interviewees highlighted it as important as the entrepreneurs’ professional background:

“Education is of course not unimportant but way less important than other experiences. Generally, it is more important with engineering experience than an engineering degree.” (Interviewee 18)

One interviewee highlighted that even though the applicants did not have the relevant education for the solution, the skills from education could be quite easily learned along the way:

“When assessing a company, I start by looking at the idea. Then I look at the entrepreneurs to understand if they are capable of executing this idea. In doing so I look to their background and not only at their education, but also more to their previous experience. Sometimes if you lack the right education, you can quite easily educate yourself on these skills.” (Interviewee 13)

Some of the interviewees also highlighted the importance for the applicants to have the right dedication to succeed with their business. In identifying the applicant's dedication, the interviewees were looking for the applicants ‘why’:

“One common reason for the start-up to fail that often happens is that somebody loses interest along the way. It can be because of other previous commitments or that one of the stars of the team receives another offer or similar.” (Interviewee 19)

“It is important to dig deeper, what are the passions? Why are you doing this, why do you want this - what is your why?” (Interviewee 5)

4.2.2 Difficulties assessing the entrepreneurs

Several interviewees highlighted difficulties assessing the entrepreneurs due to not having the ability to meet them and only being able to assess them on paper. Some suggested that not having the ability to meet the entrepreneurs made assessing certain characteristics difficult such as silent knowledge, and that they would personally not finance a company with their own money without meeting the entrepreneurs:

“The assessment of the entrepreneurs is the most difficult one.” (Interviewee 11)

“The entrepreneurs are the most difficult to evaluate on paper. This is as you don’t get the opportunity to pick up any of the silent knowledge and I think this is a very important part to understand how good the entrepreneurs are.” (Interviewee 10)

“I would never invest in an innovative new venture with my personal money, without meeting the entrepreneurs.” (Interviewee 3)

The interviewees also highlighted that by meeting the entrepreneurs it would be easier for the applicants to build trust and reach a deeper understanding about the applicant’s motivations:

“So, what would be the difference in meeting the entrepreneurs? Well, it would be that they could build trust that they would succeed with this company and that they would make something great with the money they are getting and do it for the right reasons.” (Interviewee 15)

“If I had the opportunity to meet the entrepreneurs then you would get another dimension and understanding of the entrepreneurs and their motivations.” (Interviewee 15)

One way to mitigate the difficulties of evaluating the entrepreneurs according to the interviewees, was by having a famous person/advisor amongst the entrepreneurs:

“The only thing that makes me consider a higher score for the entrepreneurs is if they have managed to get onboard some famous person as some kind of an advisor.” (Interviewee 11)

4.2.3 A scalable, innovative solution with verified users and market potential

When evaluating the applicants’ solution(s) the interviewees highlighted the importance of presenting a solution that could scale in a large market. The interviewees further suggested that it was common with applicants having solutions that only solved a minor problem in a small market:

“Is it possible to scale the solution globally? Is it possible to further develop the solution?” (Interviewee 16)

“Sometimes I see applications that are fantastic, but they are solving a very minimal problem. The market potential is between 10-20 million SEK per year and there are many great companies that succeed with such a small market. However, in the end this is not what will give Sweden export earnings.” (Interviewee 5)

The interviewees further stressed the importance for the solution to be innovative and unique when making their assessment. The reason for this, was because of the purpose of the subsidy program:

“There are few business applications that are as prone to change as developing new solutions.” (Interviewee 4)

“State of the art - how unique is it? It should really be innovative when it comes to Vinnova. It must be room for innovative progress.” (Interviewee 6)

Another aspect that was often highlighted by the interviewees was the importance for the solution to have some sort of third-party verification. It could either be some initial customers, partnerships, letters of intents or research papers highlighting the need for the solution. This was useful to the interviewees as it verified the claims made by the entrepreneurs:

“It is easy to write that we have extensive client relationships with all of these great companies, and we have connections to these... but since it is so easy to lie or exaggerate all of this stuff, then stuff with substance like a name of a person at the company or a letter of intent carries much more value.” (Interviewee 12)

“The verifying can be shown through referencing research papers highlighting the issue or by interviewing other people.” (Interviewee 10)

“If they have a customer with a serious reference then this builds a lot of credibility for the applicant. Paying customers is a verification that this solution could actually succeed.” (Interviewee 15)

Some of the interviewees suggested that having customers or similar was a great way for the applicants to distinguish themselves from the rest of the applications:

“Since we receive so many applications being in different phases I would say the best way to get noticed is to have a customer onboard, because then I know that this company has something that works.” (Interviewee 12)

4.2.4 Implementation plan and costs

When evaluating the applicants' implementation plans, the interviewees paid much focus to the implementation of the project, its cost and the entrepreneurs' understanding of these elements:

“Have they described in an understandable way their implementation plan, often linked to their finances, is it realistic? Are the costs reasonable? I have to see that they truly understand how to handle this project.” (Interviewee 15)

The interviewees also frequently mentioned the difficulty to assess the costs of projects in early stages and especially if it was outside of their own expertise:

“There are some things that I have no clue about, like various costs. For example, what would a prototype of a new horseshoe cost? What is necessary to account for to succeed in that case? It is very difficult to assess.” (Interviewee 4)

“Innovative start-ups are difficult as one of the things we have to assess is whether start-ups will survive their project period. And that is extremely difficult. We look thoroughly at whether they have other financing and what they should do to cover these costs.” (Interviewee 22)

4.2.5 Solving global challenges with risky ideas and diverse teams

The interviewees frequently highlighted the importance for the applicants to address local and global challenges in their assessments. When assessing impact, the interviewees emphasised the importance for large scale impact, often talking about it as affecting the entire planet or humanity:

“Is this good for Sweden and should we use public funding to test this solution even though the chance to succeed is very small, but it is a very interesting solution? What if they succeed? Why should we ever say no to such solutions?” (Interviewee 11)

“When evaluating its relevance, I ask myself if humanity needs this? I look for trends and global challenges and that these are addressed in a credible manner. Additionally, I look at the impact as well, to what extent this would make a positive difference.” (Interviewee 15)

The interviewees also suggested that they were looking for applicants with high risks in their business models. Instead of seeing high risk as something problematic, the interviewees highlighted that this was one of the core purposes with the government subsidy program and that it was therefore important for the applicants to have risky business ideas:

“In my view, public funds should be considered risk money. It is money that nobody else can offer. It should be used for ideas that have a hard time finding financial resources but if they succeed they will scale to a huge company. If I see a company that anybody could finance, then we should not finance this company. This does not necessarily have to do with the prospects of the company to succeed, but rather about the risk of the company not finding any funding.” (Interviewee 11)

Another aspect that had to do with the purpose and requirements of the program was gender diversity amongst the entrepreneurs. This was an aspect where the interviewees had different opinions on how important it should be for the overall assessment of the applicants and that had been controversial in the past. Some of the interviewees was positive to the diversity criteria whilst other suggested that it led to missing out on great companies to the program:

“I have long been opposed to quotas, but I have realised that it is a necessary evil because it does not work otherwise, I have seen that there will be strained formulations, regarding gender equality, but it is needed to achieve change.” (Interviewee 13)

“Diversity always generates discussion. Here is an amazing idea, should they not receive any money because they don’t know any females? This is also perhaps wrong, but in some way the diversity criteria pushes the evaluation to this.” (Interviewee 3)

“I thought this with gender equality was difficult, I know that some assessors resigned because it was an unreasonable demand. Why do you only look at the company and not at the board or the ownership? It is a very influential criteria, in principle you

have no chance of receiving grants if you do not have it. Mixed feelings." (Interviewee 14)

4.3 Contextual factors influencing the assessment of the applicants

In addition to the aforementioned themes, the absence of interaction and application format led to some difficulties evaluating the applicants:

"Meeting the entrepreneurs would give a chance to filter these applications from set phrases they have thrown in trying to please us evaluators. By meeting them, it would become easier to filter what they actually want to do." (Interviewee 9)

"It is very hard to tell at this stage with the limited information available about them, who will make it." (Interviewee 10)

As a result of not having the ability to interact with the entrepreneurs as well as the format of the application, the interviewees suggested that other additional aspects influenced their evaluation. More specifically these additional aspects influencing their evaluation was the structure of the application and its trustworthiness.

4.3.1 Structured, precise and descriptive application

Across the interviewees good structure and clarity in the application was highlighted as one of the more influential factors in the assessment of the applicants. The interviewees highlighted that this was extra important due to the context of the assessment process, as the interviewees did not have opportunities to ask follow-up questions and clarifications by the entrepreneurs:

"There are so many pages to read and if you are reading a poor application with poor language that is completely impossible to understand, then I mean we are only humans, of course it will affect the evaluation." (Interviewee 21)

"If your application is specific and the language is good then of course it will reflect positively on the overall evaluation." (Interviewee 22)

"You can tell if this is a coherent application... The quality of the application is very important, and by that I don't necessarily only mean the terms you use, but what you are writing, how you are describing it and how you motivate why you should get this money." (Interviewee 6)

One interviewee expressed the importance of coherence in a more direct way:

"If you have written a 'shady' application and missed informing us that you are good, then you are toast!" (Interviewee 21)

Some of the interviewees noted that if the applicants had been in similar programs before, then they were better at writing their applications:

"There is a big difference between applications with experience in writing applications to similar programs and the ones without it. They know what to write and how to write it." (Interviewee 12)

Another aspect emphasised by the interviewees was the importance of the applications describing their future plans in an easy way to understand. Otherwise the interviewees had a hard time making a fair evaluation:

“If you are too vague or not distinct enough on what you are supposed to deliver, then it is very hard to evaluate the application. One example was in an area where I knew little but it was written in such a spot-on way that it was very easy to understand what they were supposed to deliver and how they would do so etc. It is not the amount of text you write but rather how you write it and how good you are at writing it.”

(Interviewee 13)

Even though most of the interviewees recognised the way the applicants expressed themselves to be affecting the evaluation, many argued that they were actively trying to look through poor language and misspellings to make a more fair evaluation. However, despite this awareness, most of the interviewees acknowledged that it would still have some effect on their evaluation and that they preferred an academic way of writing:

“It is like everything. It is easier to like it if it is well written. But in this program we are not looking for well written text, we are looking for them to prove something... I try to actively not care about how it is written but instead try to look at the contents of the application.” (Interviewee 12)

“You easily get influenced if they have used poor language. However, I get annoyed at myself for feeling so because I know there are a lot of cool ideas out there but they are bad at writing applications that typically require a very academic language that suits this context.” (Interviewee 17)

Some of the interviewees further noted that the way the applicants expressed themselves and the words they were using could tell a lot about their backgrounds. It seemed like applicants using better language than their background suggested, raised suspicion about the application:

“The quality of language is very important because it tells me if they have an academic background and it affects my perception of their trustworthiness.” (Interviewee 11)

“These guys are carpenters or similar and they have submitted a stellar application with academic language. This raises suspicions as you then think that somebody from the outside has helped them.” (Interviewee 4)

Some of the interviewees also highlighted that the wording used by the applicants could implicate how well the applicants knew their business, affecting the evaluation:

“There are definitely things that you can tell by looking at the quality of the language. If you are fuzzy and not straight to the point, then you probably don’t know your market etc. If you know your market and product then you can describe it in a clear way that is straight to the point.” (Interviewee 22)

4.3.2 Trustworthiness and awareness in the application

For most of the interviewees, trustworthiness and awareness shown by the applicants had a big influence on the overall assessment. The interviewees suggested that it reflected positively on the evaluation of applicants when they showed trustworthiness and humbleness in their applications and the contrary with applicants that were not trustworthy or over exaggerating in their applications:

“It is common that people exaggerate about the progress and build pipe dreams that are pretty easy to see through. Sometimes they also lack the awareness of what will be needed going forward and the lack of understanding of how hard it will be is permeating the application. We are not expecting you to be perfect at this stage so it is ok to highlight that you also are facing some challenges, this is what government subsidies are for.” (Interviewee 4)

“Sometimes you read entrepreneurs saying stuff like ‘If I only get a couple of millions now then I will take 90% of the world market and it is obvious that I will succeed and I will have a revenue of ten billions’. Then I go, come on, chill. Please start by sending your first invoice. This is pretty easy to see in an application.” (Interviewee 9)

Some of the interviewees acknowledged that being overly optimistic was part of being a great entrepreneur but that there needed to be balance:

“In entrepreneurship you should be enthusiastic and engaged and sometimes believe a little bit more than is probably true. When reading the application you need to understand if they are dreaming a little too big or if they can deliver what they have promised.” (Interviewee 7)

Overall, it seemed like the majority of the interviewees were of the opinion that the applicants needed to show awareness or at least acknowledge their frailty and that they were not bulletproof at this early stage:

“If you are applying for government subsidies at this stage and you are saying that you got everything under control, you are bulletproof, then you are lying to yourself and us.” (Interviewee 12)

5. Analysis

The following chapter will apply the analytical framework to understand *how* and *which* signals influence the evaluation of key criteria in the government subsidy selection process. The first part, section (5.1), analyses the applicability of key criteria used in VC/BA including societal impact, in the context of government subsidy selection process. The second section (5.2), analyses how and which signals influenced the evaluation of key criteria. Finally, in section (5.3) a conclusion is presented including an updated version of the analytical framework to illustrate the empirical findings.

5.1 Evaluation criteria

In this study, the authors have suggested that despite external equity funding and government subsidy funding being two fundamentally different sources of financing for new ventures, there are reasons to believe that key criteria in VC/BA literature, including societal impact, is applicable in the government subsidy selection process. This was suggested as both VC/BA and government subsidy programs finance similar types of innovative new ventures in processes characterised by a high degree of uncertainty and information asymmetry. The empirical findings of this study suggest that this assumption for the most parts is correct. When evaluating innovative new ventures, the external assessors of government subsidies were using the key criteria of *team*, *product*, *market*, *financial considerations*, and *societal impact* to different extents in their evaluations.

5.1.1 Team

Consistent with literature (e.g., MacMillan et al., 1985; Muzyka, 1996; Mason & Stark, 2004), the entrepreneurs, or team, was frequently described as central by the external assessors of government subsidies when evaluating the innovative new ventures. Much emphasis was put on criteria concerning the team's background and complementary skills as it was believed to be a good indicator of the team's ability to succeed with the innovative new venture. The focus on teams' background and complementary skills is also common in previous research on team criteria in VC/BA (eg. MacMillan, 1985; Muzyka, 1996; Gompers et al., 2020). However, differing from previous research, the external assessors of government put limited focus on the team's personality and leadership skills differing from literature (e.g., Tyebjee & Bruno 1984). This is not surprising as the context of the evaluation process of not having the ability to interact with the entrepreneurs, led to difficulties for the external assessors of government subsidies to evaluate 'intrinsic' aspects of the entrepreneurs, such as personality and passion. This could possibly explain why criteria concerning personality and leadership were not highlighted as important by the external assessors of government subsidies.

5.1.2 Product & market

The criteria used by the external assessors of government subsidies to evaluate the solution, or product and market was in general similar to what has been highlighted in previous studies in VC/BA research (e.g., Tyebjee & Bruno 1984; Bachher & Guild, 1996). The external assessors of government subsidies emphasised the importance of scalability and innovation when evaluating the product and market. The heavy focus on scalability and innovation criteria (e.g., Tyebjee & Bruno 1984; Bachher & Guild, 1996) corresponds well with the purpose of government subsidy programs which scholars suggest are to contribute to economic growth and more innovation to reach the market (Söderblom et al, 2015). However, other aspects commonly highlighted in VC/BA literature, such as competition (e.g., Tyebjee & Bruno, 1984; Mason & Stark, 2004) were not found in the empirical data. This is interesting as it contrasts the evaluation process in VC/BA where investors consider the competition to be important when evaluating market and product criteria (e.g., Tyebjee & Bruno, 1984; Mason & Stark, 2004).

5.1.3 Financial considerations

The evaluation of financial considerations differed in some aspects compared to what is suggested in VC/BA literature due to the difference in investment goals between external equity financing and government subsidy financing. The external assessors of government subsidies

ignored aspects concerning various exit criteria such as the ability to cash out and the financial return of the investment. This could be as the overarching goals of government subsidy programs is not financial returns, but rather promoting economic and sustainable growth to society, which makes exit criteria in VC/BA literature less relevant. This perception supports previous literature on investment goals of government subsidies (e.g., Lerner, 2013). Instead, the external assessors of government subsidies focused on the financial information about the innovative new venture such as the how realistic the forecasts were and the scalability of the business model, supporting previous research on financial considerations criteria in VC/BA (e.g., Maxwell et al., 2011)

5.1.4 Societal impact

Societal impact was often highlighted as a central criteria in the external assessors of government subsidies evaluation. In the evaluation of societal impact, the possibility and potential scale of impact as well as authenticity was especially important, in line with previous research (Block et al., 2021; Grossman et al., 2013). The external assessors of government subsidies also emphasised the importance for the innovative new ventures to be 'suitable for public money'. By this, the external assessors of government subsidies referred to innovative new ventures that had been ignored by the private capital market, but in need of money to support their growth, which is in line with the reasoning of government subsidies' role in market intervention (Lerner, 2013). However, this reasoning of societal impact criteria significantly differs from impact investing literature as impact investors do not necessarily highlight risk as something positive about the prospective new ventures (e.g., Block et al., 2021). Another aspect of societal impact that differs from VC/BA literature was the importance of diversity when evaluating the team. Many external assessors of government subsidies highlighted diversity as an important criteria since the program uses public funds and suggested that it should therefore reflect political values of society. However, the external assessors of government subsidies differed in their view of how important diversity should be to the overall evaluation of the innovative new venture. This is interesting, as the differing views between the external assessors of government subsidies regarding the importance of diversity on the overall evaluation, reflects the debate in public policy literature regarding political values influencing the primary goal of the market intervention (Lerner, 2013).

Altogether, the empirical data supports the applicability of the key criteria used in VC/BA including societal impact in the government subsidy process with some exceptions. These exceptions mainly concerned criteria regarding exit possibilities, leadership, personality, competition as well as some additional criteria used in the government subsidy selection process for societal impact concerning risk and diversity. However, the empirical data further suggest that the external assessors of government subsidies had some difficulties evaluating the innovative new ventures due to limited amount of information and contextual factors. Therefore, to fully understand the government subsidy selection process, it becomes essential to explain *how* and *which* signals influenced the evaluation of key criteria.

5.2 Signals influence on the evaluation of key criteria

The external assessors of government subsidies evaluation of the innovative new ventures were deeply affected by the context of the selection process. Not having the ability to interact with the entrepreneurs and the format of the application affected what they focused on in their evaluation. More specifically, the contextual factors of the selection process influenced *how*

and *which* signals the external assessors of government subsidies used when evaluating key criteria.

5.2.1 Quality signals

To reduce uncertainties and obtain more information about the innovative new ventures, the external assessors of government subsidies looked for underlying qualities about the businesses and teams that could contribute to the evaluation of key criteria. These aspects is what scholars refer to as quality signals (Connelly et al., 2011), and as multiple studies have shown, is a common way for financiers to uncover attributes of new ventures and teams to aid their evaluation of new ventures (Ahlers et al., 2015; Courtney et al., 2017; Steigenberger & Wilhelm, 2018; Ko & McKelvie, 2018).

5.2.1.1 Human capital signals

The difficulties evaluating the innovative new ventures was especially the case for the team criteria. This is not surprising as interacting with the entrepreneurs is often seen as central in the evaluation of a team (Fried & Hisrich, 1994; Balachandra, 2020). Despite the difficulties evaluating the team and absence of interaction, human capital signals were still central to the evaluation of the innovative new ventures and their teams. The human capital signal of particular interest for the external assessors of government subsidies was the entrepreneurs' previous experience/background. The entrepreneurs' previous experience signaled several qualities that influenced the evaluation of the team criteria. By looking at the entrepreneur's previous experiences, the external assessors of government subsidies could tell more about the entrepreneurs' capabilities in terms of execution, what they could be expected to deliver and how well they complemented each other. Naturally this influenced the evaluation of criteria such as the team's capacity, competence balance and previous experience (e.g., Bachher & Guild, 1996; Mason & Stark, 2004). Furthermore, signals about previous experiences also influenced the evaluation of product criteria such as the quality of the product, which seemed especially important if the product was of technical character (e.g., Tyebjee & Bruno 1984). The signals of previous experience serving as an indicator of future success has been highlighted by several scholars in previous research and is supported in the empirical data (Stuart & Abetti, 1990; Kotha & George, 2012; Ko & McKelvie, 2018).

In contrast to the entrepreneurs' previous experience, their level of *education* did not have a major influence on the evaluation team criteria, contradicting previous research highlighting the level of education as an important quality signal (Ko & McKelvie, 2018). Instead, the external assessors of government subsidies highlighted the specific skills that the education signaled as more relevant to the evaluation and further suggested that previous experience was much more important than education in the evaluation of key criteria. However, as later highlighted in section (5.2) the education of the entrepreneurs had a strong influence on language signals influencing the evaluation of key criteria.

The *passion* of the entrepreneurs signaled abilities of motivation and authenticity influencing the evaluation of key criteria. More specifically, the entrepreneurs showing their deeper motivations behind why they started their business influenced the criteria of societal impact. The influence of authenticity on societal impact corresponds well with previous research suggesting it to be a central criteria when evaluating societal impact (Block et al., 2021). However, the external assessors of government subsidies suggested that evaluating passion was difficult without interacting with the team. This is not surprising as previous research has shown

that much of the signals of passion comes through either verbal or body language communication (Chen et al., 2009, Cardon et al., 2009).

The difficulty evaluating passion as a consequence of not having the ability to interact with the entrepreneurs is interesting, as several external assessors of government subsidies expressed similar concerns regarding getting a deeper understanding of the entrepreneurs. In contrast, these difficulties were not highlighted for qualities such as previous experience or education of the entrepreneurs. The difference in difficulty of evaluating passion and experience can perhaps be explained by the ease of which qualities such as experience as well as education could be conveyed compared to passion, in the context of the selection process (written in the application). This could be an explaining factor for why quality signals of experience were so influential in the evaluation of key criteria.

5.2.1.2 Endorsement signals

As the external assessors of government subsidies were asked to not look for information about the innovative new ventures other than what was stated in the application, they had limited options to verify claims made by the entrepreneurs. The restricted access to information significantly differs from the evaluation process of VC/BA investors where a thorough due diligence process is conducted before making an investment (De Cleyn & Braet, 2007). This indicates that the external assessors of government subsidies had to trust claims made by the entrepreneurs even more so than what has been highlighted in previous studies in early-stage investing (Maxwell et al., 2011; Colombo, 2021). Consequently, for claims made about the business or the team that had major influence on the evaluation of key criteria and were difficult to confirm, the external assessors of government subsidies were looking for ways to verify them in the application.

The empirical data suggests that one way for the external assessors of government subsidies to verify such claims, was by looking for signals of *endorsement*. As highlighted in literature, signals of endorsement usually come from third-party affiliations of the new ventures and alleviates some of the information asymmetry (Stuart et al., 1999). Particularly difficult for the external assessors of government subsidies to verify, were claims made about the product and market demand. Therefore, the innovative new ventures that conveyed that they had existing customers or concrete partnerships signaled endorsements that had a positive influence on the evaluation of product and market criteria. The empirical data suggests that this was a way for the external assessors of government subsidies to distinguish between high quality and low quality innovative new ventures and a way for the innovative new ventures to establish legitimacy. This supports previous research on the effects of endorsement signals on investors evaluation of new ventures (Venkataraman & Van de Ven, 1998; Bergh et al., 2014). The external assessors of government subsidies further highlighted how having a famous person on the team could sometimes mitigate the difficulty assessing the team and positively influence the evaluation of team criteria.

5.2.2 Signal strength

Not having the ability to interact with the entrepreneurs and the format of the application, affected the importance for how the innovative new ventures conveyed their information and how well it corresponded with their underlying qualities. The better the innovative new ventures were at expressing themselves in the application and how reliable they were, influenced the

strength of the signals and evaluation of key criteria. This corresponds well with what scholars in literature refer to as *signal strength* Connelly et al. (2011).

5.2.2.1 Language

As scholars have shown in previous research on crowdfunding performance, a context that shares some similarities with the application format, language can have a big influence on the strength of signals (Colombo, 2021). The empirical data suggest that innovative new ventures with coherent applications and good language positively influenced signals and the evaluation of key criteria. This is in line with previous research suggesting that good storytelling and narrative are two important aspects influencing prospective investors' evaluation of new ventures (Aldrich, 1999; Martens et al., 2007).

However, the influence of language on signal strength and key criteria seems to have been notably stronger in a negative way for innovative new ventures using poor language with an incoherent structure. Innovative new ventures using a fuzzy, or imprecise language negatively influenced signals and key criteria, suggesting that they did not have sufficient knowledge regarding the product specifics or market which negatively influenced the evaluation of product and market criteria. Furthermore, the quality of language also influenced signals about the trustworthiness of the entrepreneurs, where the external assessors of government subsidies expected the quality of language to correspond to the entrepreneurs academic and professional backgrounds. Therefore, entrepreneurs without an academic background but still using academic language negatively influenced signals of trustworthiness about the entrepreneurs. The empirical data further suggest that the external assessors of government subsidies were aware of the influence of language on their evaluation and that they actively tried to reduce its influence. However, most acknowledged that it still had an influence on the evaluation, and some wished to interact with the entrepreneurs to further reduce the importance of language in their evaluation.

The negative influence of poor language on signals and evaluation of key criteria is interesting, as it suggests that the context of not interacting with the entrepreneurs had a major impact on the importance of language in the selection process. Therefore, as the external assessors of government subsidies suggested, the context of the selection process favoured entrepreneurs that knew how to write good applications that suited the format. Often, these entrepreneurs had been partaking in a similar program previously or had an academic background. This supports previous research suggesting that entrepreneurs with previous relevant experience better understand what financiers are looking for when evaluating a new venture and can therefore tailor their message to suit the financiers' needs (Colombo, 2021). However, while the context of the selection process favoured entrepreneurs that knew how to write their applications, the influence on signals and evaluation of key criteria seems to have been notably stronger when negative, for the entrepreneurs using poor language in the applications.

The apparent difference in strength of influence between good language and poor language is interesting for two reasons. First, it suggests that language influence on signal strength is greater when the signal is perceived in a negative way rather than in a positive way. Second, an argument can then be made that the context of the selection process significantly disadvantaged entrepreneurs without an understanding of how to write an application suiting the format of the selection process.

5.2.2.2 Reliability

Since the context of the selection process restricted interaction with the entrepreneurs and the fact that the external assessors of government subsidies could not verify some of their claims, signals of reliability had a major influence on the strength of signals and the evaluation of key criteria. Similar to the influence of language but not to the same extent, poor reliability had a stronger influence than good reliability on signals and the evaluation of key criteria. As highlighted by the external assessors of government subsidies, the innovative new ventures that applied were all most likely to be very fragile due to the early stage of the business. Therefore, when innovative new ventures exaggerated certain aspects of their business or were perceived as dishonest in the application, it signaled poor reliability influencing signals and the evaluation of key criteria negatively. This phenomenon was commonly recognized when the innovative new ventures described their future plans in overly ambitious ways or did not recognise the potential risks with their business influencing the evaluation of criteria financial and product growth potential. The negative influence of exaggeration and dishonesty on signals has also been found in previous research (Connelly et al., 2011).

The empirical data suggests that entrepreneurs who did the opposite of exaggerating and being dishonest such as showing awareness of the frailty and uncertainties of their business, were signaling reliability which positively influenced the evaluation of key criteria. This supports previous research suggesting that showing vulnerability and self-disclosing information has positive influence on trust building signals (Maxwell & Lévesque, 2014). Entrepreneurs managing to show reliability in the application process made the innovative new ventures more attractive to the external assessors of government subsidies, supporting previous research suggesting that reliability increases the attractiveness of new ventures to prospective investors (Colombo, 2021; Janney & Folta, 2003).

5.3 Conclusion

This thesis aimed to add to the understanding of the government subsidy selection process. To do so, the study set out to answer the following research question:

How and which signals influence external assessors of government subsidies in the selection process when evaluating key criteria?

The empirical data suggests that key criteria used in VC/BA investing are applicable for the government subsidy selection process with some exceptions mainly concerning criteria regarding financial considerations and societal impact. Furthermore, when evaluating innovative new ventures, the external assessors of government subsidies look for quality signals about human capital and endorsements. In particular, human capital signals about the entrepreneurs' previous experience have a major influence on the evaluation of the team criteria. Further, signals of endorsement are especially influential on the evaluation of product and market criteria, as entrepreneurs often make claims about these aspects of the business that are difficult for the external assessors of government subsidies to verify.

The evaluation of key criteria and signals are significantly influenced by the language used by the entrepreneurs and their perceived reliability in the application. The language used by the entrepreneurs is especially influential on key criteria such as product and market. The influence of language on the evaluation of key criteria is notably stronger for entrepreneurs using poor language compared to entrepreneurs using good language, presumably disadvantageous to entrepreneurs without an understanding of how to write an application suiting the format.

Furthermore, signals of reliability have a strong influence on signals and evaluation of key criteria. Similar to the influence of language but not to the same extent, poor reliability has a stronger influence than good reliability on signals and the evaluation of key criteria.

The context of the selection processes has a big effect on how and which signals influence the evaluation of key criteria. First, the external assessors of government subsidies not interacting with the entrepreneurs leads to difficulties getting a deeper understanding of the entrepreneurs, which most likely can explain part of the reason why experience is such a dominant quality signal compared to passion. Second, the inability to verify claims made by the entrepreneurs about the business that are influential on the evaluation of key criteria such as product and market, increases the importance of signals of endorsement and reliability. Lastly, the format of the application significantly increases the influence of the language used by the entrepreneurs on signals and the evaluation of key criteria.

For the purpose of integrating the empirical findings with the analytical framework, an updated version of the analytical framework is presented in figure 5, showing how and which signals influence the evaluation of key criteria. Table 2 provides a more detailed overview of the suggested strength of the influence on signals and the evaluation of key criteria.

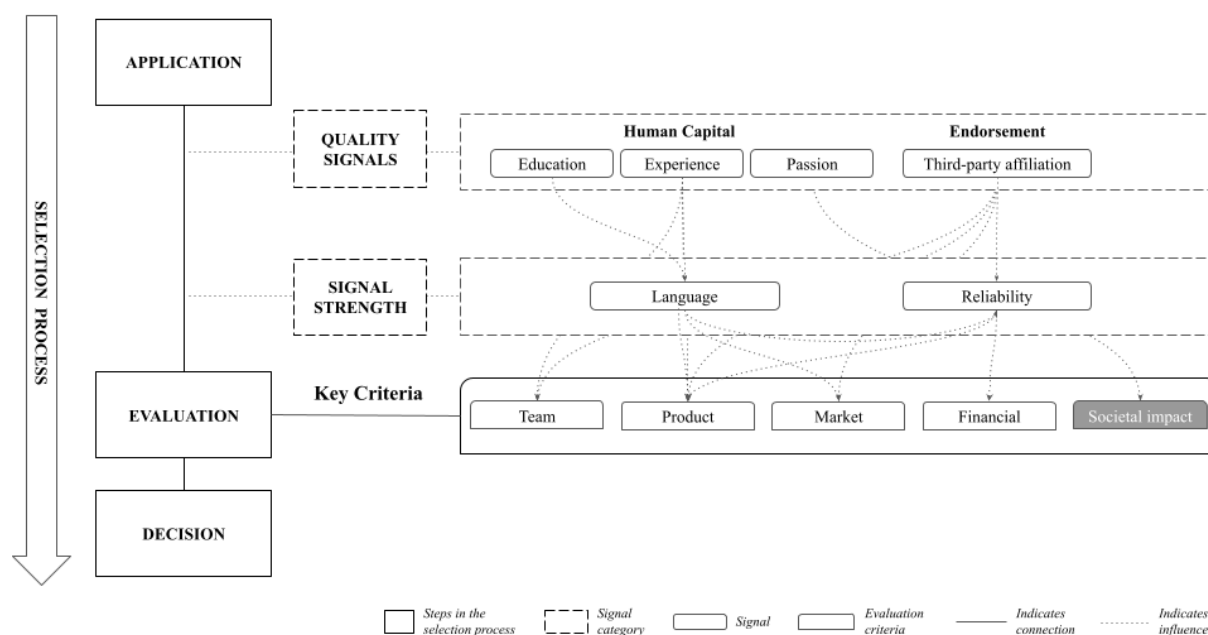


Figure 5. An updated version of the analytical framework previously shown in section (2.8). Note that societal impact is highlighted in grey to distinguish it from the most common criteria used in VC/BA.

Categories	Signal	Evaluation Influence	Key Criteria & Signals
Quality Signals (Human Capital)	Experience	Influential	Team
		Moderately influential	Product
		Influential	Language
	Education	Influential	Language
	Passion	Moderately influential	Societal impact
Quality Signals (Endorsement)	Third-party affiliations	Influential	Reliability
		Influential	Product
		Influential	Market
		Moderately influential	Team
Signal Strength	Language	Influential	Product
		Influential	Market
		Influential	Reliability
	Reliability	Influential	Financial (considerations)
		Influential	Product

Table 2. The influence of signals on key criteria and signals including the suggested strength of influence.

6. Discussion

In the final chapter of this study, the theoretical contributions are presented in section (6.1) followed by practical implications in section (6.2). Thereafter, the limitations of the study are presented in section (6.3), followed by suggestions for future research in section (6.4).

6.1 Theoretical contributions

In this study, the authors combined the three research streams of sources of financing for start-ups with a focus on government subsidies, the VC/BA selection process and signaling theory, to address the research gap of the government subsidy selection process. Having done so, this study addresses this research gap by opening the black box of the government subsidy selection process and makes several contributions to theory.

First, this study contributes to the understanding of the applicability and the importance of different key criteria used in VC/BA including societal impact for the government subsidy selection process.

Second, this study adds to the stream of research on signaling theory in early-stage financing with a complementary study in the context of a government subsidy selection process. By doing so, the study contributes to the understanding of how quality signals about human capital and endorsement influence the evaluation of key criteria in a government subsidy selection process. The study further contributes to the understanding of how reliability signals and contextual signals such as language, influence signals and the evaluation of key criteria in a government subsidy selection process.

Finally, the study also contributes to the understanding of how different contextual factors, such as not interacting with entrepreneurs and limited options to gather more information about the innovative new venture, influence how and which signals become more/less important for external assessors of government subsidies in a government subsidy selection process

6.2 Practical implications

This study offers the opportunity for public policy makers to understand more about the government subsidy selection process as well as what works well and what could possibly be improved.

A first area of possible improvement could be to make it easier for the external assessors of government subsidies to evaluate the teams by offering interaction with the entrepreneurs. This would be done to help the external assessors of government subsidies to get a deeper understanding for the entrepreneurs. A second area of improvement would be to offer ways for the external assessors of government subsidies to verify claims made by the entrepreneurs that were hard to verify by just reading the application. This would be especially useful for claims about forecasts or market demand. A third area of improvement would be to find ways to mitigate the influence of language in the evaluation of the innovative new venture as it seemingly sometimes leads to a biased evaluation.

Finally, this study also increases the transparency of the government subsidy selection process and can serve as guidance for future applicants of government subsidy programs. The findings of this study presented in figure 5 and table 2 can help future applicants in what to stress in their application to better suit what external assessors of government subsidies are looking for.

6.3 Limitations of the study

While offering several theoretical and practical contributions, this thesis is also subject to limitations. As this study follows a constructivist and interpretivist approach, it is dependent on the author's ability to interpret and present empirical data in a fair way. Further, it should be noted that the single case study design of 22 interviewees from a specific government subsidy program is subjective to their perspectives, which might not be the reality of other external assessors of government subsidy programs and thus negatively impacting the transferability of this study. Additionally, due to the authors' resource and time constraints the study could only evaluate the government subsidy selection process over a limited period.

Furthermore, this study mainly focused on the signals and the receivers (external assessors of government subsidies) but did not consider the perspective of the signalers (the innovative new ventures), limiting the full understanding of the signaling relationship illustrated in figure 1. Finally, as this study investigated the receivers' perception of signals, it did not intend to examine the impact of the receivers' background, like professional experience or education, had on the evaluation. Altogether, it should be noted that the study's findings should not be interpreted as exhaustive.

6.4 Future research

To test the findings of this study, the authors encourage similar in-depth research in other government subsidy programs as well as conducting quantitative studies to provide more generalizable conclusions concerning the influence of signals on the evaluation of key criteria.

Furthermore, the theoretical and practical findings of this study open several interesting areas of future research.

One area of interest would be to further study how the influence of signal strength seems to be stronger when negatively influencing the evaluation compared to positively. This would be interesting to test in a quantitative study to reach more generalizable conclusions but also in other selection processes to compare similarities and differences in how signal strength influences the evaluation. Another area of interest would be to further analyse how the contextual factors of the selection process, such as no interaction with the entrepreneurs or the limited access to information affect signals in other types of financing decision processes. A final area of interest would be to explore the government subsidy selection process from the perspective of the innovative new ventures and how they deliberately or by mistake use signals to influence the evaluation.

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8. Appendices

8.1 Appendix 1: Interview sample

Interviewee	Type of interview	Gender	Time (min)	Date of interview
Interviewee 1	Background	Female	39	2022-02-16
Interviewee 2	Background	Female	59	2022-02-17
Interviewee 3	Main	Female	29	2022-02-21
Interviewee 4	Main	Female	30	2022-03-10
Interviewee 5	Main	Male	37	2022-03-10
Interviewee 6	Main	Female	38	2022-03-11
Interviewee 7	Main	Female	24	2022-03-11
Interviewee 8	Main	Female	28	2022-03-15
Interviewee 9	Main	Male	45	2022-03-21
Interviewee 10	Main	Female	48	2022-03-30
Interviewee 11	Main	Male	35	2022-04-01
Interviewee 12	Main	Male	37	2022-04-04
Interviewee 13	Main	Female	23	2022-04-07
Interviewee 14	Main	Male	23	2022-04-08
Interviewee 15	Main	Male	40	2022-04-08
Interviewee 16	Main	Female	30	2022-04-08
Interviewee 17	Main	Female	23	2022-04-12
Interviewee 18	Main	Male	28	2022-04-13
Interviewee 19	Main	Male	28	2022-04-13
Interviewee 20	Main	Female	38	2022-04-14
Interviewee 21	Main	Female	24	2022-04-19
Interviewee 22	Main	Female	24	2022-04-19

8.2 Appendix 2: Interview Guide for Interviews

Topic	Questions
<i>Introduction</i>	<ul style="list-style-type: none">• Short introduction of the authors and presentation of the subject
<i>Ethics</i>	<ul style="list-style-type: none">• The participation in this study is voluntary.• You as a participant will be anonymized in our study.• You may interrupt and/or leave the interview at any time and without disclosing the cause to us.• We would like to ask whether we have permission to record and transcribe the interview?• Before we start, do you have any questions to us?
<i>Background information</i>	<ul style="list-style-type: none">• Could you describe yourself a little bit? As well as brief us about your professional background?• Could you elaborate on your experience as external assessor at Vinnova's subsidy program "Innovative new ventures step 1"?
<i>Assessment of the subsidy program Vinnova criteria; team</i>	<ul style="list-style-type: none">• Based on the application form by the entrepreneurs, can you describe your assessment of the innovative new ventures' team?<ul style="list-style-type: none">◦ What aspects has most impact on your assessment?• Do you think your assessment of relevance would be different by meeting the entrepreneurs? If so, how?
<i>Assessment of the subsidy program Vinnova criteria; relevance</i>	<ul style="list-style-type: none">• Based on the application form by the entrepreneurs, can you describe your assessment of the innovative new ventures' relevance?<ul style="list-style-type: none">◦ What aspects has most impact on your assessment?

*Assessment of the subsidy
program Vinnova criteria;
potential*

- Based on the application form by the entrepreneurs, can you describe your assessment of the innovative new ventures' potential?
 - What aspects has most impact on your assessment?

*Assessment of the subsidy
program Vinnova criteria;
implementation*

- Based on the application form by the entrepreneurs, can you describe your assessment of the innovative new ventures' implementation?
 - What aspects has most impact on your assessment?

Application format

- How does the application format affect your assessment?
- What do you think about the influence of language on your assessment?
- What do you think about the influence of reliability on your assessment?
- What are your thoughts on risk regarding the innovative new ventures?

Contextual factors

- How do you think your overall assessment of an innovative new venture is affected by not meeting the team?
 - Are there any elements that become important in your assessment?

*Other questions we might
have missed*

- Are there any other aspects in regards of your innovative new venture assessment that we have missed?
 - Would you like to add anything else?

8.3 Appendix 3: Vinnova Application Guide

Application guide – step by step

1. Project information

In the first step, the applicant shall inform about the innovative new venture and present a summary of the project.

1. Projekttuppgifter

Är ansökan en fortsättning på tidigare projekt, ange diarienummer i fältet nedan.

0 / 20 tecken

1

Projekttitel *

Testprojekt

11 / 100 tecken

Projekttitel på engelska *

Test Projekt

11 / 100 tecken

Start av projekt för vilket bidrag sökes *

2017-11-30

Slut av projekt för vilket bidrag sökes *

2018-11-30

2

Svensk projektsammanfattning *

>Lorem ipsum dolor sit amet, consectetur adipiscing elit. Sed condimentum nisl placerat, aliquet ante ac, porttitor est. Proin mollis, quam non tincidunt ullamcorper, neque turpis dignissim urna, in varius tellus lacus porta lacus. Ut elementum tempor est, vel vestibulum nibh efficitur quis. Nam sit amet ex leo. Quisque scelerisque diam in augue viverra, sit amet gravida nisl dignissim. Nam vitae diam a mi aliquam accumsan vel at dolor. Suspendisse ut velit in ipsum efficitur laoreet. Vivamus ac lacus at neque facilisis aliquam. Aenean et posuere velit. Aenean laoreet imperdiet quam. Aliquam commodo mauris elit, sit amet fringilla erat ultricies eu. Morbi fermentum varius venenatis.

587 / 1500 tecken

Engelsk projektsammanfattning *

>Lorem ipsum dolor sit amet, consectetur adipiscing elit. Sed condimentum nisl placerat, aliquet ante ac, porttitor est. Proin mollis, quam non tincidunt ullamcorper, neque turpis dignissim urna, in varius tellus lacus porta lacus. Ut elementum tempor est, vel vestibulum nibh efficitur quis. Nam sit amet ex leo. Quisque scelerisque diam in augue viverra, sit amet gravida nisl dignissim. Nam vitae diam a mi aliquam accumsan vel at dolor. Suspendisse ut velit in ipsum efficitur laoreet. Vivamus ac lacus at neque facilisis aliquam. Aenean et posuere velit. Aenean laoreet imperdiet quam. Aliquam commodo mauris elit, sit amet fringilla erat ultricies eu. Morbi fermentum varius venenatis.

587 / 1500 tecken

Mål för projektet *

>Lorem ipsum dolor sit amet, consectetur adipiscing elit. Sed condimentum nisl placerat, aliquet ante ac, porttitor est.

103 / 150 tecken

Sekretess

Finns uppgifter om affärs- och driftsförhållanden som skulle kunna leda till skada om de offentliggörs

☒ Ja

☐ Nej

6

2. Klassificering

56

2. Classification

In the second step, the applicant shall make a classification of the targeted market need, product market and research area by the innovative new venture. This information will be used for analysis, follow-up, and evaluation of government subsidies within research and development. The classification is a mandatory step in the application process, but it will not influence the assessment of the innovative new venture.

3. The organization

In the third step, the applicant shall register the legal name and head office of the innovative new venture.

Lägg till organisation/arbetsställe

Organisation 1	Arbetsställe 2
<input type="checkbox"/> Utländsk organisation	<input type="checkbox"/> Utländsk arbetsställe
Namn* Annika test 22 AB	Namn*
Organisationsnummer* 123456-0009	CFAR eller annat unikt identifikationsnummer i
Adress* Testvägen 2	Adress*
Postnummer* 123 45	Postnummer*
Postort* Testholmen	Postort*
Kommun* Alingsås x ▾	Kommun* Välj en kommun ▾
Län* Västra Götaland x ▾	Län* Välj ett län ▾
Telefonnummer 	Telefonnummer
Varför har du skapat en organisation?*	Varför har du skapat ett arbetsställe?*
Finns ej registrerad	

Spara Rensa Kopiera uppgifter till arbetsställe

4. Register the responsible person for the subsidy program process

In this step the applicant registers the responsible person for the application process

4. Koordinators firmatecknare/prefekt

Ange koordinators firmatecknare.

Hämta uppgifter från Min profil

Förnamn *

0 av 50 tecken

Efternamn *

0 av 50 tecken

E-post *

0 av 255 tecken

5. Register the project leader of the innovative new venture

In this step the applicant register the responsible project leader in the innovative new venture

5. Projektledare

Ange den person som den koordinerande projektparten (koordinatör) utsett till projektledare.

Hämta uppgifter från Min profil

Förnamn *

5 av 50 tecken

Efternamn *

8 av 50 tecken

E-post *

22 av 255 tecken

Mobilnummer *

12 av 255 tecken

Kön *

☐ Man ☒ Kvinna ☐ Annat

6. The budget of costs and other sources of financing

In the sixth step, the applicant shall inform about their total costs, the amount of subsidy applied for, other external financiers and the amount they are financing internally.

6. Budgeterade kostnader och stöd

Fyll i kostnader: Fyll i budgeterade kostnader och sökt bidrag från Vinnova för varje projektpart, inklusive den koordinerande projektparten (koordinatör).

Lägg till projektparter: Lägg till de projektparter som ska vara med i projektet. Även projektparter som **inte** söker stöd från Vinnova ska också fylla i sina budgeterade kostnader, men ange noll (0) kr i fältet "Sökt bidrag".

Lägg till finansierare: Om det finns andra finansierare än Vinnova ska dessa läggas till under respektive projektpart.

Läs mer:

- [Guide till ansökningsprocessen](#)
- [Guide till Vinnovas villkor om stödberättigande kostnader](#)

Koordinerande projektpart (koordinatör)

CONSID AB

CONSID AB (556599-4307)

Minimera

	2017	2018	Summa
Personalkostnader	0	0	= 0
Utrustning, mark, byggnader	400 000	0	= 400 000
Konsultkostnader, licenser m.m	100 000	300 000	= 400 000
Övriga direkta kostnader inkl. resor	250 000	0	= 250 000
Indirekta kostnader	0	0	= 0
Totala kostnader	750 000	300 000	= 1 050 000

Finansiering	2017	2018	Summa
Sökt bidrag från Vinnova	90 000	250 000	= 340 000
Andra finansierare	0	0	= 0
ⓘ Egen Finansiering	660 000	50 000	= 710 000
Total finansiering	750 000	300 000	= 1 050 000

ⓘ Beräknad stödnivå

32.4%

Lägg till finansierare

7. Appendices

In this step, Vinnova occasionally asks for additional appendices related to specific subsidy programs.

8. Preview and approve

In the last step, the applicant will be reminded if mandatory information is missing before assigning it as complete.

8.4 Appendix 4: Data Structure

Data structure of 1st order codes, 2nd order themes and aggregate dimensions

