How do venture capitalists use investment criteria in the decision making process of funding a startup?

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ABSTRACT,

This paper aims to find out how venture capital investors use investment criteria when assessing a startup funding request. Three different theories have been examined to answer the research question. Theory about the investment process thought us that investment criteria are used in the Pre-Deal phase, in the screening and evaluation phase. Theory about venture capital investment criteria showed us investment criteria could be distinguished into five categories: (1) the entrepreneur/team characteristics, (2) characteristics of the products/services, (3) market characteristics, (4) financials and (5) other characteristics. In which the entrepreneurial/team characteristics are the most important. The third theory about individual decision making based on MBTI showed us that there are differences in the way we take in information and make decisions.
On the bases of interviews with four investors from different venture capital funds in the Netherlands, it can be assumed that the investment process looks similar to the process provided by theory. However, the investment criteria differ from fund to fund. Some venture capital funds valued patentable technology more than entrepreneurial/team characteristics. Another important factor in the decision making process of venture capital funds are partners. The influence of the fund's partners is medium/high in all cases. This is because the venture capital fund creates the ecosystem for the startup, so when partners (and potential clients) don't believe in the startup, it will be very difficult to create this ecosystem.
Combining MBTI and the investment criteria shows us that the most common personality is the combination of "SF" which means the investor focuses on concrete, realistic and practical information, but makes the final decision with its heart: listen to the feeling one has after all the information provided.

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1. INTRODUCTION

1. Topic area and its relevance

In 2016, 660.000 startups were founded in the UK alone. [1]Worldwide this amount is way higher. [2] However, not all of them will be as successful and famous as for example Youtube, Uber or Air B&B. All rose to a value of over 1 billion dollars, making them unicorns.

A lot of the startups founded annually are just not meant to be as big as the giant companies listed above, because they are founded as small family owned businesses or lifestyle businesses. The kinds of startups that are made to become unicorns are scalable startups. But, if the entrepreneur has a possibly good idea that could in theory can become a unicorn (or at least a multi-million dollar business) and lacks the financial resources to convert his idea into a product/service, one has to find a way to receive the capital needed. It is known that there are multiple sources of capital like family, friends and fools, business angels, banks, repayable short-term loans, venture capital, foundation, government, public funding, etc. (Callegati et al., 2005; Rogers, 2009; Vidučić, 2012).

However, a scalable startup which is in need for larger amounts of capital (funding that cannot be collected from family and friends) will probably switch to a venture capital fund, because "Venture capital is an independently managed, dedicated pool of capital that focuses on equity investments in privately hold, high growth companies with disruptive technologies. (Wright and Robbie, 1998) (Hudson and Evans, 2005)

Venture capital funds play a crucial role in the success of startups. In the early days of the firm where ideas are booming, but capital is lacking, venture capital funds are there for the firm to help the entrepreneur realize its' ideas. However, this has not always been the case. Over the years the role of venture capital has changed. "Traditionally, the role of a venture capital fund was to give founders access to capital and maybe one partner took a seat on the board. As the venture industry grows and becomes more competitive and founder focused, capital alone doesn't create success stories. Here's what matters now: How the firm helps you build the community and ecosystem around your idea." (Hartnett, 2017)

Nevertheless, a tremendously small percentage of startups receive the requested funding and help for their firm. So, how could a startup make more change to belong to those who receive the requested funding? Now, it's not all, but clearly, there is a mismatch between what entrepreneurs deliver and that what venture capital funds require. But what do they require and how do they assess these funding requests?

1.2 The research gap

Research has been done into the investment criteria used by venture capital funds when accessing a potential startup. Research led to countless of lists of criteria used by venture capital funds for assessing startup funding requests. In addition, research has been done into the investment process of venture capital funds, describing the order and content of phases in the process from a request for funding till receiving the funding. Finally, research has distinguished differences in decision making between individuals.

These three domains are studied extensively. Scientific articles describing the investment process will show in which phase criteria are used. Next, multiple articles are being discussed about which criteria are used. However none of them tells about how these criteria are used and how the decisions are exactly made when deciding whether or not to fund. Combining these three subject will make it possible to examine how investment criteria are used in the decision making process of venture capital funds.

For this reason the next sub questions will be answered to work towards the main research question of this paper:

- What does the investment process (phase by phase) set by venture capital funds looks like?
- Which criteria are used by venture capital funds when assessing a startup funding request?
- Which differences are there between individual decision-making?

These three questions, in combination with interviews with venture capital investors, will help us answer the main research question:

- How do venture capitalists use investment criteria in the decision making process of funding a startup?

1.3 The purpose of the study

By combining the investment process and investment criteria set by venture capital funds, one will be capable of mapping how big the impact of these criteria is in the deal flow process.

Next, by combining the theory of investment criteria, decision making and conducting interviews, one will be capable of finding out how these criteria are used in that particular phase in the process and thus answer the research question.

The answers on the sub questions and the research question will help future entrepreneurs by providing them information on how the complete process looks and how big the impact of these criteria is on the possibility to receive funding. In addition it will inform future entrepreneurs how choices are made regarding these criteria. To conclude the paper, advice will be given on this topic to make future entrepreneurs optimize their funding request to match venture capital funding requirements better.

1.4 Outline of the paper

This paper will start with literature about what is already known from the three domains: 1. The investment process of venture capital funds, 2. Investment criteria set by venture capital funds and 3. Theory of decision making. After the literature, the methods used for this research will be comprehensively explained. Following this, the results from the interviews with venture capitalists will be discussed. A comparison will summarize similarities and differences between the theoretical models and the actual practices after which a conclusion will be drawn and limitations will be discussed.

2. THEORY

2.0 Introduction

As stated in the introduction, this research is based on three theories which together form the foundation of this paper. We will start with describing the investment process used by venture capitalists. Next we will discuss the investment criteria set by venture capitalists. In the last section of the theory we will distinguish different types of individual decision making.

[1] Financial Times, Number of UK start-ups rises to new record, October 2017.

[2] https://seed-db.com/accelerators.

Table 1

Investment process by venture capital funds						
Author	Pre-deal			Deal		Post-deal
Tyebjee and Bruno (1984)	Deal origination	screening	evaluation	contracting	negotiation	Post investment activities

2.1 The investment process

The first domain of this theory review will tell us about the investment process of venture capital funds. It will describe which phases are present, the order of the phases and the content of each phase. Knowing the process will help us know exactly where to search in order to find an answer to the main research question.

Multiple studies about this topic have been done in the past. However after reading multiple articles and comparing these with field research done on a German and British venture capital fund the best theory was the study of Tyebjee and Bruno (1984). The study of Tyebjee and Bruno (1984) used the data of 41 venture capital funds on a total of 90 deals and came most close to the data found during the field research. This study divides the process into five phases: **(1) Deal origination, (2) screening, (3) evaluation, (4) structuring, (5) post-investment activities.** (Table 1)

Every phase in the process demands a different way of decision making. Once we know what the process looks like, we can find out how decisions differ between one stage and another. Later on we will link the phases of the investment process with the differences in decision making.

2.1.1 Deal origination

The deal origination is the phase in which the entrepreneur and investor first have contact. This often comes from three possible sources: cold calls, referrals or active search. Cold calls are cases where the entrepreneur takes the initiative to directly contact the investor (Tyebjee and Bruno, 1984). These sources occur as following: cold calls 25%, referrals 65%, and active search 10% (Tyebjee and Bruno, 1984).

2.1.2 Screening

In the second phase, the investor reduces the overabundance of investment requests to a manageable quantity (Kollmann and Kuckertz, 2010). Since investors receive large amounts of possible investment opportunities, it is important for them to reduce this to an amount that is valuable for the investor and the fund. Broad objective screening criteria are used. This differs from investor to investor but for venture capital funds this often is familiarity to the VC, particularly in terms of technology, product and market (Tyebjee and Bruno, 1984). Also size, stage and geographical location are taken into account.

2.1.3 Evaluation

According to Tyebjee and Bruno (1984) comparing the evaluation with the deal origination and screening phases which can be observed more objectively, the evaluation phase consists of a more subjective analysis that differs for each individual investor. In this phase the investor thoroughly examines the business opportunity. (Kollmann and Kuckertz, 2010). After this phase the investor has to decide whether or not to enter the deal-phase.

2.1.4 Contracting and negotiation

The deal-phase won't be described very explicit, because the research focuses especially on the transition from pre-deal phase to the deal-phase. When the investor decides to move into the deal-phase, he/she is interested in investing in the company.

During these conversations, multiple deals are made. Deals regarding the equity share the entrepreneur will give up in exchange for the venture capital (Golden, 1981). Second, the contract records, the compensation of the entrepreneur (Baker and Gompers, 1999), and the type of financing, whether convertible securities are used (Cornelli and Yosha, 1997), Third, the investor establishes protective covenants to solve potential agency problems and align interests between investors and entrepreneurs (Admati and Pfleiderer, 1994) and thereby it lowers potential agency costs (Gompers, 1995).

2.1.5 Post investment activities

The last phase of the process is the post investment activities. It is important to mention this phase, since these activities are often part of the deal and could be a reason to renounce an investment. It is important for the entrepreneur as well as for the investor to keep the interests aligned. However, investors do not only affect the startup in such a way that they provide finance, monitoring, control and decision influence (Sapienza, 1992).

There are other possibilities such as helping to manage the business, from finding management personal to solving supply chain issues. (MacMillan et al., 1988)

2.1.6 Conclusion

Now every phase of the investment process is known, we can assess which phase is most important to our research. We are interested in the decision making process of VCs whether or not to fund a startup, which means that we have to look at the pre-deal phase. Since the theory tells us that during the screening and evaluation phase investment criteria are used to decide whether or not to invest. This is what we want to know, so the paper will focus on these two phases in the remainder.

2.2.1 Investment criteria

Secondly, we discuss the investment criteria. These criteria are important, because they will help us gain insight in the important factors venture capital funds want to see. First of all let us start with defining what an investment criterion is. An investment criterion is a defined parameter to evaluate the value of an investment.[3]

The subject of investment criteria has been subject of research for a long time. In 1993, Hall and Hofer emphasized that knowledge of the criteria set by venture capitals is of crucial importance for entrepreneurs seeking funding. A lot of research has been done and multiple researchers have been trying to come up with a set of criteria. The following list of research have been conducted about the investment criteria set by venture capitalists: Wells (1974), Poindexter (1976),

[3] Divestopedia.com

Table 2

Venture capital investment criteria		
Category	**Vinig and de Haan (2002) the Netherlands and US**	**Kollmann and Kuckertz (2010) German speaking Europe**
1 The entrepreneur's personality and experience	**-Track record** **-Leadership capabilities** -Market/industry knowledge -Referred by reliable source -Reputation	**-Leadership capabilities** **-Track record** -"VC character" -Commitment -Technical qualification -Business qualification
2. Product/Service characteristics	**-Propiertary protected** **-Innovativeness** **-Market acceptance** -Development stage -Global potential	**-Patentablity** **-Innovativeness** -Unique selling proposition
3. Market characteristics	**-Fast growing** **-VC is familiar with the market** -Established distribution channels -Not much competition in the first year -Existing market -New market	**-Market growth** **-Market acceptance** -Market volume
4. Financials	**-Required return within 5-10 years.** **-Easily made liquid (e.g. IPO, M&A)**	**-Return on investment** **-Exit possibilities** **-Fit into investment strategy**
5. Others	-	-

(1984), Tyebjee & Bruno (1984), MacMillan et al. (1985), MacMillan et al. (1987), Siskos & Zoponuidis (1987), Robinson (1987), Hisrich & Jankowicz (1990), Dixon (1991), Hall & Hoffer (1993), Fried & Hisrich (1994), Zacharakis & Meyer (2000) but none of these came to a unanimous conclusion. However, after examining and comparing all these papers, 5 criteria categories came back every time: **(1) the entrepreneur/team characteristics, (2) characteristics of the products/services, (3) market characteristics, (4) financials and (5) other characteristics.**

According to MacMillan et al. (1985), five of ten most important investment criteria are related to the experience or personality of the entrepreneurs. The study of MacMillan et al. was conducted in the US, but has been replicated in different countries including: Canada (Knight, 1994), England (Sweeting, 1991), Singapore (Ray, 1991), Japan (Ray and Turpin, 1991), South Korea (Ray, Jung and Lee, 1994) and Europe (Requelme, 1994). All of these came to similar conclusions as MacMillan et al. However, all were conducted on a small sample, so one could argue about whether this is generalizable or not.

To decide which theories are useful for our study, one has to look at a theory that is applicable to the Dutch venture capital situation. Vinig and Haan (2002) compared the investment criteria set by Dutch and US venture capital funds in their investment process. According to this research there was no significant difference between both countries.

According to them, track record and leadership are the most important attributes of an entrepreneur. However what they found is that there is a difference in the relative importance of sub-criteria. Where in the US protected product is a more important attribute of the product, in the Netherlands innovation is considered more important.

An important reason for this is the difference of Intellectual Property between Common Law (US, UK, Canada) and Civil Law (EU) (Keele, 2013).

For this reason it is useful to take into consideration another study, which is not influenced by the difference in the legislation system. In 2010, Kollmann and Kuckertz did research on the question "On what criteria do venture capitalists actually base their decision about investment during the process". They took into account 15 criteria and conducted research in German speaking countries in Europe.

2.2.2 Conclusion

Still a lot of different orders of importance are discussed in the papers earlier mentioned. However for this research, the paper of Vinig and Haan (2002) and Kollmann and Kuckertz (2010) will probably be the best choice to follow as main research in this field, because these researches have respectively been conducted in the Netherlands and the US and German speaking European countries. Choosing these papers to picture the set of criteria will presumably show us the most representative image.

The criteria of both theories are shown in table 1. In which the red criteria are the same for both studies. The category "others" is empty in bot columns of the table. An example of a criterion in the category "others" are the geographical location. The reason the category is empty in both columns in the table, is because this is not relevant to all venture capital funds, but only those who restrict their business to a certain area.

2.3 Decision making

In the last domain of the theory we will discuss different types of decision making. Different types of decision making between individuals could have an influence during the evaluation and decision making phase in the investment process and could differ the way criteria are used.

To make this clear, we will start by defining what decision making is. Decision making is the cognitive process resulting in the selection of an action among several alternative possibilities.[4]

There are multiple studies about decision making, but almosta all of them are about managerial decision making or leader decision making. Since we do not look for managerial decision making, we have to look for another study. One of the most wide known studies on individual differences and (among others) decision making is the Myers-Briggs Type Indicator (MBTI). The study of daughter and mother Myers and Briggs was based on the ideas of Carl Gustav Jung, a Swiss psychiatrist and psychologist. He was the founder of analytical psychology.

So what is the MBTI? The MBTI is a framework of personality types. (C.G. Jung). The MBTI framework uses 4 different facets of character. Every facet contains 2 opposing dichotomies. On the basis of a 10-minute during test, one's personality could be qualified into one of the 16 personality types.

The MBTI test will classify your characteristics on the base of combining 1 of the 2 dichotomies out of all the 4 facets. See table 3 for the MBTI framework

Table 3

Myers-Briggs Type indicator Facets		
Extravertion (E)	The direction we focus our attention and energy	**Introvertion (I)**
Sensing (S)	The way we take in information	**Intuition (N)**
Thinking (T)	The way we make decisions	**Feeling (F)**
Judging (J)	The way we act in the outer world.	**Perceiving (P)**

Based on this table, the remainder of this domain will only take a closer look at the way we take in information and the way we make decisions, instead of also taking into consideration the direction we focus our attention and energy and the way we act in the outer world. The reason that we not include these facets is because these facets will not have direct impact on the decision making process.

2.3.1 Thinking vs. Feeling

First, we start with the facet which shows the way in which we make decisions. As shown in table 3, there are two dichotomous opposites: Thinking and Feeling. Someone characterized by Thinking type has a decision making process which is built on logic instead of empathy as a person with the Feeling type would do. The difference between people with a Thinking / Feeling personality has influence on the

2.3.2 Sensing vs. Intuition

Second, we have a look at the facet which shows the way we take in information. As shown in table 3, the two dichotomous opposites are Sensing and Intuition. A person characterized as the Sensing type pays more attention to and is stimulated by the concrete information while someone characterized as the Intuition type is paying more attention to and is stimulated by the bigger picture and abstract information.

Other characteristics to give a broader view on the differences between **"Thinking (T) and Feeling (F)"** and **"Sensing (S) and Intuition (N)"** are shown in appendix 1.1 and 1.2

2.3.3 Conclusion

After gaining knowledge of the different facets we can now classify individuals in different groups when it comes to decision making. E.g. an individual with the personality consisting of a "TS" personality is focused on logic and facts, in contrast to an individual which personality consists of a "FN" personality, which is focused on feelings and the bigger picture. However, the combination "TN" and "SF" are possible as well.

On the basis of a study in the United States with data from between 1972 and 2002[5], it is possible to schedule how often every type and every combination is represented in society. On the basis of this data, 73.3% had the "S" personality against only 26.7% of a "N" personality.

The difference between "T" (40.2%) and "F" (59.8%) is smaller. However we can say that a personality with the "NT" characteristic is four times less common than the "SF" characteristic. (10.4% vs. 43.4%)

On the basis of these differences we could identify four different types of decision making, each with a different chance: TS, TN, FS, FN. Using the four different categories, we can classify investors and venture capital funds. We will use the model to find out if there are differences between phases in the process and the way criteria are reviewed. After this we will try to find a relationship between funds and the four categories.

MBTI decision making types			
SF	**ST**	**NF**	**NT**
43.8%	**29.5%**	**16.0%**	**10.7%**

3. METHODOLOGY

In the methodology part, the way this study has been executed will be described. Further, there will be explanations on why the chosen method was used, instead of other (possible) methods.

3.1 Research strategy: Qualitative

The main purpose of the paper is to help entrepreneurs in the future by providing new insights into the process of investment decision making. Since the investment process is known, but still so many funding requests are rejected by venture capitalists, we want to gain understanding in the human behavior of investors associated with investment decision making.

Of course we cannot come up with one general answer to the question how every request will be rewarded, so we want to find new insights which could be used in the future for further research on this subject. Next to the fact that we want to find new hypotheses, the truth is that it is rather difficult to do a quantitative research on this topic, because of the costs associated with doing a quantitative research and the short time period available for this paper.

3.2 Research design: Exploratory

The goal of the paper is to find new insights into the human behavior related to the investment process. To find new insights it is important to become familiar with the data and analyze the data. The goal is to find trends or relationships in the data obtained from this research. Because of the fact that this is an exploratory research the best way to find new insights is by asking open-ended questions. The way this will be done is by interviewing investors.

[4] BusinessDictionary.com

[5] MBTI® results from 1972 through 2002. https://www.myersbriggs.org/my-mbti-personality-type/my-mbti-results/how-frequent-is-my-type.htm?bhcp=1

In this paper, three theories have been discussed. The first theory about the investment process is mostly based on the findings of Tyebjee and Bruno (1984) in their paper about the entrepreneur's search for capital and their paper about venture capital investment activity. The second theory about the investment criteria are based on multiple scientific studies conducted in multiple countries. The document of Simic (2015) was one excellent summary of the most theories in this field. Finally: decision making theory. For decades the Myers-Briggs Type Indicator (MBTI) test has been used by people all around the globe to classify individuals into personality groups based on differences in their characteristics.

Because we want to explore this idea and find out if it could be the basis of future research in this field, case studies among multiple venture capital funds will be examined. All 3 theories will be inspected to see if the theory is indeed a reflection of the reality. To see if the theory about the investment process phases reflects reality, investors will be asked what the process used by their firm looks like. Secondly, to assess whether or not the investment criteria are the same, they will be asked to what points they use to decide whether or not to invest. Third, the most important one, the decision making, will be assessed by asking which moments demands the most crucial decisions and how choices are made in these crucial phases of the process. To find out, we need a comprehensive and precise answer. During the interview, the MBTI will help assessing how investors make decisions.

In the results section, every venture capital fund will be described to give information about the firm. In addition to this, the conversation during the interview will be analyzed to compare the answers with the possible personalities of the MBTI test. The difference in personality could influence the way decisions are made. However, the structure and characteristics of the fund could also have influence on the decision making process.

Finding from this study could be used in the future to generalize the final results and expand the knowledge in this area. Besides, entrepreneurs could gain knowledge about the decision making process.

3.3 Sampling

The sampling frame for this study is all seed, early- and late stage venture capital funds registered in the Netherlands. An Email explaining the purpose of this study and the question to participate in an interview has been sent to all venture capital funds. Out of a sample of 60 seed, early- and late stage venture capital funds, four have been selected to be interviewed based on the pace of their respond and willingness to participate in this study. This means that this research is characterized by probability sampling, since every venture capital fund had an equal chance to be selected.

A characteristic of probability sampling is that there is no bias because the chance to participate is equal. However one could say that there will be sampling error, because data of 4 venture capital funds cannot give a good reflection of reality. So, generalizing the results will not reflect reality. This is true, but case studies are designed to set a hypothesis for further research and not to come up with general conclusions.

The 4 venture capital funds interviewed are early stage investment funds, meaning that they invest in the proof of concept phase of a startup. In this stage there are no financial reports about the results of the former years etc. In this phase there is only an idea and a proof that it solves an existing problem.

3.4 Data collection & analysis

Once the research strategy, research design and sampling method have been explained, it can be described how data used for the results section of this paper have been selected. For the data collection of this paper, unstructured interviews were conducted. Questions differ from interview to interview depending on answers given on previous questions. Nevertheless, some subjects had to be discussed.

During the interview, investors were first asked what their investment process looked like. This was of importance, because it maps the process of every VC. Next, the investors were asked which criteria they used for different moments of decision making and which criteria are most important to an investor. (Screening phase – evaluation phase – deal phase according to theory). Investors were asked to explain as much as they could about both subjects, to keep the interview as open as possible. Once these 2 subjects were discussed, follow-up questions came up. These questions differed from interview to interview, because every investor explained different information.

Based on the interview with the investor a classification was made on the basis of the MBTI decision making model. This classification takes into consideration differences between funds. For this reason, a short part of information about the fund will be provided in the results section.

4. RESULTS

The results section will provide us with data that fills the gap in research till now. Every venture capital fund will be shortly described, after which the interview results will be discussed.

4.1 VC 1

The first venture capital fund is a €125 million early stage private equity fund financed by wealthy individuals and managed by a few top investors investing in technology in the United States and the Netherlands. With an initial rate of return (IRR) on investments that is four times as high as the market average this fund is quite successful. The fund invests up to €3 million to help the startup disrupt the industry with their technology.

During the interview, it became clear that to get funding from this VC, the entrepreneur really needs to come up with something that will completely amaze the investor: one should absolutely blow the investors mind. 95% already fails to get to the next round, because it doesn't match the threshold criteria, since the idea is not disruptive enough or the startup doesn't fit the fund. Out of 1000 funding requests, about 50 will be further examined. These 50 startups will be thoroughly examined. The investors personally know top managers at the largest corporations around the world, which are also partners of the fund. The opinion of these partners is of high importance to the decision the investor makes. However, in contrast with the theory, the investors don't care about the team. The fund invests a large amount of money, which will also be used to hire top managers.

Out of these 50 only 1 or 2 will get funding. The second decision making is in the final phase, when there are approximately 4 or 5 startups left. In this phase it is all about the feeling about the startup.

During the interview it became clear that the investor makes decision based on logic and reason instead of empathy and compassion. Furthermore startups really need to be realistic and concrete. Serious money asks for serious business.

This classifies the investor as **"ST"**. This means that the decisions made are significantly influenced by partners and professors and their knowledge and vision on the ecosystem. However, with world the class investors the fund has, it will only fund a startup when there is a unanimous "Yes" for the investors.

4.2 VC 2

The second venture capital fund is a fund financed by big logistic-, aviation- and transport firms and a technical university. The goal of this fund is to find ideas that could solve problems for the companies financing it. The fund focuses on startups with funding needs of around €250.000, till follow up investments of a maximum €3 million.

As said before, the goal is to find startups that are solving problems for the logistics, aviation and transport sector. For this reason, the partners have a great say in the investment process. During the first phase of the investment process the investors will select startups which they think could be of interest for their partners. The biggest elimination of funding requests is in the first round, because the idea would not be useful for the fund or it does not match the criteria. Once a startup moves to the next round, the investors, partners and entrepreneurs will have conversations about the startup. After which the partner is the one that makes the final decision, with advice from the investors. Most of the time this decision is based on the desire the partner has to solve the problem and the money associated with the project.

This interview was somewhat more difficult, since the investor gave short answers and explanations. However, it became clear that the investor focused more on feeling instead of thinking, as long as the startup met the threshold criteria. Besides, the investor tends more towards the intuition side than the sensing side. For this reason the investor can be classified as **"NF".** .In the second fund the partners/funders are involved in the conversations with entrepreneurs. Besides, these startups try to solve a problem for one of the partners, which mean the decision whether or not to fund is largely made by the partners/funders.

4.3 VC 3

The third venture capital fund is an €20 million early stage tech fund. The fund is financed by the European Union, the government, the province and two universities. The goal of the fund is to support innovation in the region and work together towards a follow up round of investments. The fund focuses on startups with funding needs of maximum €300.000.

The first elimination round is the round with the most eliminations. The choice that these startups don't precede to the next round is based on the basic criteria. E.g. Part of these startups simply doesn't read the criteria of living in the region the fund operates in. Others are simply not patentable or possible.

When the investors are not sure they will give startups the benefit of the doubt and invite them over for a presentation.

Once startups moved on to the next round and pitched their ideas, the investors have to make choices whether or not to invest. Investment criteria about patentability and innovativeness are important, but most important are the team members. During the interview it was said that "the team (3 is the ideal amount) should be able to argue and 'fight', and still drink a beer together afterwards."

These criteria are of importance, but the fund involves as many professionals with knowledge in the market and industry of the startup to gain knowledge and reduce the risk associated with the market and industry. For example in case of a medical innovation: the finance directors, doctors, but also nurses who have to work with the technology will be interviewed about the possible innovation. The importance of partners and professionals characterizes sensing instead of intuition. The decision is of course made by the investors, but the opinion of these professionals significantly influences the investment decision. A good indicator to characterize the investor as T or F is the importance of the team. After a pitch the investor wants to have the feeling that the team is able to fight and drink after. We can classify the investor as **"SF".**

4.4 VC 4

The fourth venture capital fund is a €150 million fund financed by a foundation. This foundation focuses on a more social, durable and greener world. Since the fund is financed by the foundation, the goals of the fund are the same as that of the foundation. However, since the foundation is not profit driven, the fund has partly different investment criteria than the theory told us. The fund focuses on startups with funding needs between €100.000 and €500.000.

First, the investment process was discussed during the interview. At this fund, there are two groups that look at the funding request. The first group looks at the investment side of the startup: the team, the market etc. The second team looks if it is in line with the goals of the foundation: social, durable and green.

The funding decisions are focused on creating a positive impact on sociality, instead of looking at the financial picture first. Before investing, the fund involves professionals in the market and/or industry of the startup. These professionals help the fund by providing knowledge and understanding of the market. However, e.g. when a partner is working on a similar product as the startup requiring funding, the fund will still invest in the startup if they think the startup is better developed in that particular area.

Here the fund shows that it values the positive impact on society more than it values the partner's operations. This means that before decisions are made, the funding request passes 2 groups before being invited to pitch their ideas.

Table 4

Summary of the Results

VC	VC 1	VC 2	VC 3	VC 4
Budget €	€125 million	€20 million	€20 million	€150 million
Type of the fund	Only extreme high ROI on technology	Problem solving logistic / transport sector	Innovativeness in the region	Making the world a better place
MBTI type	ST	NF	SF	SF
Most important criteria	Disruptive technology	Solving partner's problem	Team characteristics	Durable and social
Influence partner	High/medium	High	High/medium	Medium

After the pitch and the conversations with professionals and partners about the market/industry the decision is made whether or not to invest. The professionals have some influence, but the choice is clearly made by the investors. Because the fund focuses on making the world a better place, the investor tends more towards the feeling side. However to make the world a better place, the idea of the startup has to be practical, realistic and concrete. We can classify the investor as **"SF".**

Table 4 shows the most important results.

5. CONCLUSION AND DISCUSSION

5.1 Summary of the results

After gaining knowledge about the theory and seeing the results, it is possible to find differences and similarities. We can find four points that are useful to discuss. We will start by the nature of fund and the huge elimination in the first round. Secondly, the criteria used by these funds will come up. Finally, we will talk about professionals and partners involved in the investment process.

The nature of the fund is of great importance to the success of a funding request. Looking at the results we see that there are different funds. VC 1 uses private equity from wealthy individuals, while VC 2 and VC 3 are both financed by universities, governments and specific industries. Apart from this is VC 4, which is financed by a foundation. The way a fund is financed, influences the projects that are qualified to receive funding.

A fund which is financed by wealthy individuals focuses on high returns on investments (ROI). In contrast to a private equity fund, a fund financed by a foundation doesn't focus on high ROIs, but it focuses on high positive social impact. VC 2 is financed by a certain industry and a university, meaning they serve as a problem solving search engine for the particular industry. VC 3 is financed by universities and governments, meaning it want to stimulate innovativeness in the region. Of course all want to make as much money as possible, but it is not the first priority of every fund.

We also see that the largest part of the funding requests is already eliminated in the first round of the investment process, which only consists of screening the startup. This large number is a mismatch between the requirements of a fund and the deliveries from startups. The simplest and clumsiest reasons for this mismatch is sending a funding request to a fund that only provide funding to startups in a certain region, while you don't live inside that region. Other eliminations may not be as clear as the one described before. For example, VC 1 only invests in highly disrupting technologies. The startup its technology may be of a good quality, but not good enough for this particular fund. The decision to eliminate requests in the first round is made on basic criteria set by the VC. These criteria could be found on the website of every VC. These decisions are based on factual information.

The startups that move to the second round are viewed extensively. In this phase, every VC uses its own set of criteria when assessing a funding request. The five categories listed in the theory are used by all VCs. However, not all VCs use this set of criteria the same. The theory told us that the entrepreneur's characteristics/experience is the most important criteria. However, VC 1 focuses at all other criteria but the entrepreneur. The reason is explained above, since they hire a management team. At VC 2 the most important criteria are the idea you have and which problem it solves for the funders together with the entrepreneur's characteristics/experience. VC 3 is in line with theory meaning the team is most important. For VC 4 it, again, is different in focus, but values the team the most.

The latest point of this conclusion is the involvement and influence of partners. For VC 1, the opinion of the CTO (chief technical officer) of their partners is of high value. In this way, it is attempted to make a map of the market and industry for the product or service. Next to this, the conversations with the TCOs are used to get the partner involved. Because, when more companies are involved, the risk will decrease.

VC 2 is also a good example for the involvement and influence of partners. Since the financiers and partners are the same organizations and the goal of the fund is to find solutions for problems these organizations face, the influence of these partners is clearly present. VC 3 strongly values the opinion of professionals and professors, because these people have to use the innovation at the moment it will be entering the market. When the target group of the innovation doesn't like the innovation, it won't become a successful startup.

VC 4 also values the opinion of the professionals and partners, but because of the goal to make the world more social/durable financed by a foundation, they have to value their own goals more, since most corporations do not always have big positive social/environmental impact.

Together, this means that decisions made in the screening phase of the investment process are based on factual information and logics by all four VCs. However, in the evaluation phase differences in criteria used by VCs and the bigger influence of partners on one VC in contrast to another VC can be derived from the nature of the fund. The goal of the fund will decide the structure of the fund. The reason partners and professionals are of significant importance in the decision making process, is because no investor has the knowledge about all markets and industries due to bounded rationality. This means he/she has to gain knowledge through environmental learning and feedback (Wall, 1993). Dependence on other people (partners/professionals) their opinion/knowledge and the uncertainty due to early stage investing, results in a more concrete, realistic and practical way of taking in information. Next to this, since these startups are in the early stage, a possibility to make logical decisions is difficult, because there is little to no certainty. The results show this as well, since the characteristics that appear most often are the "S" and "F".

5.2 Recommendations

To make this paper useful for practical use by future entrepreneurs, advice will now be provided which would hopefully decrease the rejection rate of the startup.

We will start with the more obvious points, which are still worth mentioning, because they still ignored or overlooked. In the first place it is important to that the idea solves a problem which really needs a solution, instead of a problem for which a solution would be 'nice'. So there should be substantial need for a solution.

In addition to this, it should meet the criteria set by the fund to even pass the first round. Criteria like this are patentability, amount of funding needed, funding region etc. Sending a funding request to a VC that only operates in one area, while you live in another area is very unprofessional and shows that you did not do much research on the VC, but at the same time it takes time to send, time that could be spend useful. The same is true if you send a funding request for a mobile application to a VC that only invest in patentable ideas.

Once the funding request passed the first round of the investment process, the investors will thoroughly examine your idea and explore the market/industry. In this phase, partners and professionals will be involved. It is important that the entrepreneur is aware of the nature of partners. As stated in the last paragraph of the conclusion, the investor has to gain knowledge trough environmental feedback. The entrepreneur could improve its chances when the partner is in favor of his idea. The only way knowing the partner is in favor of your idea upfront is by approaching them personally. Since this is very difficult, especially when it concerns big corporations.

However one thing an entrepreneur could do is find as much information about the operations of partners. Including information about how the idea could improve operations of partners will lead to a bigger change to get funding. E.g. an innovation that could help established car manufacturers create an engine that could drive a longer distance with the same/less amount of fuel.

Furthermore, it is important the entrepreneur can convince the investor that its characteristics and experience are valuable and that he/she is the right person to execute the idea. Since this is still valued as the most important criteria by most VCs, apart from the problem it solves.

5.3 Contribution to theory

This paper explored the relationship between an investor's personality characteristics and the decision making process of the investor/venture capital fund. Through combining the theory of the investment process, the theory of investment criteria and theory of individual decision making, this paper tried to contribute to theory with new insights. On the basis of theory about the investment process, one could find in which phases the investment criteria are used. Combining this with theory about investment criteria helped mapping the most important criteria set by VCs.

Once this was known, one had to find out how these criteria are used to answer the research question:

How do venture capitalists use investment criteria in the decision making process of funding a startup?

The way this was done was by combining the MBTI model with the theory about the investment process and criteria. The interviews provided data to check to what extent these theories come close to reality.

The results show us that the most important investment criteria differ from the general theory. These differences are influenced by the nature of the fund. The difference in investment criteria is a nice verification of what was told in the theory: none of the theories came to a unanimous conclusion.

The final answer, given in the last paragraph of 5.1, tells us that the investor uses investment criteria to assess whether the startup's idea is concrete, realistic and practical. In combination with the information gathered prom partners and professionals they make a decision based on their feeling about the startups.

5.4 Limitations

Even though the results are interesting and semi-unanimous, the results are not generalizable. The data sample is too small to come to a general conclusion. However, this means that these exploratory results could be the basis of further research. The personality of the investor and the influence of partners and professionals could be the core for further research.

As the results show us the personality "SF" is present two out of four times. Now, we know that the "SF" personality is most common (43.8%) in comparison with the other personalities. This means that one should keep in mind that the results are biased, since this research is conducted on a small scale.

It is also noteworthy to say that with only 60 VCs in the Netherlands, a sample of 4 way to small. However, to come to a general conclusion it is necessary to include data of at least 75% of the VCs, because the nature of the fund is of high influence on the criteria used and decisions taken by VCs. one could argue that even this is not generalizable, because it only takes into account VCs in the Netherlands. To come to a global, general conclusion, the research should be done worldwide.

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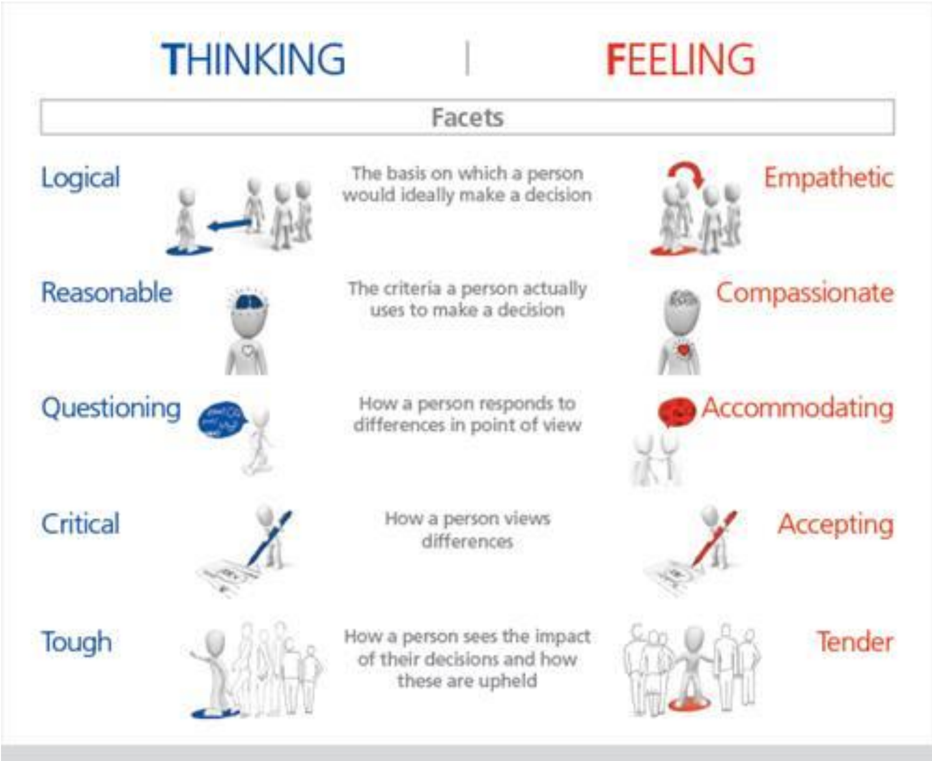
7. APPENDIX

Appendix 1.1: Thinking vs. Feeling.



Appendix 1.2: Sensing vs. Intuition.