

# University of Twente

## Entrepreneurial Processes In A Cultural Context

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The influence of uncertainty avoidance on  
entrepreneurial processes in Denmark

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## Preface

This thesis is submitted to the faculty of Management and Governance of the University of Twente, as part of the bachelor Business Administration.

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## Management Summary

This research looks into the relationship between culture and entrepreneurial processes and focuses on the culture of Denmark.

Common knowledge tells us that culture has an influence on the perception of people. Therefore the suggestion can be made that national culture might also have an influence on the perception of entrepreneurs and entrepreneurial processes. Culture can be defined as the collective programming of the mind, which distinguishes the members of one group or category of people from another (Hofstede, 2001, p. 29). Culture describes both the underlying value as well as the behavior that can be observed.

Entrepreneurial processes describe the sequence of activities and decisions that the entrepreneur goes through that lead from an initial idea to a venture. Sarasvathy (2001) advanced our understanding of the entrepreneurial process by describing two distinct approaches to new venture creation: causation and effectuation.

This research investigates whether culture has an influence on entrepreneurial processes. Therefore the literature of Hofstede (2008) is going to be used to study and operationalize culture and the literature of Sarasvathy (2008) is going to be used to study and operationalize entrepreneurial processes. Based on the literature three hypotheses were formulated on the expected relationship between entrepreneurial processes and uncertainty avoidance, which is a dimension of culture according to Hofstede (2002).

The units of analysis for this study are student entrepreneurs. Student entrepreneurs can be defined as students in higher education that started their own business. The subjects were found thanks to incubators of Copenhagen school of entrepreneurship and Venture Cup, two organizations that help student entrepreneurs and therefore have a lot of contact and knowledge about Danish student entrepreneurs. Data was collected through interviews and surveys. These interviews were either carried out face-to-face or through videoconference and have been recorded digitally. The interviews consists of a case in which the subjects are asked to put themselves in the role of a student entrepreneur that wants to start up a coffee shop and they encounter ten problems. The subjects need to solve these problems while thinking aloud. The think aloud method means that the subject needs to speak out loud whatever comes to mind, while solving a problem. The interviews were coded according to the elements Sarasvathy (2008) assigned to the causal and effectual entrepreneurial process, with the addition of one element (Harms & Stienstra, 2012). Using a statistical model, Wilcoxon signed-rank test, the conclusion can be made that the score for student entrepreneurs in Denmark were significantly higher for effectuation than for causation.

In order to measure culture the literature of Hofstede (2001) has been used. Hofstede (2001) identifies five dimensions of culture and assigned scores per country to these dimensions. Several studies however state that entrepreneurs might have different scores on these dimensions compared to the overall score in a given country. Therefore a survey will be held to measure the score of these dimensions concerning the student entrepreneurs in Denmark. The results of the VSM08 survey show that student entrepreneurs have different scores in the dimensions of Hofstede (2008) than the overall population of Denmark. Therefore the conclusion can be made that student entrepreneurs have a different perception upon these dimensions.

Using dependent t-test the conclusion can be made that there is statistical evidence that uncertainty avoidance has an effect on entrepreneurial processes. Results of the statistical test indicate that there was a significant effect of uncertainty avoidance on (1)

predictions of the future/non-predictive control, (2) competitive analysis/use of alliances or partnership and (3) expected returns/affordable loss.

Statistical evidence was found to confirm the relationship between uncertainty avoidance and entrepreneurial processes and therefore the conclusion can be made that the uncertainty avoidance has an influence on entrepreneurial processes. Looking at the other dimensions, the dimensions masculinity and long-term orientation show no significant influence on entrepreneurial processes. Therefore the conclusion can be made that culture has some influence on entrepreneurial processes.

Findings show that entrepreneurs in Denmark use more effectuation in the beginning of starting a business. Comparing the results from the fictional case with the use of entrepreneurial processes in the subjects own venture show that entrepreneurs make more use of effectuation in a fictional case compared to their own venture. Even though entrepreneurs use more effectuation than causation regarding their own venture the difference is much less than in the fictional case.

One other influence on entrepreneurial processes has been researched. Findings show that government regulations have an influence on entrepreneurial processes. There are other aspects that might influence entrepreneurial processes, like study or experience. These relationships would have to be looked at in future research.

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# 1. Introduction

## 1.1 Context

Common knowledge tells us that culture has an influence on the perception of people. Therefore the suggestion can be made that national culture might also have an influence on the perception of entrepreneurs and entrepreneurial processes. Some evidence exists that cultural values are associated with entrepreneurship. Cultures that value entrepreneurship promote a propensity to develop and introduce radical innovation, whereas cultures that are not likely to show risk-taking and entrepreneurial behavior reinforce conformity, group interests, and control over the future. Therefore it is important to understand the behavioral research on national culture and its potential influence on entrepreneurship (Hayton, George & Zahra, 2002, p. 33).

Hayton, George and Zahra (2002) show that culture influences entrepreneurship, but this research does not investigate what other influences culture could have on entrepreneurial activities. Therefore this research is going to investigate whether culture influences entrepreneurial processes.

## 1.2 Culture

Hofstede (2001, p. 29) defines culture as the collective programming of the mind, which distinguishes the member of one group or category of people from another. Culture consists of various factors that are shared by a given group, and acts as an interpretive frame of behavior. Culture is not inheritable or genetic, but culture is learned (Dahl, 2005). Culture describes both the underlying value (such as assumptions and values) as well as the behavior that can be observed (such as behavioral conventions). The concept doesn't necessarily imply that all citizens share the same value to the same degree, but it does imply that the citizens will be more likely to share the common value, and express it, if not necessarily individually, then collectively. Culture level analysis always reflects "central tendencies (...) for the country," it does not predict individual behavior (Dahl, 2005).

Based on statistical analyses of a multi-country sample on work-related values, Hofstede (2001) proposed that cultures are comparable on five dimensions. These dimensions will be explained further in chapter 2.

## 1.3 Denmark

In order to find out if there is a relationship between culture and entrepreneurial processes a culture needs to be investigated. The Legatum prosperity index (2012) analyses how countries prosper now and how they will prosper in the future. The index compares 142 countries on various variables like economy, education and governance. According to the Legatum prosperity index (2012) Denmark has a high degree of entrepreneurship and offers a lot of opportunity to entrepreneurship. The Legatum index (2012) investigates entrepreneurship on various variables like how easy it is for entrepreneurs to start a business and the cost for starting up a business. Comparing the data to other countries Denmark scores highest in the variable entrepreneurship and opportunity for entrepreneurship, compared to the Netherlands that has the tenth

highest score (Legatum institute, 2012). It is interesting to find out why Denmark scores highest on entrepreneurship. It could be possible that the culture of Denmark has an influence on this high score and therefore it is interesting to look into the possible relationship between culture and entrepreneurial processes in Denmark.

There are certain aspects that make Denmark a special country compared to other countries. The Danes enjoy a balanced way of life. Danes are highly skilled and Denmark provides a flexible workforce that is combined with an entrepreneurial spirit and tradition for innovation and therefore Denmark has secured one of the world's highest living standards. Denmark has a balanced society. Danish citizens enjoy equal opportunities as a result of the Danish welfare model. This model ensures a healthy work-life balance as well as free education and healthcare for all Danish citizens (Danish Ministry of Science, 2012).

When foreigners speak about the Danish Model, they are often thinking about the Danish labor market, which many see as a magic formula. In itself, the situation is indeed curious. Denmark has a so-called flexicurity policy, which is a combination of flexibility and security. Flexicurity is a welfare state model with a pro-active labor market policy. The term refers to the combination of labor market flexibility in a dynamic economy and security for workers. Workers and other employees in Denmark enjoy good wages and social benefits. Danish companies in many industries are among the most competitive on the world market (Andersen, 2009).

A unique and crucial aspect of the flexicurity model is that Danish employers can dismiss employees at very short notice. This allows the companies to adjust to changing market trends without suffering losses. Moreover, entrepreneurs are encouraged to try their luck, as they can easily get rid of employees if the project fails (Andersen, 2009).

#### **1.4 Entrepreneurial processes**

An entrepreneur is an individual who runs a small business and assumes all the risk and reward of a given business venture, idea, or good or service offered for sale (Wickham, 2006). Entrepreneurs are seen as risk-takers and innovators who reject the relative security of employment in large organizations to create wealth and accumulate capital (Blanchflower & Oswald, 1990). Entrepreneurship can be defined as what an entrepreneur does (Wickham, 2006) and consists of the process of how opportunities come into existence, who discovers the opportunity and how the entrepreneurial opportunity is exploited (Shane & Venkataraman, 2000).

Entrepreneurial processes describe the sequence of activities and decisions that the entrepreneur goes through that lead from an initial idea to a successful venture. In her groundbreaking research, Sarasvathy (2001, 2008) advanced our understanding of the entrepreneurial process by describing two distinct approaches to new venture creation: causation and effectuation. Causation and effectuation are two alternative approaches that entrepreneurs use in the new venture development process (Chandler, DeTienne, McKelvie, & Mumford, 2011). Using causal reasoning an entrepreneur begins with a specific goal and a given set of means for reaching it. Using effectual reasoning an



entrepreneur starts with only a set of means and in the process of deploying them, goals progressively develop (Sarasvathy, 2001).

Causation is consistent with planned strategy approaches (Chandler et al., 2011). The focus with causation is on achieving a desired goal through a specific set of given means. Causation invokes search and select tactics and underlies most good management theories. Causal rationality begins with a pre-determined goal and a given set of means, and seeks to identify the optimal – fastest, cheapest, most efficient, etc. – alternative to achieve the given goal (Sarasvathy, 2001).

Effectuation processes are consistent with emergent or non-predictive strategies (Chandler et al., 2011). The focus with effectuation is on using a set of evolving means to achieve new and different goals. Effectuation evokes creative and transformative tactics. Effectuation is an idea with a sense of purpose - a desire to improve the state of the world and the lives of individuals by enabling the creation of firms, products, markets, services, and ideas. Effectual reasoning is a type of human problem solving that takes the future as fundamentally unpredictable, yet controllable through human action. Effectuation is a logic of entrepreneurial expertise that both novice and experienced entrepreneurs can use in the highly unpredictable start-up phase of a venture to reduce failure costs for the entrepreneur. Effectuation is a process that can be used as the firm develops in the early start-up phase of growth (Sarasvathy, 2001).

It is important to point out though that the same person can use both causal and effectual reasoning at different times depending on the circumstances. The best entrepreneurs are capable of and use both (Sarasvathy, 2001).

### **1.5 The relationship**

It has long been recognized that the entrepreneurship is a vital source of economic growth (Baumol, 1968). High growth potential entrepreneurship has a significant impact on economic growth (Wong, Ho, & Erkkö, 2005). Therefore understanding the influence of national culture on entrepreneurship is of considerable theoretical and practical value (Hayton, George, & Zahra, 2002). This is why researchers found it important to investigate whether there is a relationship between culture and entrepreneurship.

Entrepreneurial activity is both influenced and shaped by the society in which the activity itself is placed. In fact the way a society is organized and the way it operates create the basis for the support of entrepreneurship. In the same way as the society shapes the opportunities and the support to entrepreneurship activity, the culture of a society, meant as the entire set of values, norms and beliefs, influences the way in which entrepreneurship is profiled and conducted (Coppola, 2011). As stated earlier Denmark has a lot of entrepreneurship and entrepreneurial opportunities. Therefore it is interesting to do this research in Denmark.

Research shows that some aspects of culture, such as individualism and uncertainty avoidance, are significantly related to entrepreneurial activity (Hayton, George, & Zahra, 2002). Schumpeter saw innovation as fundamental to the entrepreneurial process of wealth creation. A number of entrepreneurial characteristics appear to be influenced

consistently by national culture. There is strong evidence that self-reported reasons for starting a business vary systematically with variations in culture along dimensions of individualism, power-distance, and masculinity (Hayton, George, & Zahra, 2002).

Cultural values indicate the degree to which a society considers entrepreneurial behavior, such as risk taking and independent thinking, to be desirable. Davidson and Wiklund (1997) studied if different cultures have differences in rates of new-firm formation. Their research showed that cultural values and beliefs are significantly associated with regional rates of new-firm formation. Shane (1992) found a relationship between national rates of innovation and individualism and power distance. His research showed that when these dimensions are high, the nation tend to have a high rate of innovation. This states that individualism and power distance influence entrepreneurship positively. Later Shane (1993) found in a follow-up study that national rates of innovation are negatively correlated with uncertainty avoidance and power distance. These findings state that if a nation’s culture scores high on uncertainty avoidance this will have a negative effect on entrepreneurship. These two studies show different results for the dimension of power distance.

McGrath (1992) studied if entrepreneurs have a different set of values than non-entrepreneurs. Using a survey he found out that across cultures, entrepreneurs score high in power-distance, individualism and masculinity and score low in uncertainty avoidance. Mueller and Thomas (2000) studied if entrepreneurial traits vary systematically across cultures. The findings of their study indicated that cultures with a high score in individualism and a low score in uncertainty avoidance rate highest on a measure of entrepreneurial orientation (innovativeness and internal locus of control). These findings led Mueller and Thomas (2000) to conclude that cultures high in individualism and uncertainty avoidance are supportive of entrepreneurship (Hayton, George, & Zahra, 2002, pp. 3-11).

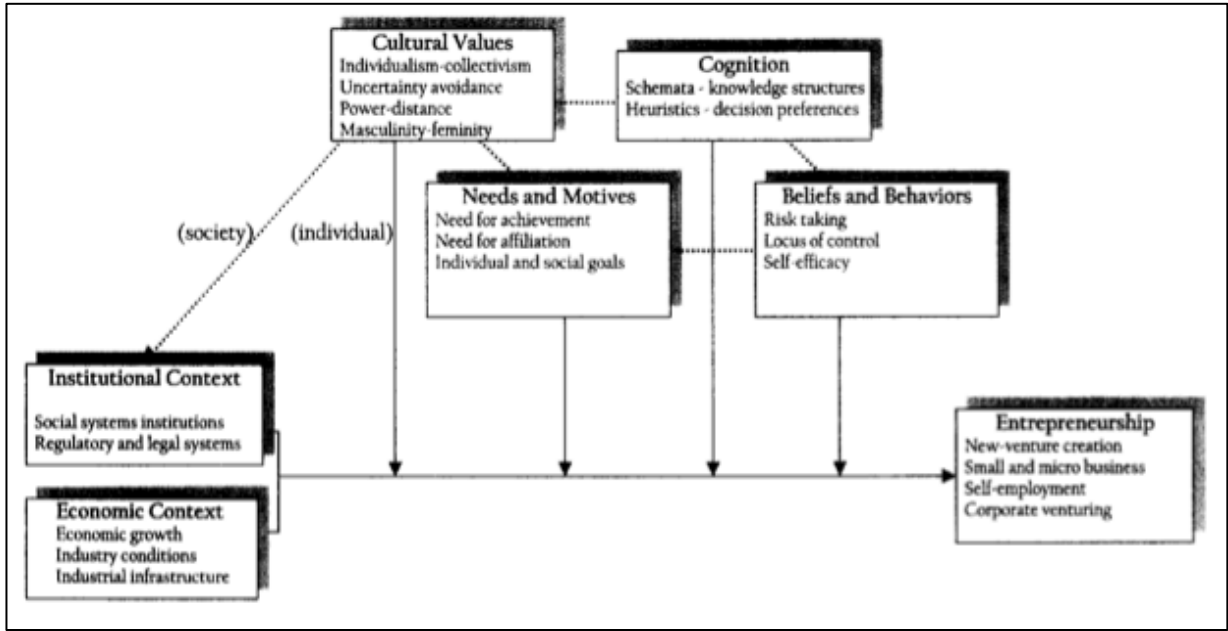


Figure 1 A model of culture’s association with entrepreneurship (Hayton, George & Zahra, 2002, p. 14)

The relationships between entrepreneurship and culture are illustrated in the model of culture's association with entrepreneurship. This model suggests that national culture is captured in different forms in behavioral research. The four forms suggested in the model include needs and motives, beliefs and behaviors, cognition, and cultural values (societal and individual levels). The model provides a broad overview of the potential patterns of relationships between national cultures, contextual factors, and entrepreneurial outcomes. The model suggests that cultural values (the dimensions from Hofstede) affect entrepreneurship in several ways (Hayton, George, & Zahra, 2002, p. 14).

### 1.6 The Research

A lot of research has been conducted to find out what influence culture has on entrepreneurship. However none of these researches have explored the influence of culture on entrepreneurial processes. Therefore this research seeks to explore to which extent this is the case in Denmark.

The goal of this research is to identify whether patterns in entrepreneurial decision-making are influenced by the national culture of Denmark. Several data collecting tools will be used in this research, like interviews and questionnaires. This data will be gathered through think-aloud verbal protocols, in which the sample group is asked to work on a case that deals with entrepreneurial processes. After the data is gathered relationships between culture and entrepreneurial processes will be explored and an answer to the research question will be provided.

### 1.7 Research Question

A lot of research is done in the field of entrepreneurship but only a few of these include the effects of culture on entrepreneurship. This research seeks to provide an answer if entrepreneurial processes are influenced by culture. Entrepreneurship has a fundamental role for the creation of new jobs, for innovation growth and thus, GDP growth, which is then mirrored in the total economic growth of a country (Coppola, 2011, p. 5) and entrepreneurial processes play an important role in entrepreneurship. Therefore it is important to find out whether there is a relationship between culture and entrepreneurial processes. If this is the case countries would have to adjust education and theories of entrepreneurship would need to take this cultural contextual dimension into account in order to positively affect entrepreneurship in countries to have a positive effect on GDP growth, new job creation, innovation and thus the overall economic growth of a country.

The main research question of this research is:

*What influence does the culture in Denmark have on entrepreneurial processes?*

To provide an answer to the research question sub-questions have been formulated that can help to answer the research question.

- (1) What do we understand when talking about entrepreneurial processes?*
- (2) How can you characterize the culture of Denmark?*
- (3) Which relationships have been found in studies between culture and entrepreneurship?*

To answer these sub-questions and eventually the main research question a research will be done among entrepreneurs through a case that deals with entrepreneurial processes.

## **2. Literature**

This chapter starts with an example of the two entrepreneurial processes and building on this both effectuation and causation will be clarified more. After further describing the two entrepreneurial processes the definition of culture will be given and the five dimensions developed by Hofstede (2001) to measure will be described. Several hypotheses will be formulated based on these two important concepts.

### **2.1 Entrepreneurial Processes**

A simple example should help clarify the two types of processes. Imagine a student that has to cook for his roommates. There are two ways the task can be organized. In the first process, the student picks out a menu in advance. All the student needs to do is list the ingredients needed, shop for them, and then actually cook the meal. This is a process of causation. It begins with a given menu and focuses on selecting between effective ways to prepare the meal. In the second process, the student looks through the closets in the kitchen for possible ingredients and kitchen tools and then cooks a meal. Here, the student has to imagine possible menus based on the given ingredients and kitchen tools, select the menu, and then prepare the meal. This is a process of effectuation. It begins with given ingredients and kitchen tools and focuses on preparing one of many possible desirable meals with them.

Causal logic provides useful decision criteria to achieve given goals subject to environmental selection in the face of an uncertain future. Effectuation provides useful design principles for transforming extant environments into new futures in the face of ambiguous goals (Sarasvathy, 2001).

Usually all the entrepreneur knows when he or she starts out is something very general, such as the desire to make lots of money or to create a valuable legacy like a lasting institution, or, more common, to simply pursue an interesting idea that seems worth pursuing. Creating a firm in a market that does not yet exist involves understanding how to make decisions in the absence of preexistent goals. Both causation and effectuation are integral parts of human reasoning that can occur simultaneously, overlapping and intertwining over different contexts of decisions and actions (Sarasvathy, 2001).

Entrepreneurs use both the causal and effectuation processes, however under what circumstances which types of processes provide particular advantages and

disadvantages is an issue to be resolved through future empirical studies. The causation process is effect dependent and is excellent at exploiting knowledge. The effectuation process is excellent at exploiting contingencies. Human life abounds in contingencies that cannot easily be analyzed and predicted but can only be seized and exploited, and, therefore, effectuation processes are far more frequent and very much more useful in understanding and dealing with spheres of human action (Sarasvathy, 2001).

Effectuation is the inverse of causation. Causal models begin with an effect to be created. They seek either to select between means to achieve those effects or to create new means to achieve preselected ends. Effectual models, in contrast, begin with given means and seek to create new ends using non-predictive strategies (Sarasvathy, 2008).

Effectual reasoning follows a logic that is different from causal logic. In the effectuation processes entrepreneurs start taking action, based on what you have readily available: who you are, what you know, and whom you know. This can be defined as a means-driven action. The emphasis here is on creating something new with existing means rather than discovering new ways to achieve given goals. In the causation process the effect is given. The entrepreneur that follows this process knows what he wants to achieve, the effect. This is a more goal-driven action. In the causation process the entrepreneur chooses between means to achieve the effect. The choice of means is driven by characteristics of the effect the decision maker wants to create. The difference between the two processes is that the causation process is effect-driven and the effectual process is actor-driven. Actor-driven means that, given specific means, the choice of effect is driven by characteristics of the actor and his or her ability to discover and use contingencies. In the effectual process the entrepreneur evaluates opportunities based on whether the downside is acceptable, rather than on the attractiveness of the predicted expected returns, which is a characteristic of the causal process. The causation model focuses on maximizing the potential returns for a decision by selecting optimal strategies. The effectuation model predetermines how much loss is affordable and focuses on experimenting with as many strategies as possible with the given limited means. The entrepreneur in the effectual process prefers options that create more options in the future over those that maximize returns in the present. The difference between the two processes is that the entrepreneurial process decides what one is willing to lose rather than investing in calculations about expected returns to the project (Sarasvathy, 2008, pp. 104-111).

Leverage contingencies embrace surprises that arise from uncertain situations, remaining flexible rather than tethered to existing goals. The causation process focuses on the predictable aspects of an uncertain future. The logic for using causation processes is: to the extent that we can predict the future, we can control it. The effectuation process focuses on the controllable aspects of an unpredictable future. The logic for using the effectuation processes is: to the extent that we can control the future, we do not need to predict it. The effectual process states that it is better to influence changes by acknowledging and appropriating them rather than trying to avoid them, overcome them, or adapt to them. In the effectual process partnerships are formed with people and organizations willing to make a real commitment to jointly creating the

future—product, firm, market—with you. Don't worry so much about competitive analyses and strategic planning. Causation models emphasize detailed competitive analyses. Effectuation emphasizes strategic alliances and pre-commitments from stakeholders as a way to reduce and/or eliminate uncertainty and to erect entry barriers. The effectual process involves negotiating with any and all stakeholders who are willing to make actual commitments to the project, without worrying about opportunity costs, or carrying out elaborate competitive analyses. The desired outcome for the effectual process is to create new markets through alliances and other cooperative strategies. The desired outcome of the causal process is to create market share in existing markets through competitive strategies (Sarasvathy, 2008).

Categories of Differentiation	Causation Processes	Effectuation Processes
Givens	Effect is given	Only some means or tools are given
Decision-making selection criteria	Help choose between means to achieve the given effect Selection criteria based on expected return Effect dependent: Choice of means is driven by characteristics of the effect the decision maker wants to create and his or her knowledge of possible means	Help choose between possible effects that can be created with given means Selection criteria based on affordable loss or acceptable risk Actor dependent: Given specific means, choice of effect is driven by characteristics of the actor and his or her ability to discover and use contingencies
Competencies employed	Excellent at exploiting knowledge	Excellent at exploiting contingencies
Context of relevance	More ubiquitous in nature More useful in static, linear, and independent environments	More ubiquitous in human action Explicit <i>assumption</i> of dynamic, nonlinear, and ecological environments
Nature of unknowns	Focus on the predictable aspects of an uncertain future	Focus on the controllable aspects of an unpredictable future
Underlying logic	To the extent we can predict future, we can control it	To the extent we can control future, we do not need to predict it
Outcomes	Market share in existent markets through competitive strategies	New markets created through alliances and other cooperative strategies

Figure 2 (Sarasvathy, Effectuation, 2008)

**2.2 Culture**

Every person's mental programming is partly unique, partly shared with others. There are three levels of mental programs. Hofstede argues that people carry mental programs that are developed and reinforced through their experience, and that these mental programs contain a component of national culture. The least unique but most basic is the universal level of mental programming that is shared by all humankind. The collective level of mental programming is shared with some but not all other people, it is common to people belonging to a certain group or category, but different from people belonging to other groups or categories. The individual level of human programming is the truly unique part; no two people are programmed exactly alike. The whole area of

subjective human culture belongs to the collective level of mental programming (Soares, Farhangmehr, & Shoham, 2007).

According to Hofstede (2001) the four terms values, symbols, heroes and rituals describe the concept of culture. This research investigates the concept of values in order to describe a culture. A value is a conception, explicit or implicit, distinctive of an individual or characteristic of a group, of the desirable modes, means and ends of action. Symbols are words, gestures, pictures, and objects that carry often complex meanings recognized as such only by those who share the culture. Heroes are persons, alive or dead, real or imaginary, which possess characteristics that are highly prized in a culture and thus serve as models for behavior. Rituals are collective activities that are technically unnecessary to the achievement of desired ends, but that within a culture are considered socially essential, keeping the individual bound within the norms of the collectivity. Symbols, heroes and rituals are subsumed under the term practices, as such they are visible to an outside observer; their cultural meanings are invisible and lie precisely and only in the ways insiders interpret these practices (Hofstede, 2001).

Nation can be used as a representation for culture since members of a nation tend to share a similar language, history, religion, understanding of institutional systems, and a sense of identity, making its use a common approach to operationalize culture (Soares, Farhangmehr, & Shoham, 2007). The word culture is usually reserved for societies. Basically, the word can be applied to human collectivity or category; an organization, a profession, an age group, an entire gender, or a family. Societies are the most complete human group that exists; a society is a social system "characterized by the highest level self-sufficiency in relation with its environments". Culture could be defined as the interactive aggregate of common characteristics that influence a human group's response to its environment (Hofstede, 2001). Hofstede listed five standard criticisms of his approach in the 2001 edition of *Culture's Consequences* (p. 73). Rachel Baskerville, reviewed the work of Geert Hofstede in her paper: Hofstede never studied culture. Baskerville's comments deal primarily with point 2 of Hofstede's own list of standard criticisms: Nations are not the best units for studying cultures. Hofstede's answer was: true, but they are usually the only kind of units available for comparison and better than nothing (Hofstede, 2008, pp. 1-3). Nations are the best useful criterion to classify groups. The use of nations for culture is the most common method because it's easier to find data about countries than it is to find data about small societies because nations produce data about their inhabitants. Within nations that exist for a longer period of time forces integrate the society together through language, common media, nationwide education, nationwide political system, symbols and a nationwide market (Hofstede & Hofstede, 2009, p. 32). Many countries, especially large ones like Brazil, China, India, Indonesia, and the United States, can be divided into regions differing along geographic, climatic, economic, linguistic, and/or ethnic lines. These represent regional societies generally assumed to differ culturally (Hofstede, Garibaldi de Hilal, Malvezzi, Tanure, & Vinken, 2010, p. 3). Denmark is a relatively small country therefore the assumption can be made that the regions in Denmark, although they will vary in the dimension scores, are statistically correlated. In this research the concept nations is used to describe culture.

### *Five dimensions of culture*

In order for all this to be meaningful, there must have been a solid understanding of what culture actually is and how it can be operationalized. Hofstede's major advance in the field of cultural research is primarily the development of a set of dimensions, which can be measured through survey instruments to obtain average values for a particular group of people, and hence a measure of their national culture attributes (Venaik & Brewer, Contradictions in national culture: Hofstede vs GLOBE, 2008, p. 3).

Based on statistical analyses of a multi-country sample on work-related values, Hofstede proposed that cultures are comparable on five dimensions, common to all countries under study: individualism/collectivism; uncertainty avoidance; power distance; masculinity–femininity and long-term orientation (Soares, Farhangmehr, & Shoham, 2007).

Individualism refers to the relationships individuals have in each culture. This dimension describes the relationship between the individual and the collectivity in the way people live together. In some cultures, individualism is seen as a blessing and a source of well-being; in others, it is seen as alienating. The relationship between the individual and the collectivity in human society is not only a matter of ways of living together it is intimately linked with societal norms. It therefore affects both people's mental programming and the structure and functioning of many institutions aside from the family; education, religious and political (Hofstede, 2001). The fundamental issue addressed by this dimension is the degree of interdependence a society maintains among its members. It has to do with whether people's self-image is defined in terms of "I" or "We". In individualist societies people are supposed to look after themselves and their direct family only. In collectivist societies people belong to 'in groups' that take care of them in exchange for loyalty (Hofstede).

Uncertainty avoidance refers to the extent to which people feel threatened by uncertainty and ambiguity and try to avoid these situations. Uncertainty about the future is a basic fact in human life with which we try to cope through the domains of technology, law, and religion. In organizations these take the form of technology, rules, and rituals. Uncertainty avoidance should not be confused with risk avoidance (Hofstede, Culture consequences, 2001). Uncertainty avoidance has to do with the way that a society deals with the fact that the future can never be known: should we try to control the future or just let it happen? This ambiguity brings with it anxiety and different cultures have learnt to deal with this anxiety in different ways. The extent to which the members of a culture feel threatened by ambiguous or unknown situations and have created beliefs and institutions that try to avoid these is reflected in the UAI score (Hofstede, 2001).

Power distance refers to the consequences of power inequality and authority relations in society. It influences hierarchy and dependence relationships in the family and organizational contexts. This dimension deals with the fact that all individuals in societies are not equal – it expresses the attitude of the culture towards these inequalities amongst us (Hofstede). Power distance is defined as the extent to which the less powerful members of institutions and organizations within a country expect and



accept that power is distributed unequally. Power distance is a measure of the interpersonal power or influence between a boss and a subordinate as perceived by the less powerful of the two, the subordinate. The term power distance is taken from the work of the Dutch social psychologist Mauk Mulder (1976, 1977). Mulder defines power distance as the degree of inequality in power between a less powerful individual (I) and a more powerful other (O), in which I and O belong to the same social system (Hofstede, 2001).

Dominant values in masculine countries are achievement and success and in feminine countries are caring for others and quality of life. A high score (masculine) on this dimension indicates that the society will be driven by competition, achievement and success, with success being defined by the winner / best in field – a value system that starts in school and continues throughout organizational behavior. A low score (feminine) on the dimension means that the dominant values in society are caring for others and quality of life. A feminine society is one where quality of life is the sign of success and standing out from the crowd is not admirable (Hofstede).

The long-term orientation dimension can be interpreted as dealing with society's search for virtue, the extent to which a society shows a pragmatic future-oriented perspective rather than a conventional historical short-term point of view (Hofstede).

Hofstede's work is subject to some criticisms, especially in respect of the usefulness of operationalizing culture through a series of numerically measured dimensions, some preferring to use richer qualitative techniques (McSweeney, 2002). Cultural convergence is a phenomenon that many argue has had profound consequences on societies, including encouraging a convergence of cultural differences (Shenkar, 2001). If so then dimensions measured in the 1960's would now be much altered. Schwartz and Bilsky (1990) argue that insufficient aspects of culture are taken into account and Javidan et al (2006) point to the US and specifically IBM centric nature of Hofstede's data and therefore doubt its generalizability. In spite of these (and other) criticisms, Hofstede's work, as stated, remains the dominant model for cross-cultural research (Venaik & Brewer, Contradictions in national culture: Hofstede vs GLOBE, 2008, pp. 4-5).

### **2.3 Causal predictions**

On the basis of findings of previous research on the relationship between culture and entrepreneurial processes described earlier hypotheses will be formulated on the expected relationship between culture and entrepreneurial processes. Later in this research, after the research is done and the findings have been analyzed, these hypotheses will be accepted or rejected depending on the results of the research.

Studies suggest that culture influences entrepreneurship in several ways. It is not yet investigated if entrepreneurial processes are influenced by culture but previous research in the field of culture and entrepreneurship show positive correlation between the two concepts and this encourages studying the influence of culture on entrepreneurial processes. Focusing on one dimension instead of all five leads to a more thorough research. Looking at the five dimensions described by Geert Hofstede (2001) some dimensions seem to influence entrepreneurial processes more than others. In

figure 2 Sarasvathy (2008) compares causation and effectuation. Taking a look at this figure shows that several elements deal with uncertainty. Selecting criteria on expected returns or affordable loss, predicting the future and controlling the future are all aspects that deal with limiting or accepting uncertainty. In the causation processes uncertainty is limited by predicting the future, like predicting the expected returns of an investment. In the effectuation process uncertainty is accepted. There is no need to predict the expected returns of an investment, the focus is on what the entrepreneur can afford to loss rather than gain from an investment. Hence the assumption is made that uncertainty avoidance has an influence on entrepreneurial processes. Therefore this research focuses on uncertainty avoidance.

Several hypotheses were formulated on the expected relationship between entrepreneurial processes and uncertainty avoidance:

*Hypothesis 1: In a culture where uncertainty avoidance is low entrepreneurs tend to be less resistance to change and therefore focus on the controllable aspects of an unpredictable future.* When uncertainty avoidance is low the people in this culture tend to have more openness to change and innovation. In the causal entrepreneurial process subjects tend to focus on the predictable aspects of an uncertain future while in the effectual entrepreneurial process subjects tend to focus on the controllable aspects of an unpredictable future. Subjects in the causal process try to predict the future and changes that might occur in the future while subjects in the effectual process know that the future is unpredictable and try to focus on what they can control. Another aspect that differs between the effectual and causal process is that the causal process puts more emphasis on existing market knowledge (through market research for example) and the effectual process puts more emphasis on the exploration of contingencies.

*Hypothesis 2: In a culture where uncertainty avoidance is low entrepreneurs are relationship orientated and therefore make use alliances or partnerships.* In the effectuation process new markets are created through alliances and other cooperative strategies. Hofstede (2001) states that in a culture where uncertainty avoidance is low, people are relationship orientated in the work situation and in a culture with high uncertainty avoidance people are task orientated in the work situation. Work situation refers to the work environment of employees in big organizations. Hence this limits the generalizability to entrepreneurs, however this does give a good insight in what a possible relationship might be between uncertainty avoidance and entrepreneurial processes.

*Hypothesis 3: In a culture where uncertainty avoidance is low entrepreneurs prefer tasks with uncertain outcomes and calculated risks and therefore use their affordable loss.* When uncertainty avoidance is low in a culture people tend to prefer tasks with uncertain outcomes, calculated risks and requiring problem solving while cultures with high uncertainty avoidance prefer tasks with sure outcomes, no risk and following instructions (Hofstede, 2001, p. 169). In the effectual entrepreneurial process subjects base selection criteria on affordable loss, while in the causal entrepreneurial process subjects base their selection criteria on expected return. Therefore a counterfactual hypothesis can be formulated stating that in a culture where uncertainty avoidance is

high people prefer tasks with sure outcomes, no risk and following instructions and therefore prefer expected returns.

*Hypothesis 4: When it is easy to start a business, like it is in Denmark, people tend to prefer the effectual entrepreneurial process.* Current reforms have improved government regulation, in particular in the simplification of regulatory requirements and reduced administrative burdens towards businesses, placing Denmark among the most competitive countries. Denmark has been ranked 6th for the ease of doing business, especially given the low costs and the few overall time needed to comply with all procedure requirements connected to start an activity, which show a good overall condition for entrepreneurship (Coppola, 2011, pp. 74-75). The effectual entrepreneurial process is excellent at exploiting contingencies and when these contingencies present themselves it is favorable when it is easy to start up a business like it is in Denmark. Therefore the assumption can be made that government regulations can have an influence on entrepreneurial processes.

The hypotheses between uncertainty avoidance and entrepreneurial processes have been formulated based on assumptions in previous studies about these concepts. The research Hofstede (2001) conducted focused on employees in big organizations. However this study does provide good insights in the possible relationship between culture and entrepreneurial processes. The fourth hypothesis is a specific hypotheses regarding Denmark to see whether government regulations, which are part of the concept culture, have an influence on entrepreneurial processes. In the next chapter a description will be given on how the relations between the concepts as stated above in the hypotheses will be examined. After analyzing the research results these hypotheses will be rejected or accepted.

### **3. Methodology**

In this chapter a short description will be given which methodology will be used in this research. First the sample used in this research will be described. After describing the subjects the data collecting methods will be described. Finally a description will be given about how the case will be analyzed using coding and statistics.

#### **3.1 Sample**

##### **3.2.1 Subjects**

The units of analysis for this study are “student entrepreneurs”, because student entrepreneurs are more approachable than regular entrepreneurs. A student entrepreneur can be defined as a student in higher education that started up his or her own business. Student entrepreneurs are often more open for this kind of research and have more time to do an extensive interview. In some universities, special programs are in place to help out students starting their own business, whilst other universities have companies started by students independently of university support. Examples of programs that support student entrepreneurs starting their own business in the Netherlands are [www.studentondernemer.nl](http://www.studentondernemer.nl), aligned with the University of Twente and

gate to create, CSE, Venture Cup and CIEL in Denmark. The support they offer differs from forming the idea with a business model on canvas to creating a business plan or helping with funding the project.

### **3.1.2 Finding subjects**

Finding student entrepreneurs willing to participate in this research in another country is difficult. Therefore some informants are contacted in Denmark. An informant is someone who is well versed in the social phenomenon that you wish to study and who is willing to tell you what he or she knows about it (Babbie, 2007, p. 186). These informants can help me get in contact with student entrepreneurs in Denmark. After getting in touch with some student entrepreneurs another approach could be helpful in finding more student entrepreneurs for this research, snowball sampling. Snowball sampling is a nonprobability sampling method often employed in field research whereby each person interviewed may be asked to suggest additional people for interviewing. This procedure is appropriate when the members of a special population are difficult to locate (Babbie, 2007, pp. 184-185). The research will be done among (a minimum of) 20 subjects. A minimum of 20 subjects is required to maintain reliability of the research. Reliability is the quality of the measurement method that suggests that the same data would have been collected each time in repeated observations of the same phenomenon. The matter of whether a particular technique, applied repeatedly to the same object, yield the same result each time (Babbie, 2007, p. 145).

The informants used to find the subjects are incubators of Copenhagen school of entrepreneurship (CSE) and Venture Cup. CSE is part of Copenhagen business school and helps students start up their own business. They for instance provide them with an appropriate work space and give advice how to set up their business. CSE has many contacts with partners in the same field. Organizations like Stardust, a student-driven organization for entrepreneurship on CBS and Gate to Create, a national student entrepreneurship organization of Denmark are partners of CSE and students are facilitated in all sorts of ways by these organizations. The kind people of CSE helped me get in contact with several student entrepreneurs in Copenhagen. Another organization that facilitated student entrepreneurs is Venture Cup. Venture Cup helps and inspires young entrepreneurs and is supported by most Danish universities and some of Denmark's most innovative companies. Venture Cup provides funding via competitions, key networking opportunities, and vital feedback for young entrepreneurs.

## **3.2 Data Collection methods**

### **3.2.1 The case**

The case that the student entrepreneurs will be doing is a case to identify which entrepreneurial process the student entrepreneurs prefer in the start-up phase of a new venture. The case has been designed by Martin Stienstra and Rainer Harms (2012) as part of the EPICC Project. In the case the students are asked to put themselves in the role of an entrepreneur, the founder of a coffee corner at a university campus named Coffee

Inc. The student encounters 10 problems, which an entrepreneur would encounter when starting up a business and he has to solve these problems while thinking aloud.

The first problem the student encounters is to identify the market. Issues here are who could be potential customers/competitors and what kind of market research would the student entrepreneurs do. With this question we can see how much emphasis the subject puts on competitive analysis or whether the subject prefers to use means. The second problem gives more information about the market and the problem the students encounters here is: which market segment(s) will the entrepreneur sell his product to and how he'll price the product. This is an important step in identifying which entrepreneurial process the student prefer because the difference in the causal and effectual entrepreneurial process lies in the fact how much emphasis the subject lies on market research, which is a causal characteristic, or opposing the market research, which is an effectual characteristic. The third problem involves the problem were the entrepreneur needs money to pay his employees and he needs to decide how he will come up with the money, borrowing from friends or relatives. The fourth problem is also about financing and involves an investment the entrepreneur needs to make in order to grow. With this problem we can analyze whether the subject is willing to use of alliances or partnerships, which are effectual characteristics, in order to grow.

The fifth problem concerns an interview with a newspaper about Coffee, Inc. The sixth question is about product re-development. This question should make sure to identify whether the student entrepreneur reacts to feedback (effectual) or doesn't react to feedback (causal). As described in the first chapter entrepreneurs with the effectual entrepreneurial process react strongly to feedback. The seventh deals with an employee who can't keep up with the developments of the company and is asked to see how the subject deals with this situation. The eighth problem is about hiring a new chief operating officer and is asked to see how the subject would deal with the situation were he would have to hire a new COO and what the subject would focus on when hiring a new COO. The ninth question is about charity, whether or not the person is willing to donate for a project and the focus lies on affordable loss (effectual) and expected returns (causal). The last question concerns how the student entrepreneurs deal with leaving the company and focuses on whether the subject would sell the company with a huge amount of profit to do something else, which will indicate a more effectual style, or selling shares and staying with the company, which will indicate a more causal style.

After at least 20 student entrepreneurs have answered all these questions a good overview can be made on how student entrepreneurs deal with problems concerning a new venture. After analyzing these cases it should be clear whether these students prefer the effectual or causal entrepreneurial process. To practice how the case should be done some trial sessions will be done with student entrepreneurs in the Netherlands.

### **3.2.2 The think aloud method**

During this case the student entrepreneurs have to think aloud the whole time, this method of analyzing how people solve problems is called the think aloud method. The think aloud method consists of asking people to think aloud while solving a problem and analyzing the resulting verbal protocols. What they say is recorded and used as data for analysis of the design process. This is a very direct method to gain insight in the knowledge and methods of human problem solving. Problem-solving means answering a question for which one does not directly have an answer available. The purpose of the collection and analysis of protocols is the study of cognitive processes (Van Someren, Barnard, & Sandberg, 1994; Ericsson & Simon, 1985).

Thinking aloud during problem solving means that the subject keeps on talking, speaks out loud whatever thoughts come to mind, while performing the task at hand (van Someren, Barnard, & Sandberg, 1994). Thinking aloud is a method, which, in principle, does not lead to much disturbance of the thought process. Think aloud protocols are not necessarily complete because a subject may verbalize only part of his thoughts. Interference should only occur when the subject stops talking. Therefore when the subject remains silent for a while when he is thinking the subject will be encouraged to think aloud in order to capture all his thoughts (van Someren, Barnard, & Sandberg, 1994).

The interviews will be recorded on a recorder and are called spoken protocols. These protocols are transcribed into text. After the session has been recorded, it has to be transcribed. Transcribing a protocol usually means typing it out as precise as possible. This typing out brings along its own difficulties, like different interpretation than what the subject meant or mistyping or mishearing the recording, which might lead to a different interpretation. Typing out protocols is an uninteresting and time-consuming task. It is important to know what happened during a session, because interruptions may have an influence on the problem-solving process. Generally speaking, the typist should try to type it out as faithfully as he can, staying as close as possible to what the subject said. Recognizable pauses and unusual silences between two words are noted down by special marks, conventionally by dots. Most sentences in think aloud protocols are not so well formed. One should therefore be careful with punctuation, in order not to give one's own interpretation to a sentence. If something is unclear on the audio-tape then it better to type 'unclear' than to interpret it at that stage (van Someren, Barnard, & Sandberg, 1994). These problems are important to take into account to avoid unwarranted interpretations.

### **3.2.3 Language**

Part of the reason why the think aloud method is effective in analyzing the subjects is because the subjects can speak their mind in their own language. They can just say anything they are thinking about when solving the problem and doing this in another language could be an obstacle because they might not be concentrating on the problem but on speaking English or they can't find the words that they are thinking of in their native language. In practical terms the interviewer needs to understand the subject

when doing a qualitative research. Therefore interviews and questionnaires will be conducted in English. This could be a problem when doing the case in English in Denmark. To find out if this would indeed cause a big problem in the validity, the extent to which an empirical measure adequately reflects the real meaning of the concept under consideration (Babbie, 2007, p. 146), a pilot study was executed to check the level of English in Denmark.

Danes blend many English words into their day-to-day conversations. The Danes' fondness for English, however, extends beyond the interspersing of English words and phrases. Just ask any emigrant who has steeled their nerves to say something in Danish only to have their spirit crushed by a response in English. Perhaps Danes perceive English as a better language. Danish higher education institutions are all internationally oriented and offer a wide selection of programs and individual courses taught in English. As most Danes speak English, students tend to find it easy to live in Denmark, even though they hardly speak any Danish (Cremer, 2011). The Danes learn English early at school and tech startups in the country tend to use English as the first language around their offices, helping them attract international talent that may be uncomfortable speaking Danish (Bryant, 2011).

After reading a lot about Danes and how they speak English it could be stated that the Danish people and the Danish student (-entrepreneurs) in particular speak sufficient English and are capable of doing the case in English.

#### **3.2.4 VSM 08 survey**

This research focuses on the culture of Denmark and in order to operationalize culture the five dimensions of Hofstede (2001) will be used. These dimensions have been described earlier and will give insight in some important aspects of a culture.

When taking a look at the five dimensions for Denmark we can get a good overview of the drivers of the Danish culture in comparison to other cultures. The scores are ranked between 0 and 100, with a low score in, for example, power distance meaning that the culture has little power distance in comparison to other countries.

Denmark scores 74 points in the dimension of individualism and collectivism. This score indicates that Denmark has an individualistic culture. Denmark scores 23 points in the dimension uncertainty avoidance. This indicates that Danes do not need a lot of structure and predictability in their work life. Curiosity is natural and is encouraged from a very young age (Hofstede, 2001). This combination of a highly individualistic and curious nation is also the driving force for Denmark's reputation within innovation and design. Denmark scores 18 points in the dimension power distance. This indicates that Danes believe in independency, equal rights, accessible superiors and that management facilitates and empowers. Power is decentralized and managers count on the experience of their team members. Workplaces have a very informal atmosphere with direct and involving communication and on a first name basis (Hofstede, 2001). Denmark scores 16 on the dimension masculinity/femininity and can therefore be considered as a feminine society. In feminine societies it is important to keep the life/work balance. Incentives such as free time and flexible work hours and

place are favored (Hofstede, 2001). The Danes score 46 in the dimension long-term orientation and therefore can't be considered as either a long-term or short-term oriented culture.

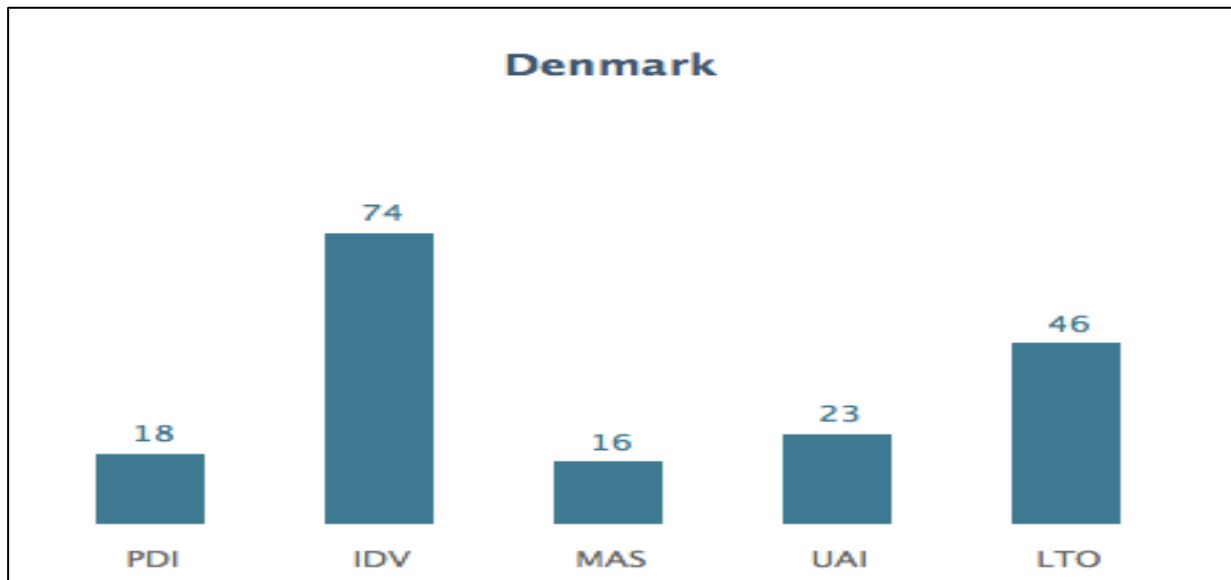


Figure 3 Scores Denmark 5 Dimensions Hofstede (2012)

According to McGrath (1992) entrepreneurs score high on the dimensions power-distance, individualism and masculinity and score low on the dimension uncertainty avoidance. This indicates that entrepreneurs might have different scores than the overall population of a culture. Therefore research needs to be done to find out whether there is a difference between the overall population of Denmark and Danish student entrepreneurs regarding the dimension scores.

When researching if culture has an influence on entrepreneurial processes, there are quite a number of frameworks that could be used from the cultural point of view. One of them is the values survey module (VSM 08 survey) by Hofstede (2008). In order to find out if the entrepreneurial processes are influenced by cultural values the VSM 08 survey will be held after the case. The VSM 08 is a 34-question survey developed for comparing culturally influenced values. It allows scores to be computed on seven dimensions of national culture, on the basis of four questions per dimension:  $7 \times 4 = 28$  content questions. The four questions belonging to the same dimension are usually correlated. Five of the dimensions measured are described earlier as the dimensions of Geert Hofstede (2008). The other two dimensions are based on the work of Michael Minkov (2007) but these two dimensions will not be used in this research. The other six questions are for demographic information: the gender, age, educational level, occupation, present nationality, and nationality at birth (Hofstede, Hofstede, & Vinken, Values Survey Module 2008 Manual).

To determine the score for the five dimensions Hofstede (2008) formulated his own calculation. The scores range from 1 (which stands for utmost importance) to 5 (which stands for very little or no importance). As stated earlier there are 4 questions per



dimension. These questions together should give a good overview of the index score of the dimension. Hofstede (2008) formulated a formula per dimension. These formulas are:

Dimension	Formula
Power Distance	$PDI = 35(m07-m02)+25(m23-m26)$
Individualism	$IND = 35(m04-m01)+35(m09-m06)$
Masculinity	$MAS = 35(m05-m03)+35(m08+m10)$
Uncertainty Avoidance	$UAI = 40(m20-m16)+25(m24-m27)$
Long-Term Orientation	$LTO = 40(m18-m15)+25(m28-m25)$

**Table 1 VSM 08 Formulas Dimensions Hofstede (2008)**

Every formula includes the mean of 4 questions relative to this dimension. Therefore it is necessary to calculate the mean for these questions in order to calculate the score of the dimension.

On page 16 in this paper the scores of the dimensions found in the study of Hofstede (2008) have been described. There might however be a difference in the scores between the whole culture in Denmark and the scores of Danish student entrepreneurs. This might lead to the fact that the score in uncertainty avoidance is low for the overall culture of Denmark but high for student entrepreneurs in Denmark. Therefore a survey will be done among student entrepreneurs to see whether culture differs between the regular Dane and the Danish student entrepreneur.

### **3.2.5 Questionnaires**

After the case is done an interview will be held referring to the case. In this interview will be done to find out whether the subject had any difficulties with solving the problem. Perhaps the subject would solve some problems completely different then the case states. With these questions we can find out whether the subject had enough background information, whether he would do anything differently then he said during the case, if the subject found it difficult thinking aloud during the case and if this influenced the way he did the case. These questions are important because they can give a good insight in if the think aloud method influenced the outcome of the case and therefore the reliability of the results from the case. Because the subject has to constantly think aloud it is possible that the subject starts making different choices than he would have made if he could have thought about it longer.

Reviewing the protocol with the subject can provide very useful additional information. Protocols are usually incomplete and difficult to interpret and the subject can be very helpful here. A good procedure is to review the case with the subject as soon as possible after the actual think aloud session (van Someren, Barnard, & Sandberg, 1994, p. 48).

After these questions about the interview have been answered, some information has to be gathered about the company of the subject. Therefore another questionnaire will be held, developed by Martin Stienstra and Rainer Harms (2012) as part of the EPICC project. The questions here are about the company of the subject and some basic information will be asked. The name of the interviewer, the name/website of the

students company, a short description of the student company, the founding date and place, the number of founders, current number of employees and annual turnover are some of the questions asked. After asking about this basic information two questions will be asked about why the student started his/her own company. The next couple of questions are about identifying if the subject had a more causal or effectual entrepreneurial process when he started his own business, for example if the subject selected target markets and if the subject did a competitive analysis. This will be done for a couple of reasons. First of all, as stated above, the think aloud method could influence the results from the case because the subject made different decisions when thinking aloud then he would have made when he could think about it more. The second reason is because student entrepreneurs learn from starting their own business. It is possible that when the subject started his own business he followed a causal process and thought about every step. It is then perhaps possible that when he would start a new company that he would follow an effectual process. When both the information about the case and information about the company are compared we could find a relationship between that experienced entrepreneurs follow an effectual entrepreneurial process and that inexperienced entrepreneurs follow a causal entrepreneurial process.

After this questionnaire some more basic biographic information is asked. These questions are about the subject himself, the study he follows, if he does a master/bachelor or something else, the name of the university/city/country, date of birth, sex and about the subjects family background. With this information the validity, the extent to which an empirical measure adequately reflects the real meaning of the concept under consideration (Babbie, 2007, p. 146), of the research can be determined. If all the subjects are students with wealthy parents who facilitate the subject it could have a different outcome than with 'normal' students. Another possibility is that the family of the subject has a large network that helped the subject with the business. The family background therefore is a very important aspect of this questionnaire of basic biographic information. A relationship between if the subject follows a causal or effectual process and the type of study could also be found. It is possible that not the culture influences the type of entrepreneurial process but the type of study or something else. The purpose of this research is to find out if culture influences the type of entrepreneurial process and with this survey of basic biographical information all the other elements that could influence the type of entrepreneurial process is filtered out as much as possible in order to be able to really find out if there is a relationship between entrepreneurial processes and culture.

### **3.2.6 Analyzing data**

In order to analyze the case the spoken case needs to be written down. These written cases need to be coded according to the coding scheme that was developed for the EPICC project. This coding scheme was developed in order to enhance inter-rated reliability. Whenever humans are part of the measurement procedure results might be less reliable or consistent, because people get tired of doing repetitive tasks and might misinterpret

data. Inter-rated reliability can be used in order to make the observations consistent in this study. Therefore in the EPICC project all participants use the same coding scheme in order to enhance reliability and consistency. An example of a coding scheme can be seen in appendix A. In order to analyze the case characteristics of the causal and effectual entrepreneurial process have determined by Sarasvathy (2001). Every problem is analyzed through these aspects of the causal and effectual entrepreneurial process in table 2. These characteristics are going to be used to code the written down case. Every sentence of the written down case is going to be analyzed and coded with one of these characteristics. After the coding is done the coded case is going to be put in an Excel database to get a good overview of the case. Putting all these databases together will give a good overview of all the interviewed subjects and there scores in the case. In this overview all the scores of the different aspects of the entrepreneurial processes described by Sarasvathy (2008) are going to be added up per characteristic to get a good overview which characteristic is most used among the subjects. The total of the causal and effectual characteristics are going to be compared to see whether Danish entrepreneurs use more causal of more effectual entrepreneurial processes.

Using the elements as an indicator of the distribution of the scores can limit the reliability of this research. Elements are coded as one, disregarding of the number of sentences the element includes. Whether an element has one sentence of forty does not make a difference in the coding scheme. Therefore another data-base will be created that shows the share of causation and effectuation. The amount of sentences will be gathered in order to create a reliable case analysis. Due to the fact that some people talk more than others and hence produce more sentences the share of the sentences categorized as causal and effectual are going to be used instead of the total number of causal or effectual sentences.

<b>Causal</b>	<b>Effectual</b>
G – Goal-driven	M – Means-based
R – Expected returns	L – Affordable loss
B – Competitive analysis	A – Use of alliances or partnerships
K – Existing market knowledge	E – Exploration of contingency
P – Predictions of the future	C – Non-predictive control
Z – Emphasis on analysis of data	D – Distrusting or opposing (marketing) research
X – Causal (no subcategory given)	N – Effectual (no subcategory given)

Table 2 Elements effectuation and causation (Stienstra & Harms, 2012; based on Sarasvathy, 2008)

### **3.2.7 Case study**

The fourth hypothesis regards the influence of government regulations on entrepreneurial processes. In order to investigate this hypothesis a case study will be done to investigate whether Denmark is a good place to start a business and whether it is easy to start a business in Denmark. Therefore the Legatum Prosperity Index (2012) and the Doing Business study of the World Bank (2010) will be used. The Legatum

Prosperity Index (2012) research has studied entrepreneurship and entrepreneurial opportunities in 104 countries and compared these findings. This research can give a good insight in entrepreneurship in Denmark compared to other countries. The Doing Business study (2010) measures procedures, time and cost to startup and operate a business in 185 countries.

After collecting the data from this study about entrepreneurship the data collected in the case will be used to study whether there might be a significant relationship between regulations in a country and entrepreneurial processes.

### 3.3 Statistics

The final stage of this research is analyzing all the data. Therefore some sort of statistical model needs to be applied to the data. In order to determine which statistical model should be used to analyze the data, Field (2009, p. 822) designed a decision tree. In this decision tree it is easy to determine which statistical model should be used for analyzing data based on various factors. First a distinction must be made whether the dependent and independent variable are continuous or categorical variables. According to Field (2009, p. 783) a continuous variable is a variable that can be measured to any level of precision. For example time is a continuous variable, because there is in principle no limit on how finely it could be measured. A categorical variable is any variable made up of categories of objects/entities (Field, 2009, p. 782).

The dependent variable in this research is entrepreneurial processes. This variable can be categorized as a categorical variable because the entrepreneurial process has been divided in effectual and causal and these two processes have been divided into different characteristics and therefore we can categorize entrepreneurial processes as a categorical variable.

The independent variable in this research is culture. Although culture is divided into different dimensions in this research and can therefore be categorized as a categorical variable, culture is a continuous variable. Culture is a variable that can be measured to any level of precision. There is no limit to how culture can be measured. In this research the dimensions of Hofstede (2008) will be used. Although this has had much criticism, it is a good way of measuring culture. This is one way of measuring culture but culture remains a thing that is hard to measure and therefore can be categorized as a continuous variable.

When using the decision tree from Field (2009, p. 822) we can determine that we should either use a dependent t-test or a Wilcoxon matched-pairs test to analyze the data when we conclude that our dependent variable is a categorical variable and our independent variable is a continuous variable. To determine between the two statistical models we should determine if the data meets assumptions for parametric tests (Field, 2009, p. 822). A parametric test requires data from one of the largest catalogue of distributions that statisticians have described. Normally this term is used for parametric tests based on the normal distribution, which requires four basic assumptions that must be met for the test to be accurate: a normally distributed sampling distribution, homogeneity of variance, interval or ratio data, and independence (Field, 2009, p. 791).

To determine whether there is a normal distribution a test of normality should be performed. The Kolmogorov-Smirnov test and the Shapiro-Wilk test compare the scores in the sample to a normally distributed set of scores with the same mean and standard deviation. If the test is non-significant ( $p > .05$ ) the distribution of the sample is not significantly different from a normal distribution. If the test is significant ( $p < .05$ ) the distribution in question is significantly different from a normal distribution (Field, 2009, p. 144). Another factor of parametric tests is homogeneity of variance. This assumption means that as you go through levels of one variable, the variance in the other should not change. The homogeneity of variance can be measured through a test called Levene's test. Because the test of homogeneity of variance is used for groups of data there is no need to perform the Levene's test due to the fact that in this research one group of data will be collected (Field, 2009, p. 149-50).

So in order to determine between which tests should be used to analyze the data a test of normality should be performed. Based on this test we can determine whether to use the dependent t-test or the Wilcoxon matched-pairs test.

In order to see if there is a significant relationship between culture and entrepreneurial processes another statistical model should be used. The relationship that is going to be tested is the relationship between the share of causation and uncertainty avoidance. Therefore the decision tree of Field (2009, p. 822) will be used. Following this decision tree the conclusion can be made that either the dependent t-test or the Wilcoxon matched-pairs test should be used to see whether there is a significant relationship between culture and entrepreneurial processes. There is one outcome variable, share of causation, which is continuous. The predictor variable, uncertainty avoidance, can be categorized as categorical and the same participants are used to measure uncertainty avoidance. Therefore there are, according to the decision tree of Field (2009, p. 822), two possible statistical tests that could be performed to measure the relationship. To determine which one should be used a test of normality will be performed.

To test the hypotheses the relationships as stated in the hypotheses will be tested using a statistical model. In order to find out whether the distribution of the scores of (1) predictions of the future/non-predictive control, (2) competitive analysis/use of alliances and partnerships, and (3) expected returns/affordable loss, is normal a test of normality will be performed. Based on the test of normality a statistical model can be used according to the decision tree of Field (2009, p.822).

## Chapter 4 Findings

### Chapter 4.1 the case

The majority of interviews were carried out face-to-face, with eleven interviews conducted by videoconference due to time and money restrictions or geographical location. All interviews were recorded digitally and transcribed. These interviews are available on Dropbox in a private folder. The scores of the subjects per element can be seen in appendix E and a summary is given in table 3. These scores are based on the analyzed protocols of the case.

Elements	Causal	Effectual
Goal-driven/Means-based	56	129
Expected returns/Affordable loss	21	16
Competitive analysis/Use of alliances or partnerships	18	35
Existing market knowledge/Exploration of contingency	29	33
Predictions of the future/Non-predictive control	28	28
Emphasis on analysis of data/Distrusting or opposing marketing research	53	28
Causal/Effectual (no subcategory given)	9	48
Total	214	317

**Table 3 Results case**

The score of the mean-based element is 129 and the score for the goal-driven element is 56. This means that 129 times all subjects together made use of the means-based element and 56 times used of the goal-driven element in order to solve the problems given in the case. Based on these scores it can be concluded that Danish student entrepreneurs use their means when they encounter problems. They try to solve the problem based on what they know rather than to be driven by a goal.

The score of expected returns is 21 and the score for affordable loss is 16. Although the difference is rather small it can be concluded that Danish entrepreneurs are more motivated about what they can earn than on what they can afford to lose.

The score for competitive analysis is 18 and the score for use of alliances or partnerships is 35. Therefore the conclusion can be made that Danish entrepreneurs rather create the future together through using alliances or partnerships rather than creating market share in existing markets through competitive analysis.

The score for existing market knowledge is 29 and the score for exploration of contingency is 33. There is no real difference noticeable between these two elements.

The score for predictions of the future is 28 and the score for non-predictive control is 28. Therefore the conclusion can be made that there is no difference between the two elements and the Danish entrepreneurs use predictions of the future as much as they use non-predictive control.

The score of distrusting or opposing marketing research is 28 and the score for emphasis on analysis of data is 53. Therefore the conclusion can be made that Danish

student entrepreneurs rather base their decisions on analysis of data than distrusting the data and go against the data.

The last category is the causal (no subcategory given) or effectual (no subcategory given). This is the element in which there is a clear distinction between the two entrepreneurial processes but the distinction can't be categorized in one of the subcategories as given by Sarasvathy (2008). The score for effectual (no subcategory given) is 48 and the score for causal (no subcategory given) is 9.

### Element score distribution

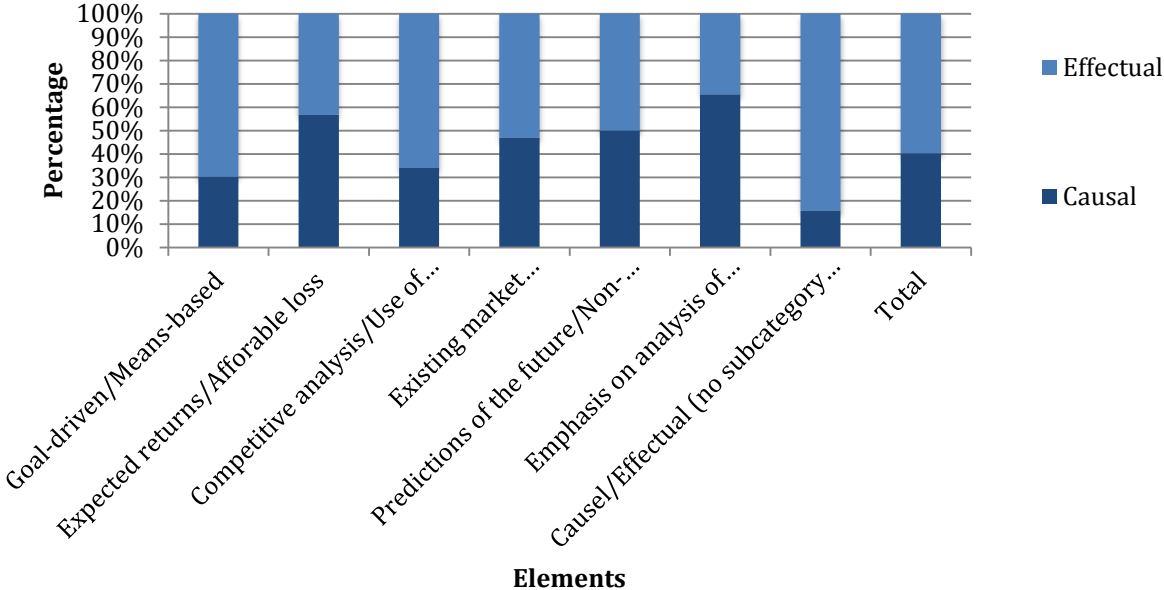


Figure 4 Scores elements case

The questions regarding the case showed that their English was sufficient to describe their thoughts, 2 students had trouble talking aloud or reading the case in English instead of Danish. The subjects could express their thoughts properly. They indicated to have had enough information to solve the questions in the questionnaire. Talking aloud was no problem according to the subjects. Some students couldn't find a word they were looking for in order to describe their thoughts. However, they stated that they could explain their thoughts sufficiently through another word or explaining it to the interviewer. One issue most of the students had was that there was little information about the background information regarding the profit or costs per cup in order to establish a price per cup of coffee.

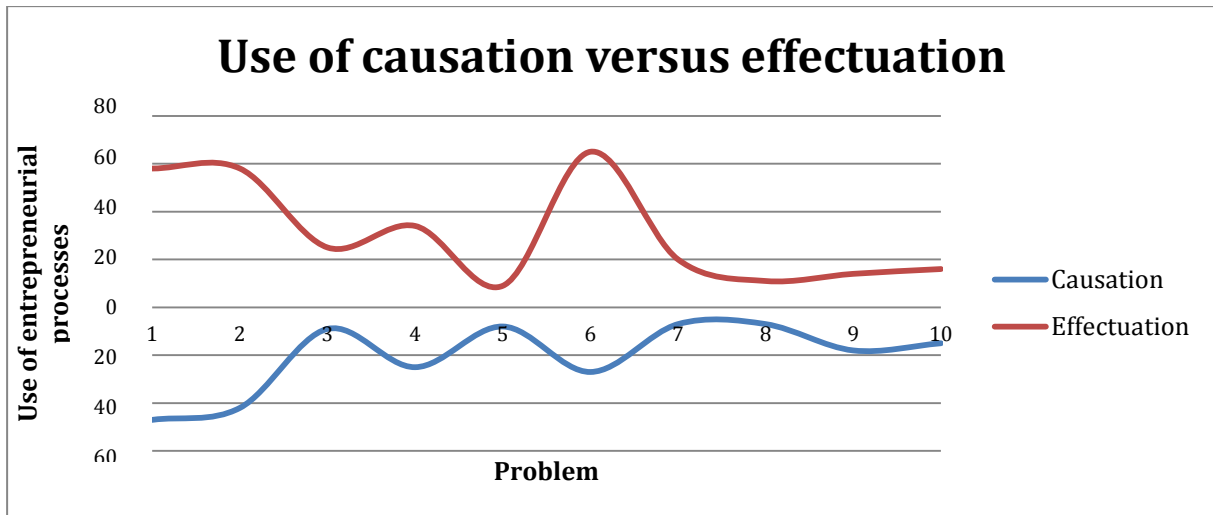


Figure 5 Use of Causation versus effectuation (Based on Sarasvathy, 2008, p. 55)

It is interesting to take a look at the use distribution of causal and effectual elements in each problem of the case. Figure 5 shows the total use of effectual and causal reasoning for each problem in the case. The upper half of the figure shows the use of effectual reasoning and the bottom half shows the use of causal reasoning in the case. Overall the use of effectuation is higher in all ten problems. Analysis of this data reveals a heavy emphasis on effectuation in problem 1, 2 and 6. These questions regard identifying the market, defining the market and product redevelopment.

After the results have been gathered in one document the test of normality has been performed. The results of the coded case have been entered in IBM SPSS Statistics 20 and with this information the Kolmogorov-Smirnov and Shapiro-Wilk test have been carried out. The results from this test of normality can be seen in Appendix G. The first table produced by SPSS contains descriptive statistics. An important table is that of the K-S test. This table includes the test statistics and the significance value of this test. A significant value (less than .05) indicates a deviation from normality. If the K-S test is highly significant, this indicates that the distribution is not normal (Field, 2009, p. 144-147).

Tests of Normality

	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Total_Causal	,137	20	,200*	,918	20	,092
Total_Effectual	,185	20	,073	,920	20	,100

\*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Table 4 Tests of Normality Case

In table 3 the results from the test of normality regarding the case are shown. In both the Kolmogorov-Smirnov and the Shapiro-Wilk test the value is non-significant,  $p > .05$ . This indicates that the distribution is probably normal compared to a normal distribution. Therefore the dependent t-test should be used to analyze the data (Field, 2009, p. 144-



147). The dependent t-test is used when there are two sets of scores to compare and when the scores come from the same subjects (Field, 2009, p. 328). The results from the dependent t-test can be seen in Appendix H.

Using the dependent t-test on the case scores we can conclude that the score for student entrepreneurs were significantly higher for means-based (Mdn. = 129) than for goal-driven (Mdn. = 56),  $p < .05$ . The score for student entrepreneurs were not significantly higher for affordable loss (Mdn. = 16) than for expected returns (Mdn. = 21),  $p > .05$ . The score for student entrepreneurs were significantly higher for use of alliances or partnership (Mdn. = 35) than for competitive analysis (Mdn. = 18),  $p < .05$ . The score for student entrepreneurs were not significantly higher for exploration of contingency (Mdn. = 33) than for market knowledge (Mdn. = 29),  $p > 0.05$ . The score for student entrepreneurs were not significantly higher for non-predictive control (Mdn. = 28) than for predictions of the future (Mdn. = 29),  $p > .05$ . The score for student entrepreneurs were significantly higher for distrusting or opposing market research (Mdn. = 28) than for emphasis on analysis of data (Mdn. = 53),  $p < .05$ .

Using the dependent t-test on the case scores we can conclude that the score for student entrepreneurs were significantly higher for effectuation (Mdn. = 317) than for causation (Mdn. = 214),  $p < .05$ . In table 5 an overview of the significance of the different elements can be seen.

Elements	Causal	Effectual	Significant difference
Goal-driven/Means-based	56	129	Yes
Expected returns/Affordable loss	21	16	No
Competitive analysis/Use of alliances or partnerships	18	35	Yes
Existing market knowledge/Exploration of contingency	29	33	No
Predictions of the future/Non-predictive control	28	28	No
Emphasis on analysis of data/Distrusting or opposing marketing research	53	28	Yes
Causal/Effectual (no subcategory given)	9	48	Yes
Total	214	317	Yes

**Table 5 Significance of elements**

The conclusion can be made that there is a significant difference in the scores between the total element scores of effectuation and causation, however not all the elements show a significant difference.

## Chapter 4.2 Questionnaires

The results of the questionnaire can be seen in Appendix F. To see whether there is a difference with the results from the case a statistical model is going to be used with IBM SPSS Statistics 20. To see which statistical model should be used the decision tree designed by Field (2007, p. 822) is going to be used. The results of the test can be seen in table 4. These results are based on the questionnaires of 17 of the 20 subjects.

Based on the test of normality the conclusion can be made that the distribution of the results from the questionnaire is probably normally distributed and therefore the dependent t-test should be used to analyze the data. The result of this test can be seen in Appendix J.

Using the dependent t-test on the case scores the conclusion can be made that the score for student entrepreneurs were not significantly higher for effectuation (Mdn. = 55,6) than for causation (Mdn. = 53),  $t=0,18$ ,  $p > .05$ . Concluding, in real-life the subjects didn't have a significant difference between effectuation and causation, while in the case they did show a significant difference.

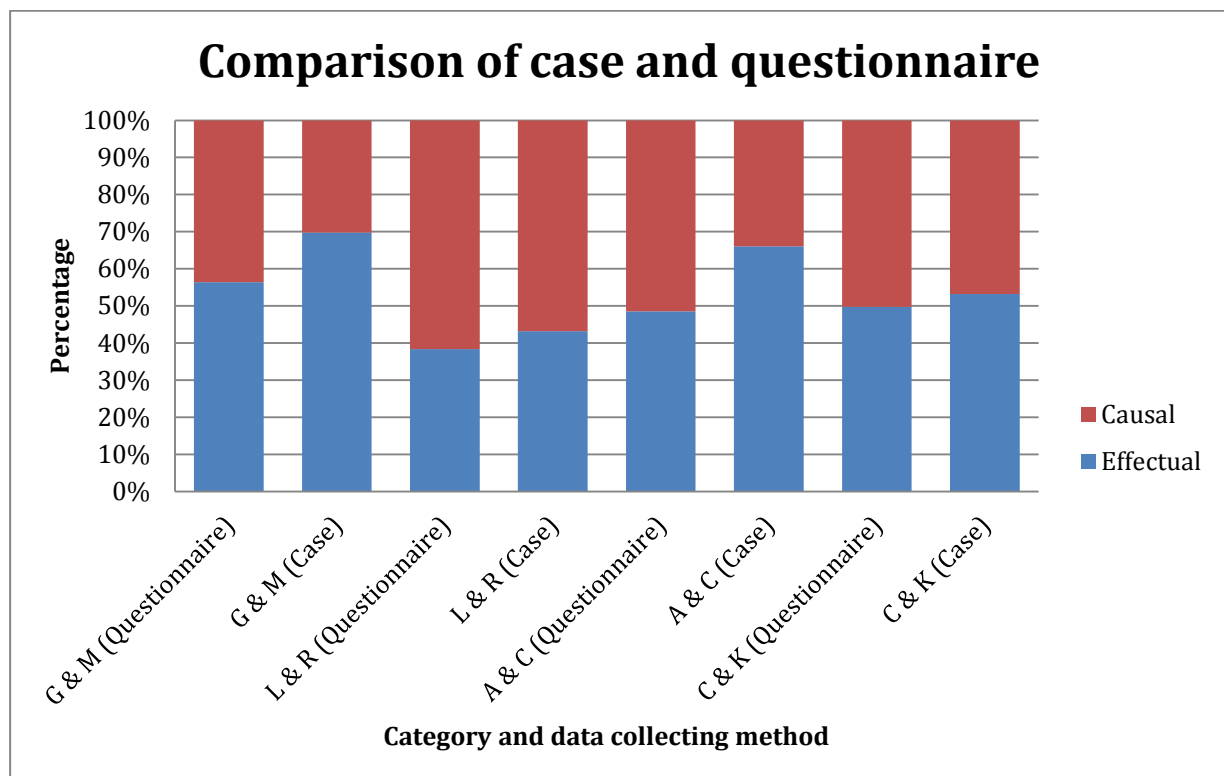


Figure 6 Comparison between outcomes case and questionnaire

In figure 6 the difference between the case and questionnaire becomes clearer. Several elements used in the case come back in the questionnaire regarding the own business of the subjects. Comparing these elements with the scores from the case clarifies that the subjects use more causation in their own business compared to their scores in the case. This figure is composed of the total score from the case on the elements. The scores of the case and the questionnaire are not the same. Therefore a percentage figure is made in which each category that belongs together, for example goal-driven and means-based, has a total of 100%. Hence a good insight is given in how the entrepreneurial processes are distributed per category in the case and questionnaire. In each category the amount of effectuation is higher in the case than in the questionnaire.

### Chapter 4.3 Culture

According to McGrath (1992) entrepreneurs score high on the dimensions power-distance, individualism and masculinity and score low on the dimension uncertainty

avoidance. Therefore the assumption can be made that there would be a difference between the scores in the dimensions described by Hofstede (2001) of the Danish student entrepreneurs and the scores of the Danes based on the statistical analyses of Hofstede (2001).

Dimension	Formula	Score	Dimension score Denmark according to Hofstede (2001)
Power Distance	$PDI = 35(m07-m02)+25(m23-m26)$	-27,35	74
Individualism	$IND = 35(m04-m01)+35(m09-m06)$	105	23
Masculinity	$MAS = 35(m05-m03)+35(m08+m10)$	191,47	18
Uncertainty Avoidance	$UAI = 40(m20-m16)+25(m24-m27)$	-118,82	16
Long-Term Orientation	$LTO = 40(m18-m15)+25(m28-m25)$	4,12	46

**Table 7 Results of VSM08**

In table five the scores from the VSM08 survey are indicated based on the VSM08 survey held among 17 of the 20 Danish student entrepreneurs. Three out of 16 students didn't fill in the survey due to time restrictions and lack of response from the subject side. Although not all the subjects filled in the survey this does give a good insight into the sub-culture of entrepreneurs and their scores in the different dimensions. It's noteworthy that the scores in the dimensions of power distance, uncertainty avoidance and long-term orientation are low and the scores in the dimensions of masculinity and individualism are high. When comparing it to the scores of Hofstede (2001) it is remarkable to see the difference in the scores. In the survey held by Hofstede (2001) the dimension of power distance is high, the dimension of long-term orientation is average and the dimensions of individualism, masculinity and uncertainty avoidance are low. Comparing it to the outcome of the VSM08 survey among Danish student entrepreneurs these scores are very different. The scores in table 7 are not results as Hofstede measured the dimension but it is an indication of the relative extent or smallness of the dimension. As McGrath (1992) described entrepreneurs might have different scores in dimensions and the dimensions he addressed would be high for entrepreneurs are high in the outcome of the VSM08 survey among Danish student entrepreneurs, except for the dimension power distance. The dimension of power distance is low in the results from the VSM08 survey while in the outcome of the survey performed by Hofstede (2001) the Danish culture scored high in this dimension. Therefore we can conclude that entrepreneurs have different scores in the dimensions of Hofstede (2001) than previously given.

#### **Chapter 4.4 the relationship**

This research focuses upon the dimension of uncertainty avoidance and therefore the relationship between effectuation/causation and uncertainty avoidance is going to be tested. To test the relationship either the dependent t-test or the Wilcoxon Matched-Pairs test is used. These tests provide insights into whether there is a statistical

significant relationship between culture and entrepreneurial processes. The results from the VSM08 survey will be used for the dependent variable culture, because these scores are more relevant than the overall score of Denmark in this research. For the dependent variable the share of causation will be used. The results of this analysis of the case can be found in appendix E.

To determine which statistical test should be used a test of normality, the Kolmogorov-Smirnov test will be performed using IBM SPSS 20. The test of normality shows that the score distribution of the share of causation is normally distributed,  $p > 0.05$ . Therefore the dependent t-test test should be used to study the relationship between culture and entrepreneurial processes. The results from the test of normality and the dependent t-test can be seen in Appendix K.

Using the dependent t-test, a significant influence was found of uncertainty avoidance on the share of causation,  $t=-8,928$ ,  $p < .05$ . Therefore using the dependent t-test the conclusion can be made that there is a significant effect of uncertainty avoidance on entrepreneurial processes.

The other dimensions shows that there is a significant effect of power distance on entrepreneurial processes,  $t=4.243$ ,  $p < .05$ . There is a significant effect of individualism on entrepreneurial processes,  $t=-3.728$ ,  $p < .05$ . There is no significant effect of masculinity on entrepreneurial processes,  $t=-2.012$ ,  $p > .05$ . There is no significant effect of long-term orientation on entrepreneurial processes,  $t=1.653$ ,  $p > .05$ .

To test the hypotheses the scores of (1) predictions of the future/non-predictive control, (2) competitive analysis/use of alliances and partnerships, and (3) expected returns/affordable loss will be compared with the dimension of uncertainty avoidance. A test of normality will be performed to find out whether the scores are distributed normally. The results of this test can be seen in appendix M. The scores of the three elements are not normally distributed,  $p > .05$ , and therefore the Wilcoxon signed-rank test will be performed to see if there is an influence of uncertainty avoidance on these three elements like the hypotheses assume. The results of the dependent t-test can be seen in appendix M. These results show that hypothesis one can be accepted,  $z=-3,622$ ,  $p < .05$ . This indicates a significant influence of uncertainty avoidance on non-predictive control. Hypothesis two can be accepted,  $z=-3,622$ ,  $p < .05$ . This indicates that there is a significant influence of uncertainty avoidance on the use of alliances and partnerships. Hypothesis three can be accepted, there is a significant influence of uncertainty avoidance on the dimensions affordable loss,  $z=-3,622$ ,  $p < .05$ . Therefore the conclusion can be made that when uncertainty avoidance is low, this has a positive influence on non-predictive control, use of alliances and partnerships and affordable loss.

#### **Chapter 4.5 Denmark**

The Legatum Propensity Index (2012) investigated entrepreneurship and entrepreneurial opportunities in Denmark. According to this study Denmark is a good place for entrepreneurs to start their business. 64% of the participants in this research acknowledged that Denmark is a good place for entrepreneurs to start their business (Institute, 2012). According to the Legatum Propensity Index (2012) the business

startup cost for entrepreneurs in Denmark is 0% of GNI per capita compared to the global average of 20,5%. This means that entrepreneurs do not have to pay anything to the government when they want to startup a business (Institute, 2012). A study done by the World Bank, Doing Business (2010), measured business regulations in countries all over the world and compared these results. According to this study it costs an entrepreneur one day to obtain a NemID signature, deposit startup capital, register employees and register the company with the Danish Business Authority (DBA) Webreg system. The cost of registering the company are 0,2% of income per capita. Therefore, according to the Doing Business study (2010) in order to start a business in Denmark a small amount of procedures are needed (4 procedures), it costs an entrepreneur little time (6 days) and the registering cost are low compared to other countries (World Bank Group, 2010).

## Chapter 5 Conclusion

The results from this research show that there is a significant difference between the use of causal and effectual entrepreneurial processes. Danish student entrepreneurs make significantly more use of effectual than causal entrepreneurial processes. The results of the VSM08 survey show that Danish student entrepreneurs have different scores than the overall culture of Denmark and therefore the conclusion can be made that Danish entrepreneurs have a different sub-culture compared to the overall Danish population.

To answer the research question the results are going to be compared and the hypotheses can be either accepted or rejected. The results of the statistical test show that there is a significant negative relationship between share of causation and uncertainty avoidance. Looking at the more specific relationship as assumed in the hypotheses the conclusion can be made that when uncertainty avoidance is low, this has a positive influence on non-predictive control, use of alliances and partnerships, and affordable loss. The first hypothesis suggests that uncertainty avoidance influences whether entrepreneurs want to control the future. A significant relationship was found between these two concepts and therefore it can be concluded that uncertainty avoidance has a significant effect on control of the future. Hence the first hypothesis can be accepted. The second hypothesis suggests that uncertainty avoidance influences the use of partnerships. Based on the statistical results the conclusion can be made that uncertainty avoidance has a significant effect on the use of partnerships among entrepreneurs. Therefore the second hypothesis can be accepted. The third hypothesis suggests that uncertainty avoidance has an effect on expected returns/affordable loss. Based on the results it can be concluded that uncertainty avoidance has a significant effect on expected returns/affordable loss and therefore the third hypothesis can be accepted. Statistical testing the other dimensions show that, only the dimension long-term orientation shows no significant influence on entrepreneurial processes. Therefore the conclusion can be made that culture has some influence on entrepreneurial processes.

Findings show that the scores per problem in the case were unevenly distributed. In the problems regarding identifying the market, defining the market and product redevelopment the subjects used significantly more effectual processes than causal processes. Hence the conclusion can be made that entrepreneurs in Denmark make more use of effectuation in the beginning of the startup.

Comparing the results of the case with the scores of the questionnaire regarding the own venture of the subject shows that the subjects used more causal entrepreneurial processes in their own venture compared to the case. Therefore the conclusion can be made that entrepreneurs in Denmark are more causal regarding their own venture, and are more effectual in a fictional case.

The fourth hypothesis regards the influence of government regulations on entrepreneurial processes. According to the hypothesis when it is easy to startup a business entrepreneurs prefer the effectual entrepreneurial process. Looking at the data collected in the case study it can be concluded that it is easy to startup a business in Denmark. Relatively little procedures are required and the costs are low. The findings of the case show that entrepreneurs in Denmark use significantly more effectual than causal entrepreneurial processes. Therefore the fourth hypothesis can be accepted. Government regulations about starting a business have an influence on entrepreneurial processes. The conclusion can be made that when entrepreneurs have to put in a lot of effort in starting a business the entrepreneurs start thinking about whether there is demand. This will enhance their market research before they startup a business.

The research question of this research is: What influence does the culture in Denmark have on entrepreneurial processes? Results show that there is evidence to conclude that uncertainty avoidance influences entrepreneurial process. The results of the other dimensions show that not all the dimensions have a significant influence on entrepreneurial processes. Therefore the research question can be answered with the conclusion that culture has some influence on entrepreneurial processes.

## **Chapter 6 Limitations**

Like in every research this research has several limitations, which will be discussed in this chapter. One of the limitations in this research has been discussed earlier and this is the limitation of the language used in this research. As discussed in chapter three the normal procedure would be to use the native language of the subjects when using the thing aloud method. Because the case and questionnaires were done in English this could have several limitations. To find out whether this was the case the subjects were asked whether they had any difficulties with the case and with thinking aloud in English. Only two students said to have difficulties with talking aloud in English and reading the case in English. They did state however that they could express their thoughts properly using other words or explaining their thoughts through sentences. Using English instead of Danish in this research might reduce the reliability. Another limitation of using English that was not accounted for was the role the interviewer could have on the subject. Due to the fact that some subjects had some trouble understanding some

questions the interviewer had to aid them in understanding the question. Therefore the subjects could have been influenced by the explanation by the interviewer. In the think aloud method it is required to let the subject do all the thinking and talking and for the interviewer to remain as silent as possible, in order to reduce influence the interviewer could have. Due to the fact that English was used this could not always be the case and therefore the validity could have been limited by using English instead of Danish.

This research uses several elements Sarasvathy (2008) used to describe the two entrepreneurial processes. Based on these elements the spoken protocols of the subjects were coded. These elements however do have some reliability problems. The elements can be interpretable for the researcher. One researcher might think a sentence is one element while another researcher might think it's another elements. One example is the difference between the means-based element and the market knowledge element. In means-based the subject uses what he knows to make decisions while in the market knowledge element the subject uses prior knowledge of the market to base his decisions on. The researcher can mix up these elements, which could mean that the coded cases are biased and therefore the reliability of the research is reduced.

This research focuses on one culture, the culture of Denmark. While this research gives a good insight in the relation between entrepreneurial processes and culture in Denmark it lacks generalizability to other cultures. Evidence for the relationship might be found in Denmark but there might be other variables that have a bigger impact on entrepreneurial processes instead of culture. Therefore using one culture to find out the relationship lacks generalizability to other cultures.

It is difficult to generalize the results of the student entrepreneurs in Denmark to all entrepreneurs. In Denmark there is a great social system that is called the flexicurity policy. In this model it is relatively easy for businesses to fire employees and these fired employees can benefit from the flexicurity policy because the government provides them with security so that they are still able to pay for their car, houses and kids for example. In Denmark entrepreneurs don't have the security of the flexicurity policy. Only fired employees of businesses are provided with some security by the government but the entrepreneurs, if their business fails, don't have this kind of security blanked. This ensures that the entrepreneurs in Denmark with a high-cost structure think twice before starting up a business. It is relatively easy to start up a business in Denmark, you can start up a business in less than a day, but the entrepreneurs take a big risk because they lose their security blanked when they start up their own business.

For student entrepreneurs this security blanked is less risky because students, at least most students, have a low-cost structure, they rent their room, only some students have got their own car and most of them don't have kids. This makes the risk for student entrepreneurs in Denmark lower than the entrepreneurs with a high-cost structure. It can be stated that the student entrepreneurs would be more effectual than the entrepreneurs with a high cost structure because entrepreneurs with a high-cost structure think twice before starting up a business and would put more emphasis on predictions of the future and put more emphasis on analysis of data and the student entrepreneurs don't have to make a lot of money of their business to get through the

month so they wouldn't put a lot of emphasis on the expected returns but more on what do they have in the bank to start up their business, what could they afford to lose.

In Denmark there is a different social system for students than in the Netherlands. Students in Denmark don't have to pay for their studies while students in the Netherlands pay €1800 per year to be able to study. Another difference is that students in the Netherlands receive €260 per month from the government for their room rental, books and things like that, while in Denmark the students receive around €800 per month so it can be stated that the average student in Denmark has more to spend than the students in the Netherlands. This makes it relatively easy for Danish students to take some risk in starting up a business, because they are able to fail and still have enough money to spend and be able to eat while in the Netherlands students would have to borrow money from family, friends or the government to be able to start up a small business. For Dutch student this is a bit of a bifurcation because students who borrow money from the government or from the bank would have to do extensive market research and write down a good business plan to be able to get the loan, which is a more causal entrepreneurial process, while students who borrow from friends and relatives put more emphasis on the means they have, which is a more effectual entrepreneurial process.

The fourth hypothesis is based on a case study that investigates the influence of government regulations on entrepreneurial processes. This case study is based on two studies, the Legatum Prosperity Index (2012) and the Doing Business study of the World Bank (2010). However these studies have a very abstract way of investigating the ease of doing business and entrepreneurship. Therefore the reliability of these studies is questionable.

In figure 6 a comparison is made between the scores of the case and the scores of the questionnaire regarding the venture of the subject. When comparing these scores it is noticeable that there is a difference between the use of entrepreneurial processes. In the case there was a significant difference between the use of effectual and causal processes. In the questionnaire however the subjects used more causation compared to the case. This effect can be explained by the use of a fictional case compared to the business of the subject self. In the case subjects are prepared to take more risks and just make a decision without doing a market research. In the own venture the subjects seem to be more reserved.

## **Chapter 7 Discussion**

The results show that student entrepreneurs in Denmark make significantly more use of effectual than causal entrepreneurial processes. The results from the VSM08 survey show that Danish student entrepreneurs score low in the dimension of uncertainty avoidance, which according to theory is related to entrepreneurship. The results show that there is empirical evidence for the relationship between uncertainty avoidance and entrepreneurial processes. The research question if culture influences entrepreneurial processes is hereby answered. There might also be other variables, besides culture, that



do influence entrepreneurial processes, like experience in start-ups or the study of the entrepreneur.

It can be stated that experience in starting up a new business has an impact on entrepreneurial processes. This research explores whether student entrepreneurs are effectual or causal while most student entrepreneurs started with their first business. Some of the subject for this study had some experience with starting up a business but most of the entrepreneurs started with their first business.

Education might have an influence on entrepreneurial processes. According to Dew, Read, Sarasvathy and Wiltbank (2009, p. 303) the type of professional education might influence their framework that in turn influences their choices. Therefore the assumption could be made that education influences the choices people make. Hence the relationship can be made between education and entrepreneurial processes. If there is a relationship, educational institutions need to think about what they should be teaching entrepreneurs or more important what they should not teach entrepreneurs (Dew, Read, Sarasvathy, & Wiltbank, 2009). In this research eight student entrepreneurs attended Copenhagen Business School and seven student entrepreneurs attended some kind of technical study. To see whether there is a difference between students from business schools and technical students a statistical test is done to see whether there is a difference. The results from this test can be seen in Appendix L. The test of normality shows that the distribution of share of effectuation and share of causation is probably normal. Therefore the independent t-test will be performed to find whether there is an influence of study background on entrepreneurial processes. On average technical students show more use of effectuation ( $M = 65.18$ ,  $SE = 4.12$ ) than business school students ( $M = 61.13$ ,  $SE = 4.24$ ). This difference was not significant,  $t(13) = -.681$ ,  $p > .05$ . Technical students show less use of causal entrepreneurial processes ( $M = 34.81$ ,  $SE = 4.13$ ) compared to business school students ( $M = 38.87$ ,  $SE = 4.24$ ). However this difference was not significant,  $t(13) = -.681$ ,  $p > .05$ . These findings indicate that business students are not significantly different in using entrepreneurial processes than technical students ( $p > .05$ ). However, the value of the means ranking indicate that there is a difference between business students and technical students, therefore future research would have to be done to find out whether education influences entrepreneurial processes.

In Denmark there is a concept that they call 'Growth Houses'. Growth houses are publicly funded by the state and encourage new ideas and new businesses for the future. Growth Houses support student entrepreneurs in setting up and running innovative new businesses and contribute much to their survival during the first years. Growth House focus on student entrepreneurs, business growth and job creation (European Social Fund, 2012). These growth houses and other organizations help students with starting up their business, but they try to teach the students how to start up their company in a structured causal way. The students need to design a business plan and therefore put a lot of emphasis on competitive analysis and analysis of data. They must set up goals and predict their expected return in order to attract funding before they

have started a business. Therefore these organizations tend to teach entrepreneurs how to set up their business in a causal way.

The students that were interviewed in this research vary from small local start-ups to award winning and very promising start-ups. Two student entrepreneurs won the Venture Cup award in Denmark. This award is handed out to the most promising startup. However, some of these entrepreneurs had limited time to do such an extensive interview and therefore the case and questionnaire was shortened for some of the entrepreneurs. These entrepreneurs would enhance the quality of this research considerably and therefore the decision was made to reduce the amount of the case and questionnaire to the most important content.

The results from this research show that there is a significant difference between effectuation and causation among Danish student entrepreneurs. Only three of the six elements show a significant difference and therefore it is hard to generalize these findings.

## **Chapter 8 Implications**

This research has some implications for future research in the field of what influences entrepreneurial processes. As described this research only extends to one culture and this reduces the generalizability of this research. Therefore this research needs to be done in other cultures to examine the influence of culture on entrepreneurial processes. This research is part of the EPICC program that does this particular research to really grasp the influence of culture on entrepreneurial processes.

The experience of entrepreneurs might explain entrepreneurial processes. Research needs to be done how the experience of entrepreneurs influences entrepreneurial processes. As described earlier some entrepreneurs have started up several businesses before while other entrepreneurs are starting up their first business. This might play an important role in how they set up their business and as such whether they use effectuation or causation. They might have failed or succeeded before and with this experience they might know how to successfully set up a new business using extensive competitive analysis or changing their business according to customer feedback. To find out if there is a relationship between experience in startups and entrepreneurial processes extensive research has to be done, bearing in mind that entrepreneurial processes are also influenced by culture.

The educational background of entrepreneurs might explain entrepreneurial processes. Research needs to be done to find out whether there is a relationship between study and entrepreneurial processes. Business students are taught to do extensive research to find out whether there is a demand for a product or service before starting up a business while students with a more technical background do not have the same business backbone to rely on when starting up a business. This might indicate that business students would tend to be more causal while students with another background might be more effectual. Further research would have to be done to find out whether there is a relationship between study and entrepreneurial processes.

The reason for starting up the business could also have an effect the entrepreneurial process of the entrepreneur. There are a lot of different reasons for someone to start their own business. An entrepreneur could start a business because he is passionate about something. This could really give the entrepreneur a goal to strive for, for example improving the world. An entrepreneur could start up a business because he wants to earn a lot of money. This could really have a big impact on his entrepreneurial processes, because he is focused on his expected returns and his goal, which is to make a lot of money. An entrepreneur could have a good idea while being a student and therefore could make use of the means he has available while being a student, advice from professors for example. He could focus on what he can afford to lose to bring his great idea to reality and not be focused on the expected returns. Someone could start up a business because he was fired and has trouble finding a new job and therefore starts up a business or he quits his job and starts up a new business because he wants to be independent. The reason for the entrepreneur could have an effect on the entrepreneurial processes and therefore research needs to be done whether there is an effect and what the implications of this effect could be.

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## Appendix C: The case

### THE CASE

#### **Introduction**

In the following experiment, you will solve ten decision problems. These problems arise in the context of building a new company for an imaginary product. A detailed description of the product follows this introduction.

Before you start on the product description and the problems, I do need one act of creative imagination on your part. I request you to put yourself in the role of the lead entrepreneur in building this company -- i.e., you have very little money of your own to start this company, but you have about five years relevant working experience in the area.

#### **Description**

Since some time, you have been thinking of starting a coffee-corner at your university. Your inspiration for this came from the fact that when you, as a student, want to get a fresh cup of coffee, there was no possibility. You did not like the coffee from the machines, which are available in the university buildings. Next to that, you had to pay an amount of money, which was in no relation to the quality of the coffee. You have been working in a coffee corner in your hometown for 5 years so you know what goes around

You saw the success of other coffee corners, but since these were from expensive franchisers, you thought that it should be possible to still start your own. In several reports in newspapers and magazines you read that there is an increasing demand for drinking coffee in your home country.

You have taken all possible precautions regarding intellectual property. The name of your company is *Coffee, Inc.*



## Problem 1: Identifying the market

### Questions:

Before we look at some market research data, please answer the following questions -- one at a time:

1. Who could be your potential customers for your coffee corner?
2. Who could be your potential competitors?
3. What information would you seek about potential customers and competitors -- list questions you would want answered.
4. How will you find out this information -- what kind of market research would you do?
5. What do you think are the growth possibilities for this company?

## Problem 2: Defining the market

In this problem you have to make some marketing decisions. Based on secondary market research (published sources, etc.), you estimate that there are three major segments who are interested in drinking coffee at your coffee corner:

<u>Segment</u>	<u>Estimated total size</u>
Students	40.000
Staff members	20.000
Visitors (annually)	10.000

The estimated value of regular coffee sales in your home country is €448 Million

The estimated value of specialized coffee sales €100 Million.

Both are expected to grow at a minimum rate of 5% p.a. for the next 5 years.

The following are the results of the primary (direct) market research that you have completed.

***Survey #1 – Students, staff members and visitors were asked via questionnaires to express their interest in a coffee corner. Also, they were asked to indicate what they were willing to spend on coffee.***

In total, 1000 people were asked and 500 filled out the questionnaire.

<u>Willing to pay (€)</u>	<u>Students (%)</u>	<u>Staff members (%)</u>	<u>visitors (%)</u>
0,50 – 0,75	52	26	45
0,75 – 1,00	30	38	32
1,00 – 1,25	16	22	15
1.25 – 1,75	2	9	8
1,75 – 2,50	0	5	0
<hr/>			
Total	100	100	100

***Survey #2 -- The prices of coffee, offered during lunch breaks in between lectures***

<u>Willing to pay (€)</u>	<u>Students (%)</u>	<u>Staff members (%)</u>	<u>visitors (%)</u>
0,50 – 0,75	65	21	51
0,75 – 1,00	25	49	42
1,00 – 1,25	10	19	7
1.25 – 1,75	0	8	0
1,75 – 2,50	0	3	0
<hr/>			
Total	100	100	100

**Survey #3 -- Focus Group of educators (high school and community college teachers and administrators)**

Staff members of the university who participated in the focus group found the plan of the coffee corner very interesting – but indicated that the range of coffee could potentially be expanded before they would be willing to spend €1,50 or more. With the current offer, they would be willing to pay €1,00 - € 1,25 and would demand a bonus system in which they could save up for discounts after a certain amount of coffee drunk.

Both at the lunch and the focus group, participants are very positive and enthusiastic about the coffee corner. They provide you with good feedback on specific features and also extend suggestions for improvement. But the staff members are particularly keen on going beyond the regular coffee aspect; they make it clear that much more diversity would be required in trying to market the product to them. They e.g. indicate that there are companies, which might be capable of printing advertisement on cups for discounts on the coffee.

Based on all your market research, you arrive at the following **cost estimates for marketing** your product.

- Internet        €200 upfront + €50 per month thereafter
- Newspapers    Relatively cheap -- but ads could cost €500 upfront
- Cinema        €2000 to 4000 per month, with €1000 upfront
- Commercials on Local TV    €5000 to 10.000 upfront

Direct advertisement elsewhere (think of sport-canteens, handing out lighters with advertisement, etc.) Involves recruiting and training ‘sales representatives’

Competition

None of the following four possible competitors sell cheap quality cups of coffee in the centre of your hometown - you are unique in this respect.

Company	General price level per cup of coffee	Revenue	Where to be found
Starbucks	€ 5,00	€6.5 billion	Large cities / global
Peet's	€ 4,00	€225 million	Large cities / mostly USA
Coffee Bean	€ 4,50	€130 million	Large cities / global
Douwe Egberts store	€ 2,50	€25 million	Large cities/ Netherlands

The coffee corner companies are making a **net return of 25% on sales**.

At this point, please take your time and make the following decisions: (Please continue thinking aloud as you arrive at your decisions)

Questions:

1. Which market segment/segments will you sell your product to?
2. How will you price your product?
3. How will you sell to your selected market segment/segments? (regarding survey #3)

### Problem 3: Meeting Payroll

You have started the company on a shoestring, using face-to-face promotion as your primary source of marketing. You are six months into marketing your product. You have priced the products at the low end of the surveys at 0.50 – 0.75 euro. You have about 3000 customers per month. Based on numerous suggestions provided by your customers, you believe you can start selling special coffees in the range of 1.25 – 1.50 euro. This would especially be the case when you would redesign the interior of the coffee corner to make it into a more upscale coffee corner.

You have invested the last of your savings and maxed out your credit cards in order to make sure you have the coffee asked for in stock-- You need this to participate in a competition on where 'Architecture meets Catering', where you will get a lot of exposure.

You have four employees -- and you are out of cash to meet the next payroll. You estimate you need 30,000 euro to survive the next three months and to come up with a supercool store design to be able to participate in the competition. You have the following four options:

1. Borrow from your girlfriend's parents -- they are not overly wealthy, but could probably get their hands on 30,000 euro if they needed to.
2. Borrow from some old friends from the university and your old student job.
3. Convince your parents to take out a mortgage on their house.
4. Convince your employees to wait out the period.

### Questions:

Which of these options would you choose? Why?

#### Problem 4: Financing

Your store design has won the first prize in the new talent category at the 'Architecture meets Catering' competition. This in turn has led to inquiries from large coffee suppliers such as Nestlé Netherlands B.V. to market the concept (with full multi-media exposure) nationally. You estimate that it will take you six months to develop the concept in more detail and about three months after that to actually roll it out on three main channels -- Web, national newspapers and national TV. The coffee will be priced at 1.90 euro per cup of coffee in the new coffee corner. This is special coffee. You estimate that you will need 150.000 euro till break even (by the third quarter of the second year) -- this includes enhancing the concept, putting in place excellent (support) staff, full-blown advertising and web links, and the development of a small direct sales staff for selling on site.

You estimate the following sales projections for the first five years (You are at the beginning of Year 1 now):

	Year 1	Year 2	Year 3	Year 4	Year 5
Sales	€ 100,000	€ 150,000	€ 300.000	€500.000	€1 M
Profits	€ < 0	€ 20.000	€40.000	€200.000	€300.000

You have three financing options:

##### Option 1

A venture capitalist who specializes in start-up companies in catering and adjacent areas, is willing to finance you € 150.000 for 48% of your company.

##### Option 2

A friend of the family who has extensive experience in catering is eager to go into partnership with you -- for 33% of the company. He is able to invest €150.000 but wants to work for the company at a base salary of €40,000 per year. He agrees to accept a minimum level of €30,000 for the first two years to keep his family going and defer the rest to when the company starts making money. You like and respect this man and have no personal feelings against him.

##### Option 3

You can continue the company with internal cash flow -- grow at a much slower pace.

#### Questions:

Which option would you choose? Why?

If the venture capitalist were willing to take only 33% of the company, which option would you choose?

### Problem 5: Leadership/Vision

You have found the financing and have signed a contract with two major coffee suppliers to market your product. You have hired new staff and moved into new premises. A national newspaper is doing a series of stories on local entrepreneurs and wants to do a story on you -- you know that this interview would be a defining moment in the development of your company and you see this as an opportunity to convey to the world (and to your new employees) your vision for your company's future. This newspaper article series has been very successful; it routinely gets picked up by other national papers and TV networks. One of the reasons for its success is its headline, which consists of a one-line quote that captures the entrepreneur's vision for the company -- to be achieved by the year 2012.

You have come up with several possibilities for the one-liner:

1. Starbucks is the past -- *Coffee Inc.* is the future.
2. We aim to have at least a thousand employees by the year 2014.
3. The fastest growing coffee caterer.
4. Invest in *coffee Inc.* —Enjoy the Dutch tradition.

### Questions:

Which one of the above do you choose? Why? If you do not choose any of them and want to come up with ideas for an alternative, please do so.

### Problem 6: Product Re-development, Part One

You are almost at the end of your fifth year in operation -- you have just managed to break even (later than you projected). You have opened the doors to all three segments (students, staff, visitors). Sales, while they are steady and continuous, are rather 'colourless' and you start doubting whether you will ever reach your growth targets. You decide to conduct a serious market research initiative in order to find out how to grow your sales. You organize focus groups with both existing customers and potential new customers. The main problem seems to be the "great divide" between the regular coffee and the specialized products. Over 90% of the participants in your focus groups find the regular products very interesting. But when it comes to the specialised coffees, there is a clear division of opinion. The participants who primarily enjoy the regular coffees almost *never* bother to go and buy more expensive coffees and wonder why all that '*elite stuff*' is there; and those who are primarily interested in the specialised coffees think that the regular products downgrade the atmosphere.

#### Questions:

How do you respond to this feedback?



### Problem 6: Product Re-development, Part Two

You go back to the origins and think of a concept, which could provide solutions to both parties. You come up with a solution in which you have 1 existing shop and 1 new shop. Shop number 1 (the existing shop) is for more regular coffees, the new shop is for exclusive coffees and teas. With the exclusive shop one should think of specialized Asian, South American and African coffee specialties, which would result in a total amount of 30 different types of coffee. Teas will come in a variety of 20 types. Also, exclusive cakes and pastries are sold. Next to this, customers can also borrow books, read newspapers and have access to free wireless Internet. In the regular coffee booth, you plan to sell 8 different regular coffees, like plain cappuccino, espresso, etc., and add 5 regular teas (e.g. China Blossom and Rooibos) and limited variety of donuts and muffins.

You first start to promote the idea with the exclusive shop with a variety of 15 different coffees and 15 different teas, and also a smaller variety of cakes and pastries than you eventually will include. This together with free newspapers and free wireless Internet is what you show to the focus group. It turns out that especially the exclusive shop is received very enthusiastically and customers are willing to pay 2 to 2,5 times as much as asked previously.

One of the requirements is however that you have to extend to what you had in mind (the 20 teas, 30 coffees, the books, newspapers and free wireless internet). You have to decide whether to undertake this massive concept change or to focus completely on one of the two concepts. If you want to extend it will cost you as much as 200.000 euros and a separate marketing effort.

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Year	1	2	3	4	5	6	7	8			
Estimated Sales (€M)				0.10	0.50	1	6	12	18	24	30
Actual Sales (€M)		0.14	0.48	0.84	2.8	4.2					

Questions:

Which of the two options do you choose? Why?

Assuming you have decided to go in for the extension, you have to choose one of the following three options:

1. Undertake the redesign effort in-house -- Estimated Cost: €250.000
2. Out-source the redesign to the new company within your home country-- Estimated Cost: €200.000
3. Out-source the redesign to the new company outside your home country-- Estimated Cost: €100.000 (you can assume these cheap countries are China/India for example).

Questions:

Which option do you choose? Why?

### Problem 7: Growing the Company, Part One

You are almost at the end of the sixth year of business. You are now running two types of shops—under the umbrella of Coffee Inc.

- Plain Coffee (sales between 1.00 – 5.00 euro) where you sell a limited amount of regular coffees and teas and a basic amount of donuts, muffins and chocolates
- Exquise (sales between 5.00 – 10.00 euro) where you offer the 'complete picture', so the special tea & coffees, Wi-Fi, special cakes, etc.

Your number of outlets and therewith the new coffee shop managers has swelled to twenty from the original three and you are continuing to expand your sales force and develop an even better concept of Exquise for more upscale areas in town (outside the university). Greg Thomas, who is an excellent salesman (dealing with the regular coffees previously) and has headed the sales team since Day One, has clearly not kept up with the issues of growing the company -- he is definitely not the person to lead the new Exquise. How will you deal with this situation?

Year	1	2	3	4	5	6	7	8			
Estimated Sales (€M)				0.10	0.50	1	6	12	6	12	20
Actual Sales (€M)		0.14	0.48	0.84	2.8	4.2		8.6			

#### Questions:

Would you:

1. Fire him?
2. Hire a new sales manager to head the sales team? If so, would you consult with Greg before doing so? How would you break the news to him?

Please feel free to elaborate on any other way of dealing with the situation.

### Problem 7: Growing the Company, Part Two

Although the company has been growing for a while now, you are trying to keep the entrepreneurial culture of the company alive. But you begin to notice that your partner is fostering a more “corporate ambiance” -- long and unnecessary meetings, complicated organization charts, colourful expense accounts, “consultants” to “optimize market potential”, and so on. When you try to talk with him about it, he argues that it is time for the company to go “corporate” -- that such a “professional” image would actually be good for the bottom line.

<u>Year</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>			
						Revised					
Estimated Sales (€M)				0.10	0.50	1	6	12	6	12	20
Actual Sales (€M)		0.14	0.48	0.84	2.8	4.2		8.6	20	27.5	

#### Questions:

How will you deal with this situation? Do you think it is time for *Coffee Inc.* to go “corporate”?

Problem 8: Hiring Professional Management

You are now in the eighth year of your company. You are doing very well -- surpassing growth targets and building reliable market share. Your sales are €27,5 Million and you project a growth rate of at least 25% per year for the next three years.

Year	1	2	3	4	5	6	7	8			
Estimated Sales (\$M)				0.10	0.50	1	6	12	6	12	20
Actual Sales (\$M)		0.14	0.48	0.84	2.8	4.2		8.6	20	27.5	

Your Board's advice is to hire professional management to run the company so you can focus on issues of new growth and new strategic initiatives. Assuming you have already developed a short list of three high-potential candidates to interview for the position of *Chief Operating Officer* (COO).

Questions:

How would you prepare for the interview?

List questions you would ask, techniques you would use, and critical issues you would take into account in hiring this person.

### Problem 9: Goodwill

At this point, you are approached by the principal of an inner city school in your area, who also works with 10 other schools such as hers -- she believes that Exquise could be a perfect learning environment for her students in her Catering study program.

She requests you to work with a couple of really enthusiastic teachers to develop some elementary learning materials for the students to work on in the Exquise shops. The project would mean not only an investment of €100.000 (approx.) for modifications, but also a substantial chunk of your time for about six months during development and then about 10 sessions of classroom participation per year for a couple of years at least.

Note: Your sales are €27,5 Million and you project a growth rate of at least 25% per year for the next three years.

#### Questions:

Will you take the initiative for this project?

If not, why not?

If yes, would you:

- a) Donate the project?
- b) Sell it at cost?
- c) Sell it at your regular profit margin?

Why?

Problem 10: Exit

You are now in the tenth year of your company -- *Exquise* is a great success and thanks to your new-targeted strategies, even *Plain Coffee* is growing satisfactorily. You have acquired three other profitable catering concepts. You are doing €45 Million in sales and project that you will reach €70 Million within a year. At this time you face two possible directions for your company.

Direction 1

Your accountants and bankers think that this is a good time for you to take the company public. The Initial Public Offering (IPO; new stocks) market is booming and catering is in a solid upward trend. They estimate you should make an initial public offering of 2 million shares at €30 per share. The company has a total of 12 million shares outstanding.

Direction 2

At this point in time, Starbucks approaches you and makes an offer for your company -- it seems they have decided to get in on the more exclusive segment and have decided to enter the arena through acquisitions -- they see you as a perfect fit for their strategy and offer you €300 Million.

Year	1	2	3	4	5	6	7	8	9	10
						Revised				
Estimated Sales (€M)	0.10	0.50	1	6	12	6	12	20	30	45
Actual Sales (€M)	0.14	0.48	0.84	2.8	4.2	8.6	20	27.5	38	70

Question:

Which of the above two directions do you choose? Why?

End

## Appendix D: Questionnaire

Interviewer Name:

Interviewee Name:

Code number interview:

Email interviewee:

Name / website of student company:

Short description of student company (what business are you in):

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Founding date:

Founding place:

Number of founders (including entrepreneur):

Current number of employees (including all founders, in full time equivalents):

Annual turnover in country currency: \_\_\_\_\_ (amount) \_\_\_\_\_ currency

To what degree did you start your enterprise because you had no other option for work?

Not at all	A little	Somewhat	To a large extent	Absolutely

To what degree did you start your enterprise because you wanted to become independent or increase your income

Not at all	A little	Somewhat	To a large extent	Absolutely

(Measures for necessity vs. opportunity taken from GEM)



Please answer this questionnaire on the basis of reflecting on your own company. Please have a look at the following statements. Now, circle 1 answer out of 5, in which you indicate you to degree to which you do not agree or agree to the statement.

	Do not agree	Agree little	Agree somewhat	Mostly agree	Fully agree
We analyzed long run opportunities and selected what we thought would provide the best returns					
We developed a strategy to best take advantage of resources and capabilities					
We researched and selected target markets and did meaningful competitive analysis					
We designed and planned business strategies					
We organized and implemented control processes to make sure we met objectives					
We had a clear and consistent vision for what we wanted to do					
We designed and planned production and marketing efforts					
Our decision driven by expected returns making has been largely					
It was impossible to see from the beginning where we wanted to end					
We experimented with different products and / or business models					
The product/service we now provide is essentially the same as originally conceptualized					
The ultimate product/service we now provide is substantially different from than we first imagined					
We tried a number of different approaches until we found a business model that worked					

We were careful not to commit more resources than we could afford to lose					
We were careful not to commit more money than we were willing to lose with our initial business idea					
We were careful not to lose more money that the company would be in real trouble financially if things didn't work out.					
We have allowed the business to evolve as opportunities have emerged					
We adapted what we were doing to the resources we had					
We were flexible and took advantage of opportunities as they arose.					
We avoided courses of action that restricted our flexibility and adaptability.					
We evaluated the set of resources and means we had at our disposal and thought about different options					
We experimented with different products and/or business models					
We started out very flexibly and tried to take advantage of unexpected opportunities as they arose					
We used a substantial number of agreements with customers, suppliers and other organizations and people to reduce the amount of uncertainty					
We used pre-commitments from customers and suppliers as often as possible					

We tried to get resource commitments and sales commitments as early as possible					
---	--	--	--	--	--

Note 1: Scales from Chandler et al. (2011): Causation and effectuation processes: a validation study. JBV, 26(3), 375-390, Table one / Table 2 (last item us)

Note 2: When you have used the previous questionnaire, you need to recode (make sure the items show in the right direction), and go back to the entrepreneur to ask the missing questions.

**Biographic information**

Name of Interviewer:

Name of Interviewee:

Nationality of interviewee:

Email for future contact:

Number of interview:

Student of \_\_\_\_\_ (discipline, eg. Business administration),

Level \_\_\_\_\_ (Bachelor, Master, PhD; other)

\_\_\_\_\_ (Name of University) in

\_\_\_\_\_ (City)

\_\_\_\_\_ (Name of Country)

Years of university education: \_\_years

Years of working experience: \_\_years

Years of working experience with entrepreneurship/leadership component OUTSIDE  
own company \_\_\_\_ years

Date of birth:

Sex: male / female

Place of birth: \_\_\_\_\_ (city, country)

Religion:

Marital status: single / living together / married

Children: yes / no

International experience \_\_\_\_\_ years

As \_\_\_\_\_ (student/ worked / raised as a kid / ..... other)

In \_\_\_\_\_ (country)

Family background: at least one parent employed in private company / employed as  
public servant / entrepreneur

Parents income (in rel. to county average): lower quartile / middle half / upper quartile

**VSM08**  
**INTERNATIONAL QUESTIONNAIRE (VSM 08)- page 1**

Please think of an ideal job, disregarding your present job, if you have one. In choosing an ideal job, how important would it be to you to ... (please circle one answer in each line across):

- 1 = of utmost importance  
 2 = very important  
 3 = of moderate importance  
 4 = of little importance  
 5 = of very little or no importance

- |  |   |   |   |   |     |
|--|---|---|---|---|-----|
| 01. have sufficient time for your personal or home life        | 1 | 2 | 3 | 4 | 5   |
| 02. have a boss (direct superior) you can respect              | 1 | 2 | 3 | 4 | 5   |
| 03. get recognition for good performance                       |   | 1 | 2 | 3 | 4 5 |
| 04. have security of employment                                | 1 | 2 | 3 | 4 | 5   |
| 05. have pleasant people to work with                          |   | 1 | 2 | 3 | 4 5 |
| 06. do work that is interesting                                | 1 | 2 | 3 | 4 | 5   |
| 07. be consulted by your boss in decisions involving your work |   | 1 | 2 | 3 | 4 5 |
| 08. live in a desirable area                                   | 1 | 2 | 3 | 4 | 5   |
| 09. have a job respected by your family and friends            | 1 | 2 | 3 | 4 | 5   |
| 10. have chances for promotion                                 | 1 | 2 | 3 | 4 | 5   |

In your private life, how important is each of the following to you: (please circle one answer in each line across):

- |                                     |   |   |   |   |     |
|-------------------------------------|---|---|---|---|-----|
| 11. keeping time free for fun       | 1 | 2 | 3 | 4 | 5   |
| 12. moderation: having few desires  |   | 1 | 2 | 3 | 4 5 |
| 13. being generous to other people  |   | 1 | 2 | 3 | 4 5 |
| 14. modesty: looking small, not big |   | 1 | 2 | 3 | 4 5 |

15. If there is something expensive you really want to buy but you do not have enough money, what do you do?
1. always save before buying
  2. usually save first
  3. sometimes save, sometimes borrow to buy
  4. usually borrow and pay off later
  5. always buy now, pay off later
16. How often do you feel nervous or tense?
1. always
  2. usually
  3. sometimes
  4. seldom
  5. never
17. Are you a happy person ?
1. always
  2. usually
  3. sometimes
  4. seldom
  5. never
18. Are you the same person at work (or at school if you're a student) and at home?
1. quite the same
  2. mostly the same
  3. don't know
  4. mostly different
  5. quite different
19. Do other people or circumstances ever prevent you from doing what you really want to?
1. yes, always
  2. yes, usually
  3. sometimes
  4. no, seldom
  5. no, never
- 20 . All in all, how would you describe your state of health these days?
1. very good
  2. good
  3. fair
  4. poor
  5. very poor
21. How important is religion in your life ?
1. of utmost importance
  2. very important
  3. of moderate importance
  4. of little importance
  5. of no importance
22. How proud are you to be a citizen of your country?
1. not proud at all
  2. not very proud

- 3. somewhat proud
- 4. fairly proud
- 5. very proud

INTERNATIONAL QUESTIONNAIRE (VSM 08) – page 3

23. How often, in your experience, are subordinates afraid to contradict their boss (or students their teacher?)

- 1. never
- 2. seldom
- 3. sometimes
- 4. usually
- 5. always

To what extent do you agree or disagree with each of the following statements?  
(please circle one answer in each line across):

- 1 = strongly agree
- 2 = agree
- 3 = undecided
- 4 = disagree
- 5 = strongly disagree

24. One can be a good manager without having a precise answer to every question that a subordinate may raise about his or her work

1    2    3    4    5

25. Persistent efforts are the surest way to results

1    2    3    4    5

26. An organization structure in which certain subordinates have two bosses should be avoided at all cost

1    2    3    4    5

27. A company's or organization's rules should not be broken - not even when the employee thinks breaking the rule would be in the organization's best interest

1    2    3    4    5

28. We should honour our heroes from the past

1    2    3    4    5

**INTERNATIONAL QUESTIONNAIRE (VSM 08)- page 4**

Some information about yourself (for statistical purposes):

29. Are you:

1. male
2. female

30. How old are you?

1. Under 20
2. 20-24
3. 25-29
4. 30-34
5. 35-39
6. 40-49
7. 50-59
8. 60 or over

31. How many years of formal school education (or their equivalent) did you complete (starting with primary school)?

1. 10 years or less
2. 11 years
3. 12 years
4. 13 years
5. 14 years
6. 15 years
7. 16 years
8. 17 years
9. 18 years or over

32. If you have or have had a paid job, what kind of job is it / was it?

1. No paid job (includes full-time students)
2. Unskilled or semi-skilled manual worker
3. Generally trained office worker or secretary
4. Vocationally trained craftsperson, technician, IT-specialist, nurse, artist or equivalent
5. Academically trained professional or equivalent (but not a manager of people)
6. Manager of one or more subordinates (non-managers)
7. Manager of one or more managers

33. What is your nationality?

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34. What was your nationality at birth (if different)?

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## Appendix E: Results Case

Elements per	Scores
Scores van Sarasvathy's elements	Total
G - Goal-driven	56
R - Expected returns	21
B - Competitive analysis	18
K - Existing market knowledge	29
P - Predictions of the future	28
Z - Emphasis on analysis of data	53
X - Causal (no subcategory given)	9
Totaal causal	214
M - Means-based	129
L - Affordable loss	16
A - Use of alliances or partnerships	35
E - Exploration of contingency	33
C - Non-predictive control	28
D - Distrusting or opposing (marketing research)	28
N - Effectual (no subcategory given)	48
Totaal effectual	317
Total	531
Percentage Effectual	59,70%
Percentage Causal	40,30%

Elements	Total sentences
Goal-Driven	272
Expected Returns	60
Competitive Analysis	142
Existing Market Knowledge	107
Predictions of the Future	101
Emphasis on Analysis of Data	307
Causal (no subcategory given)	64
Total Causal	1053
Means-Based	936
Affordable Loss	57
Use of Alliances or Partnerships	203
Exploration of Contingency	141
Non-Predictive Control	98
Distrusting or Opposing (marketing research)	149
Effectual (no subcategory given)	321
Total Effectual	1905
Total	2958
Share Causal	35,60%
Share Effectual	64,40%
Total	100,00%

## Appendix F: Results Questionnaire

Question	Effectual or causal (Sarasvathy's elements) score	Total	Average
1. We analyzed long run opportunities and selected what we thought would provide best returns	Causal - Expected Returns	52	3,06
2. We developed a strategy to best take advantage of resources and capabilities	Effectual - Means-based	61	3,59
3. We researched and selected target markets and did meaningful competitive analysis	Causal - Competitive Analysis	54	3,18
4. We designed and planned business strategies	Causal - Causal (no subcategory given)	63	3,71
5. We organized and implemented control processes to make sure we met objectives	Causal - Goal-driven	45	2,65
6. We had a clear and consistent vision for what we wanted to do	Causal - Existing Market Knowledge	63	3,71
7. We designed and planned production and marketing efforts	Causal - Goal-driven	53	3,12
8. The ultimate product/service/that I used to launch this business was quite similar to my original conception	Effectual - Effectual (no subcategory given)	57	3,35
9. Our decision making has been largely based by expected returns	Causal - Expected Returns	41	2,56
10. The ultimate product/service that I used to launch this business was quite different from my original conception	Effectual - Effectual (no subcategory given)	40	2,35
11. It was impossible to see from the beginning where we wanted to end	Effectual - Non-predictive control	49	2,88
12. We have allowed the business to evolve as opportunities have emerged	Effectual - Effectual (no subcategory given)	76	4,47
13. We evaluated the set of resources and means we had at our disposal and thought about different options	Effectual - Means-based	66	3,88
14. We experimented with different products and/or business models	Effectual - Exploration of contingency	57	3,35
15. We started out very flexible and tried to take advantage of unexpected opportunities as they arose	Effectual - Exploration of contingency	70	4,12

16. We used a substantial number of agreements with customers, suppliers and other organizations and people to reduce the amount of uncertainty	Effectual - Use of alliances or partnerships	51	3,00
17. Our decision making has been largely driven by how much we could afford to lose	Effectual - Affordable loss	29	2,23
	Effectual - Total	55,6	3,32
	Causal - Total	53	3,14

## Appendix G: Test of Normality Case

**Case Processing Summary**

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Total_Causal	20	100,0%	0	0,0%	20	100,0%
Total_Effectual	20	100,0%	0	0,0%	20	100,0%

**Tests of Normality**

	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Total_Causal	,137	20	,200 <sup>*</sup>	,918	20	,092
Total_Effectual	,185	20	,073	,920	20	,100

\*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Appendix H: Dependent t-test case

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Total_Causal	10,70	20	4,868	1,088
	Total_Effectual	15,85	20	3,870	,865
Pair 2	Goal_Driven	2,80	20	1,609	,360
	Means_Based	6,45	20	3,762	,841
Pair 3	Expected_Returns	1,05	20	1,276	,285
	Affordable_Loss	,80	20	,894	,200
	Competitive_Analysis	,90	20	,788	,176
Pair 4	Use_of_Alliances_Partnerships	1,75	20	1,164	,260
	Existing_Market_Knowledge	1,45	20	1,234	,276
Pair 5	Exploration_of_Contingency	1,65	20	1,182	,264
	Predictions_of_the_Future	1,40	20	1,536	,343
Pair 6	Nonpredictive_Control	1,40	20	,995	,222
	Emphasis_on_Analysis_of_Data	2,65	20	1,599	,357
Pair 7	Distrusting_or_Opposing_Marketing_Research	1,40	20	1,667	,373

### Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	Total_Causal & Total_Effectual	20	-,067	,780
Pair 2	Goal_Driven & Means_Based	20	-,184	,437
Pair 3	Expected_Returns & Affordable_Loss	20	-,129	,588
Pair 4	Competitive_Analysis & Use_of_Alliances_Partnerships	20	,201	,396
Pair 5	Existing_Market_Knowledge & Exploration_of_Contingency	20	-,247	,294
Pair 6	Predictions_of_the_Future & Nonpredictive_Control	20	-,386	,093
Pair 7	Emphasis_on_Analysis_of_Data & Distrusting_or_Opposing_Marketing_Research	20	-,300	,198

**Paired Samples Test**

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Total_Causal - Total_Effectual	-5,150	6,418	1,435	-8,154	-2,146	-3,589	19	,002
Pair 2	Goal_Driven - Means_Based	-3,650	4,356	,974	-5,689	-1,611	-3,747	19	,001
Pair 3	Expected_Returns - Affordable_Loss	,250	1,650	,369	-,522	1,022	,677	19	,506
Pair 4	Competitive_Analysis - Use_of_Alliances_Partnerships	-,850	1,268	,284	-1,443	-,257	-2,998	19	,007
Pair 5	Existing_Market_Knowledge - Exploration_of_Contingency	-,200	1,908	,427	-1,093	,693	-,469	19	,645
Pair 6	Predictions_of_the_Future - Nonpredicitive_Control Emphasis_on_Analysis_of_Data -	,000	2,128	,476	-,996	,996	,000	19	1,000
Pair 7	Distrusting_or_Opposing_Marketing_Research	1,250	2,633	,589	,018	2,482	2,123	19	,047

## Appendix I: Test of Normality Questionnaire

### Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Effectual_Questionnaire	17	85,0%	3	15,0%	20	100,0%
Causal_Questionnaire	17	85,0%	3	15,0%	20	100,0%

### Tests of Normality

	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Effectual_Questionnaire	,108	17	,200 <sup>*</sup>	,954	17	,525
Causal_Questionnaire	,159	17	,200 <sup>*</sup>	,953	17	,504

\*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction



Appendix J: Dependent t-test questionnaire

**Paired Samples Statistics**

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Effectual_Questionnaire	3,2706	17	,52650	,12770
	Causal_Questionnaire	3,0882	17	,55570	,13478

**Paired Samples Correlations**

		N	Correlation	Sig.
Pair 1	Effectual_Questionnaire & Causal_Questionnaire	17	,347	,173

**Paired Samples Test**

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pair 1 Effectual_Questionnaire - Causal_Questionnaire	,18235	,61907	,15015	-,13594	,50065	1,215	16	,242

## Appendix K: statistical test of the relationship: test of normality and dependent t-test

### Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Share_Causation	20	100,0%	0	0,0%	20	100,0%

### Descriptives

		Statistic	Std. Error	
Share_Causation	Mean	35,7925	3,20511	
	95% Confidence Interval for Mean	Lower Bound	29,0841	
		Upper Bound	42,5009	
	5% Trimmed Mean	35,4278		
	Median	32,5850		
	Variance	205,455		
	Std. Deviation	14,33369		
	Minimum	8,63		
	Maximum	69,52		
	Range	60,89		
	Interquartile Range	20,94		
	Skewness	,478	,512	
	Kurtosis	,398	,992	

### Tests of Normality

	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Share_Causation	,124	20	,200 <sup>*</sup>	,978	20	,899

\*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

**Paired Samples Statistics**

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Share_Causation	38,2441	17	13,55119	3,28665
	Uncertainty_Avoidance	-101,47	17	58,223	14,121
Pair 2	Share_Causation	38,2441	17	13,55119	3,28665
	Power_Distance	-20,29	17	61,045	14,806
Pair 3	Share_Causation	38,2441	17	13,55119	3,28665
	Individualism	129,71	17	103,357	25,068
Pair 4	Share_Causation	38,2441	17	13,55119	3,28665
	Masculinity	92,94	17	110,582	26,820
Pair 5	Share_Causation	38,2441	17	13,55119	3,28665
	Long_Term_Orientation	4,12	17	76,877	18,645

**Paired Samples Correlations**

		N	Correlation	Sig.
Pair 1	Share_Causation & Uncertainty_Avoidance	17	-,374	,140
Pair 2	Share_Causation & Power_Distance	17	,407	,105
Pair 3	Share_Causation & Individualism	17	,227	,382
Pair 4	Share_Causation & Masculinity	17	-,050	,848
Pair 5	Share_Causation & Long_Term_Orientation	17	-,551	,022

**Paired Samples Test**

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pair 1 Share_Causation - Uncertainty_Avoidance	139,71471	64,52247	15,64900	106,54031	172,88910	8,928	16	,000
Pair 2 Share_Causation - Power_Distance	58,53824	56,88972	13,79778	29,28824	87,78823	4,243	16	,001
Pair 3 Share_Causation - Individualism	-91,46176	101,15259	24,53311	-143,46963	-39,45390	-3,728	16	,002
Pair 4 Share_Causation - Masculinity	-54,69706	112,08273	27,18405	-112,32468	2,93056	-2,012	16	,061
Pair 5 Share_Causation - Long_Term_Orientation	34,12647	85,09693	20,63904	-9,62633	77,87927	1,653	16	,118

Appendix L: Independent t-test technical and business students

Tests of Normality

	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Share_Effectuation	,124	20	,200*	,978	20	,899
Share_Causation	,124	20	,200*	,978	20	,899

\*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Group Statistics

	Group	N	Mean	Std. Deviation	Std. Error Mean
Share_Effectuation	1	8	61,1275	11,99995	4,24262
	2	7	65,1857	10,91890	4,12696
Share_Causation	1	8	38,8725	11,99995	4,24262
	2	7	34,8143	10,91890	4,12696

**Independent Samples Test**

		t-test for Equality of Means						
		t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
							Lower	Upper
Share_Effectuation	Equal variances assumed	-,681	13	,508	-4,05821	5,95887	-16,93156	8,81513
	Equal variances not assumed	-,686	12,968	,505	-4,05821	5,91875	-16,84808	8,73165
Share_Causation	Equal variances assumed	,681	13	,508	4,05821	5,95887	-8,81513	16,93156
	Equal variances not assumed	,686	12,968	,505	4,05821	5,91875	-8,73165	16,84808

## Appendix M: Wilcoxon signed-rank test

### Tests of Normality

	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Uncertainty_Avoidance	,100	16	,200*	,951	16	,503
Predictions_Future	,221	16	,036	,787	16	,002
Competitive_Analysis	,343	16	,000	,769	16	,001
Expected_Returns	,287	16	,001	,780	16	,001

\*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

### Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
Uncertainty_Avoidance	17	-101,47	58,223	-180	0
Non_Predictive_Control	20	1,40	,995	0	3
Use_of_Alliances_Partnerships	20	1,75	1,164	0	4
Affordable_Loss	20	,80	,894	0	3

### Wilcoxon Signed Ranks Test

#### Ranks

		N	Mean Rank	Sum of Ranks
Non_Predictive_Control - Uncertainty_Avoidance	Negative Ranks	0 <sup>a</sup>	,00	,00
	Positive Ranks	17 <sup>b</sup>	9,00	153,00
	Ties	0 <sup>c</sup>		
	Total	17		
Use_of_Alliances_Partnerships - Uncertainty_Avoidance	Negative Ranks	0 <sup>d</sup>	,00	,00
	Positive Ranks	17 <sup>e</sup>	9,00	153,00
	Ties	0 <sup>f</sup>		
	Total	17		
Affordable_Loss - Uncertainty_Avoidance	Negative Ranks	0 <sup>g</sup>	,00	,00
	Positive Ranks	17 <sup>h</sup>	9,00	153,00
	Ties	0 <sup>i</sup>		
	Total	17		

- a. Non\_Predictive\_Control < Uncertainty\_Avoidance
- b. Non\_Predictive\_Control > Uncertainty\_Avoidance
- c. Non\_Predictive\_Control = Uncertainty\_Avoidance
- d. Use\_of\_Alliances\_Partnerships < Uncertainty\_Avoidance
- e. Use\_of\_Alliances\_Partnerships > Uncertainty\_Avoidance
- f. Use\_of\_Alliances\_Partnerships = Uncertainty\_Avoidance
- g. Affordable\_Loss < Uncertainty\_Avoidance
- h. Affordable\_Loss > Uncertainty\_Avoidance
- i. Affordable\_Loss = Uncertainty\_Avoidance

**Test Statistics<sup>a</sup>**

	Non_Predictive_Control - Uncertainty_Avoidance	Use_of_Alliances_Partnerships - Uncertainty_Avoidance	Affordable_Loss - Uncertainty_Avoidance
Z	-3,622 <sup>b</sup>	-3,622 <sup>b</sup>	-3,622 <sup>b</sup>
Asymp. Sig. (2-tailed)	,000	,000	,000

- a. Wilcoxon Signed Ranks Test
- b. Based on negative ranks.