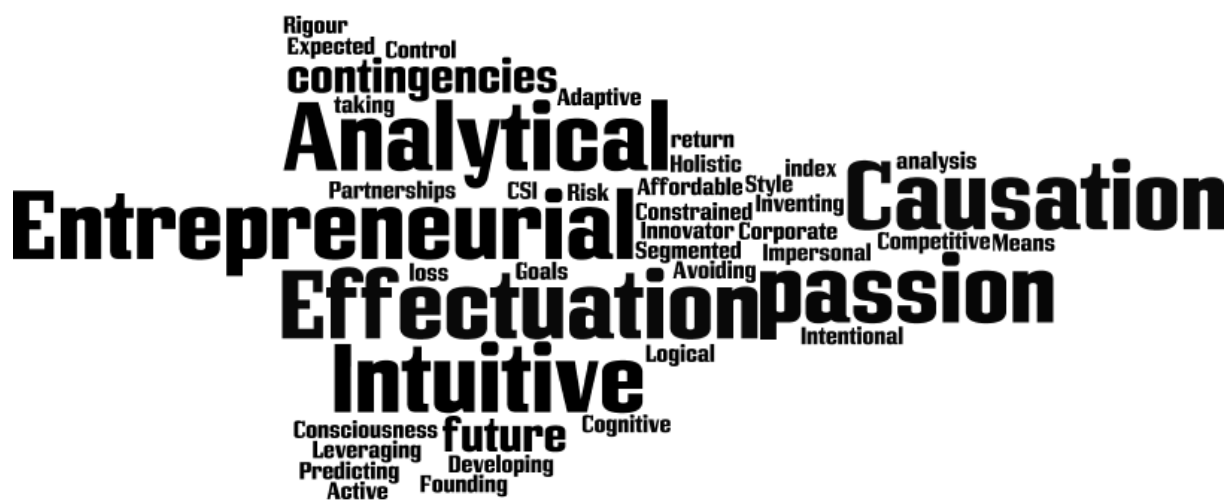


Which entrepreneurial style is the best?

Research towards novice entrepreneurs and the correlations of cognition, causation & effectuation and successfulness.



University of Twente
School of Business, Management and Social Sciences
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Master thesis

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Feeling right about a decision may be good for your psyche, but being right about it is better for your reputation. ~ Marino, (2000)

Summary

This research focusses on how entrepreneurs work, how they make decisions and how successful they are in doing business. The literature describes several entrepreneurial and cognitive styles but it is not clear which style is the best to apply. Should an entrepreneur use cognitive abilities only, or is intuition also useful. Or is it better to apply a set of effectual or causal principles. Therefore, after rigorous research, this thesis clarified the decision making behaviour of entrepreneurs, drivers of entrepreneurs and the way how entrepreneurs treat business. This thesis also researched the correlation of cognition and effectuation. This has been done by measuring the level of cognition, effectuation and successfulness. The following research question has been answered: 'To what extent are entrepreneurial decision making processes influenced by cognitive styles of entrepreneurs and is this reflected in the success of the new venture?'

A quantitative research, with usage of validated scales, towards 'real' novice entrepreneurs resulted in 137 usable responses including 70 responses with financial information. The scale of Epstein et al. (1996) has been used to test the level of cognition and intuition, the scale of Alsos et al. (2014) has been applied in order to test the level of causation and effectuation. Success has been measured by calculating the profit margin. Regression and correlational analysis have been conducted. This research showed that entrepreneurs who apply effectual principles are more successful. Next to that, there is a correlation between causation and cognition but not between effectuation and intuition. Also, it is not proven that intuition and cognition are strengthening each other which is against the expectations of the literature. Furthermore, causation and age are significantly negative related with success.

The outcomes of the research indicate that novice entrepreneurs should apply effectual principles in order to become more successful. Next to that, entrepreneurs should be willing to accept external help if needed. Educational institutions and venture labs, which are focused on providing entrepreneurial support, courses or trainings, can adjust their curriculum in order to fulfil their clients' needs with better and more specified education.

Furthermore, it is clear that cognition and causation are correlated, but between intuition and effectuation is no correlation at all. Which means that these two dimensions totally differ from each other.

Keywords: Cognition, intuition, causation, effectuation, success, novices, entrepreneurs.

Preface

You just started reading my master thesis about entrepreneurial styles and their successfulness, as the last part of my study Master of Business Administration (track Innovation Management & Entrepreneurship). I choose for this topic because it is highly interesting to see how people can differ and how this works out in performance. Next to that I had the opportunity to assist my lead supervisor, Martin Stienstra, in his doctoral thesis about entrepreneurship and culture. He was a big help for me and I want to thank him for all his support, supervision, interesting insights, discussions and his critical look and feedback which I could use to construct and improve my thesis.

Next to that I want to thank some other people for their efforts. I want to thank professor Corbett for his explanation in the pre study about one of his articles. I want to thank professor Epstein for responding to my question regarding the cognitive scale, even at the age of 99 he was able to reply to my question. Also thanks to the three respondents of my pilot study who were available for a discussion how they experienced the pilot study and about what should be improved and of course thanks to all the participants. Thanks to Harrie van der Kaap, as lecturer of research methods and statistics, for his discussion and sharing his knowledge regarding the survey. I want to thank Wieger Waardenburg for his help in writing and publishing a blog post, addressing colleague entrepreneurs via several ways and his critical look as entrepreneur into my survey. I want to thank Meindert Jan Waardenburg for his help in addressing colleague entrepreneurs, giving actively feedback on the survey and the discussions we have had. Also my second supervisor dr. Michel Ehrenhard, thank you for your insights, ideas and supervision. And last but not least, a big thank to Lianne Stevens who supported and helped me during my master thesis with her critical look and reviews, with access to databases which weren't available at the University of Twente and our discussions about all the ins and outs of my master thesis.

I hope you will enjoy reading my master thesis and I hope that you will learn more about entrepreneurial styles and their successfulness.

Best regards,

Jelle Waardenburg

Nieuwleusen, June 2016

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1. Introduction

In this chapter the topic of this thesis will be introduced. It starts with the situation and complication of the topic followed by some research gaps. After that the research goals, research question and its relevance will be discussed. The chapter will end with a brief outline how this thesis will continue.

1.1 Situation and complication

In the year 2014, 154.500 new entrepreneurs started in the Netherlands. These entrepreneurs have an expected chance of survival for the next 5 years of 50% and around 99% of all the new starting entrepreneurs have less than 20 employees (Kamer van Koophandel, 2015). Entrepreneurs contribute towards innovation and economic growth (Audretsch, Keilbach, & Lehmann, 2006; Junaid, Durrani, Mehboob-ur-Rashid, & Shaheen, 2015; Minniti & Lévesque, 2010; Parris & McInnis-Bowers, 2014; Schumpeter, 1934). Every day people make decisions and while making these decisions the options will be reviewed and the most beneficial one will be picked (Nutt, 2008). The decision making process differs from person to person and also for entrepreneurs due to their life style, preferences (Upadhyay, Kumar Singh, & Thomas, 2007), skills, competencies, culture and rational and intuitive thinking (Paprika, 2010).

Entrepreneurs are described as non-fixed income earners with uncertain incomes (R.T. Hamilton & D.A. Harper, 1994), looking for a greater yield (Herrington, Kew, & Kew, 2010), innovators who are carrying new combinations (Schumpeter, 1934), exploits opportunities, searching for change and respond to it (Drucker, 1964), doing something new or doing the same in a new way (Parker, 2004) and are taking crucial decisions in order to exploit new idea's (Casson, 2010). Hindle (2010) tried to cover most of these aspects with the following definition: *'Entrepreneurship is the process of evaluating, committing to and achieving, under contextual constraints, the creation of new value from new knowledge for the benefit of defined stakeholders.'* (Gartner, 2010, p. 100). There is not one definition covering all the aspects of an entrepreneur where all the scholars can agree on so far, but it is clear that an entrepreneur has different characteristics and thereby different ways of treating situations and doing business. Entrepreneurs are different, some entrepreneurs are approaching situations for example based on feelings and experience, others are more using rational skills.

Cardon, Grégoire & Stevens (2013) say that the entrepreneurs self-identity is the heart of entrepreneurship and so the identity of an entrepreneur has influence on the decision making process and behaviour in doing business which also results in different drivers and ways of doing business. Some of the scholars who looked into these processes are Epstein, Pacini, Denes-Raj and Heier (1996). They took a look at how people behave and are processing information and they are elaborating on cognition. They measured individual differences in intuitive-experimental thinking and analytical-rational thinking in order to make clear how people make their decisions, how they deal with situations and measure the level of need for cognition. Note that there is not one best level of cognition, for certain positions or tasks are some particular cognitive styles more appropriate than others (Schweiger, 1983). The primary work of Sarasvathy (2001), which stems from cognition, looked into the entrepreneurial process of decision making and identified two different approaches which she coined as causation and effectuation. According to Dew et al. (2009) causation has a correlation with cognition but is not elaborating on cognition and the exact relation with it. Sarasvathy (2001) says that entrepreneurs differ in several aspects of doing business. She developed a model where she claims that for example entrepreneurs have a certain level of being driven by

means versus goals and that some entrepreneurs are looking at the affordable loss they can accept instead of the expected return of the project or having a focus on predictability versus controllability of the future. She says that expert entrepreneurs are not using the structures they have been learned in business schools in the way of analysing, identifying business opportunities, planning and exploiting in order to generate profits. Expert entrepreneurs use a set of principles which are conceptualized as effectuation (Sarasvathy, 2001; Wiltbank, Read, Dew, & Sarasvathy, 2009). The opposite of effectuation is causation. This shows that entrepreneurs can do business in two very different approaches with several dimensions. It will be useful for entrepreneurs and academics to find out which style is more appropriate than others in a certain situation.

1.2 Research contributions

To get an insight into entrepreneurial decision making scholars such as Corbett (2007) and Dew et al. (2009) have looked into entrepreneurial literature and did research towards opportunity recognition, exploitation and human and entrepreneurial behaviour. Other scholars have looked into drivers of entrepreneurs (Clercq, Honig, & Martin, 2013), how expert entrepreneurs treat certain situations (Sarasvathy, 2001) and the foundation is in the many cases cognition which has been researched by for example Allison & Hayes (1996), Epstein et al. (1996) and Cools (2007). While theory is focusing a lot on the aspects mentioned above some research gaps in the literature are remaining like indistinctness about the level of causation and effectuation by novice entrepreneurs where only limited research in the field of effectuation has been done among top CEO's and post MBA students as novice entrepreneurs (Dew et al., 2009; Sarasvathy, 2001). According to Arend, Sarooghi & Burkemper (2015) effectuation is insufficiently tested and critically analysed. They think that effectuation is underdeveloped as a new theory of entrepreneurship. Surprisingly no research bundles theories of effectuation, cognition and successfulness together with validated and reliable scales in order to find correlations or contradictions, the effect of a certain entrepreneurial style and creating a more complete entrepreneurial profile.

In the fields of effectuation and cognition, a lot of research is done among students but research about the entrepreneurial stage after graduating is not widely researched. According to Chandler (2011) future research is needed to examine whether effectuation has more distinguishing dimensions with causation and other scholars write that more empirical research is needed to learn more about how entrepreneurs deal with situations in a business environment (Armstrong, Cools, & Sadler-Smith, 2012; Dew et al., 2009). Causation and cognition do have a relation or connection but this relation has never been tested (Blume & Covin, 2011; Dew et al., 2009; Krueger & Kickul, 2011). A last gap is that many scholars are describing theories and also testing them, but in most of these cases the successfulness of certain ways of doing business have not been tested which does not make it possible to compare styles based on their successfulness.

No research has been done specifically towards successfulness of a company in combination with effectuation or cognition (Arend et al., 2015). Wiltbank et al. (2009) measured successfulness of angel investors who took a control or prediction strategy. This study focused on the amount of money the angel investors have invested, about dropouts and gain or loss of the investor. This measurement is not about the company performance itself. If the factor success has been tested in a research it is in most situations done in the United States and not in the Netherlands (Dickson, Solomon, & Weaver, 2008). Next to that it will be useful to know by what kind of actions an entrepreneur will be successful.

Reasons for research towards entrepreneurs and their decision making process in combination with measuring successfulness is the importance to find relations between styles and their successfulness (Arend et al., 2015). Therefore it is useful to know how entrepreneurs are doing business, which factors influence them, how they behave, what their drivers are and how they make their decisions, on what kind of level of knowledge and how successful they are. Measuring successfulness in financial terms makes it possible to compare styles and find out which style is in a certain situation most effective. Dickson (2008) made a start with comparing different scales with education as a foundation which are measuring successfulness.

When it is clear how an entrepreneur behaves, does business and knows which style is the most successful an entrepreneur can anticipate on his own behaviour and improve his decision making processes in order to become more successful. One of the implications of this could be that educational institutions and venture labs can provide education which is matching with what novice entrepreneurs need to succeed in building their new venture and it will contribute in developing a better profile of an entrepreneur. According to Corbett (2007) learning and cognitive styles should be utilized and are necessary in order to identify, launch and run a successful a business at different stages.

1.3 Research goal and question

This thesis tries to clarify the decision making behaviour of entrepreneurs, drivers of entrepreneurs, the way how entrepreneurs treat business and find the correlation of cognition and effectuation and this will be done by measuring the level of cognition, effectuation and successfulness and will answer the following research question: **'To what extent are entrepreneurial decision making processes influenced by cognitive styles of entrepreneurs and is this reflected in the success of the new venture?'**

1.4 Relevance

According to Arend et al. (2015) the relation of effectuation on success is missing which makes the current theory incomplete and less valuable. The research question is highly relevant because it will make the theory of effectuation more complete. There is a gap in the literature that no other research has combined cognition, effectuation and successfulness together. This research will solve this gap which will give more knowledge about how entrepreneurs are doing business and on which foundation they are doing this, this research will contribute to develop a more complete entrepreneurial profile. Another aspect of this research is to find relations, overlap or differentiations between the main subjects. Causation and cognition have been tested widely but mainly separately from each other while they have a correlation (Blume & Covin, 2011; Dew et al., 2009). Next to that, literature is not mentioning anything about the successfulness of one of these styles. If more information about styles and their successfulness would be available entrepreneurs might gain more self-understanding which makes them able to anticipate better in real life situations and become more focused and/or successful. Educational institutions and venture labs which are focused on entrepreneurial courses or trainings can benefit from this research (Schweiger, 1983) in a way that they can see to what extend they cover entrepreneurship.

1.5 Outline

Before starting the empirical research a literature review will be conducted to clarify the main subjects causation & effectuation, cognition and successfulness with the associated dimensions.

After this review the research method, scales and sample group will be discussed followed by the operationalization where after results will come up and conclusions can be drawn. The thesis will end with a discussion, limitations and implications for future research.

2. Theoretical framework

This chapter will describe an overview of theory which will be used and applied in this research in order to answer the research question, define hypotheses and select the right methodology to use in the survey. The concepts which will be discussed are cognition, causation & effectuation and success.

2.1 Cognition

Cognition is the mental act or process of knowing and the way how knowledge is acquired which includes perception, intuition and reasoning (E. Cools & van den Broeck, 2007; Hayes & Allinson, 1994). Individuals have or create their own style of thinking which is known as a cognitive style. A cognitive style is the link between cognition and a personality (Riding & Rayner, 1998). This individual/cognitive style is the preferred way how individuals think, perceive, experience and transform/process information which will result in a certain behaviour (E. Cools & van den Broeck, 2007; Martinsen, Kaufmann, & Furnham, 2011; Messick, 1976). The terms cognition and cognitive style are broadly used in the literature.

Many journals in many different fields are publishing about cognition. Cognition is a hot item especially in the fields of education, psychology but also in business. This results in many published articles from different scholars with their own research and results. Most of these scholars write about one or both of the two different and widely shared fundamentals of cognition (Nickerson, Perkins, & Smith, 1985). The most applied fundamentals are intuition and cognition, intuitive and thinking in concepts and logics, analytic-non analytic conceptualizing, reasoning-intuitive/active-contemplative and sensing, intuition, thinking & feeling (McKenney & Keen, 1974). Allison & Hayes (1994 & 1996), Epstein et al. (1996) and Grégoire, Corbett & McMullen (2007) provide more extensive and complete overviews.

Cognition and cognitive styles developed to a better and more complete understanding. Ornstein (1997) came up with a so called hemispherical lateralisation consent which can place most of the cognitive theories all together. This consent is also commonly called the left brain/right brain theory. People are processing information via two interactive and parallel systems, a rational and an experimental system (Epstein et al., 1996). The left brain is conscious, inductive, logical, analytical and linear thinking and the right brain is unconscious, deductive, intuitive and nonlinear thinking (Hines, 1985).

One of the highly cited scholars in the field of cognition is Seymour Epstein. He developed a theory about individual differences between intuitive-experiential and analytical-rational thinking styles and introduced a self-measurement theory that has been cited over 1000 times (Epstein et al., 1996). His theory fits in the Ornstein concept and tells that cognition consists out of two parts, the intuitive-experiential part (right brain) and the analytical-rational part (left brain). Epstein places this in an individual context where characteristics of individual thinking styles operate on a certain level of one of these modes. These values of Epstein are also (partly) supported by other scholars as mentioned above since there is a lot of overlap between different scholars. However, the part where Epstein is distinguishing his scale from the others is that Epstein has a focus not only on intuition but also on experience which is according to Blume & Covin (2011) more relevant than people assumed so far. They say that intuition is developed through one's experience and when an entrepreneur sees that intuition is affecting decisions the entrepreneur has a higher propensity to rationality (Blume &

Covin, 2011) and should find out to what extent they can trust their intuition. Next to that, Epstein is using a 7 point scale which is considered highly liable (Zikmund, Babin, Carr, & Griffin, 2013).

The characteristics are coming together and this results in a certain behaviour and conscious thoughts. A person will always have experiential and rational thoughts which might cause in a conflict (Epstein et al., 1996). There is not one best part for solving a conflict, rationality sounds the best and most logical choice since it is based on knowledge and facts, but as Henry Mintzberg (1976) claims, some tasks require a more intuitive approach. And that is exactly what makes cognitive styles highly interesting because different styles are useful for different tasks, team compositions, managing, conflict management, training and development and there is not one best style to adopt (Allinson & Hayes, 1996; Hayes & Allinson, 1994; Schweiger, 1983).

2.2 Causation & Effectuation

According to Fisher (2012) causation & effectuation in entrepreneurship research are the most prominent new theories which are representing two fundamentally different approaches or logics when an entrepreneur is developing his/her venture. Research in this field is not always easy due to the complexity, different observable varieties and the difficulties in developing and validating reliable causation & effectuation measurement scales (Perry, Chandler, & Markova, 2012). Sarasvathy (2001) describes both as that causation is resting on a logic of prediction where effectuation is resting on the logic of control and she uses the following definition: *'Causation processes take a particular effect as given and focus on selecting between means to create that effect. Effectuation processes take a set of means as given and focus on selecting between possible effects that can be created with that set of means.'* (Sarasvathy, 2001, p. 245).

The process of causation has the characteristics that an effect is given, goals are set to achieve and chooses means to achieve these goals which will be done in order to maximize the expected returns. A causal approach is well structured and based on that the future is predictable and so it is controllable which makes it in general more static, linear and independent from the environment. When this is the case it is an excellent way of exploiting knowledge, creating competitive advantages and take more market share in existing markets (Sarasvathy, 2001). It is the most beneficial to use causation in situations with low perceived uncertainty and when future outcomes are predictable.

In effectuation only means are available and a clear goal is not set. This makes it possible to choose between different effects with given means. The choice of the effect will be determined by the actor and his/her characteristics and abilities to discover and use contingencies. The actor can look at the resources which are immediately available, look at who he is (traits, tastes and abilities), what he knows (education, training, expertise, and experience) and who he knows (social and professional networks) (Perry, Chandler, & Markova, 2012; Sarasvathy, 2001, 2008). This process is more dynamic, flexible, nonlinear and less static and it focus on the (changing) environment. When the aspects are controllable there is no need to predict the future and makes an entrepreneur a co-creator of opportunities (Read, Song, & Smit, 2009). This process is most suitable in order to create new markets (Sarasvathy, 2001) and in situations with a high perceived uncertainty.

To clarify both terms, an often used example of a cook will follow to illustrate a practical situation introduced by Sarasvathy. A cook is assigned to cook dinner. The first way is to cook dinner in the process of causation. In advance, the host or client picks a menu. After this, the cook will make a list

of ingredients, buys them, arrange the right tools to prepare the dinner and will cook the meal according the recipe. It starts with a given menu and the cook finds the most effective way to prepare it. The second way to cook dinner is in the process of effectuation. The cook will look around in the kitchen, looks at the available tools and ingredients and will select and prepare a meal based on the available ingredients and utensils. In this case the cook will have a look at all available possibilities and will pick the best. In this example it is clear that the process of causation is more structured and works towards a certain goal but doesn't say anything about uncertain situations, for example when the cook wants to bake an apple pie and the apples are sold out or rotten.

The choice of causation and effectuation depends on how choices are made in the dimension of taking action, view of risk and resources, attitude towards others, attitude towards unexpected events and view of the future. For a more complete overview and tables about the processes and differences of causation and effectuation, have a look at the article of Sarasvathy (2001).

Research done by Wiltbank et al. (2009) studied the successfulness of angel investors when they applied a causal or effectual approach and this showed that investors focusing on control strategies experienced fewer exits and investors who focus on predictions make larger investments but not with more success. However, it is not proven that effectuation is better or more efficient in creating firms, markets or economies than causation (Sarasvathy, 2001). Another note that has to be made is that causation and effectuation are dichotomous, they are not polar opposites but both can occur in different situations as well as simultaneously, can have overlap and can intertwine in making a decision or taking an action (Perry, Chandler, & Markova, 2012; Sarasvathy, 2001). An entrepreneur is also never complete effectual or causal (Arend et al., 2015) and therefore entrepreneurs should take both approaches into account and look for better ways in order to predict the future as well as they should create and adapt to their environment (Chandler et al., 2011; Dew & Sarasvathy, 2001).

2.3 Successfulness

An entrepreneur can start a venture for several reasons. Some entrepreneurs start in order to improve the world or their personal life and others are just having a great idea which they want to expand (Drucker, 1964; Goethner, Obschonka, Silbereisen, & Cantner, 2012; Herrington et al., 2010; Junaid et al., 2015; Schumpeter, 1934). Scholars such as Dickson, Solomon & Weaver (2008) and Read, Song & Smith (2009) are primarily measuring financial successfulness and are not taking into account how entrepreneurs are becoming successful in reaching social entrepreneurial goals as for example improving the world, finding a better balance in personal life or developing innovative products. This research will also have the focus on only financial measures, because other success factors are beyond the scope.

The literature is not very clear about the best way to measure performance of a company. Some companies publish publicly their annual reports, other don't. Due to high variations between companies, desired results, goals and differences in opinions it is difficult to determine when a company is successful.

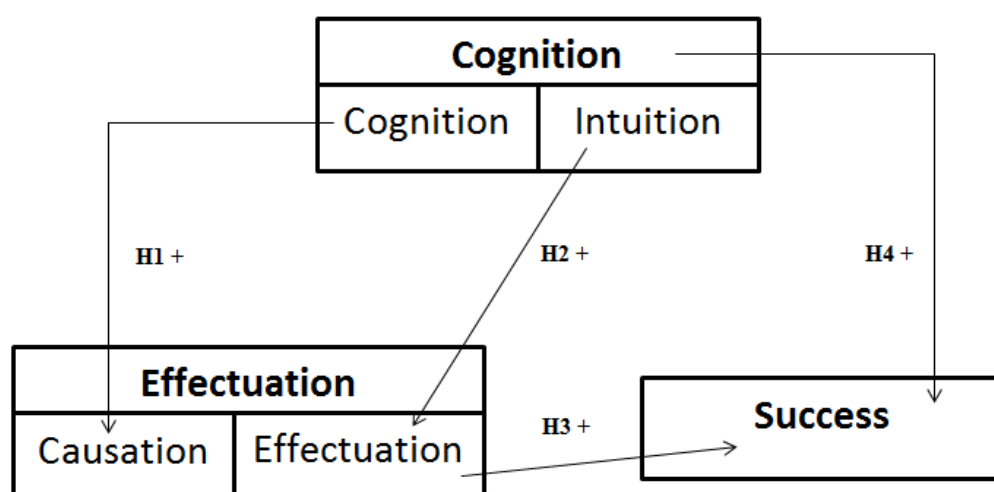
However, Jo & Lee's perception (1996) might be helpful where they are looking for a relationship between the background of an entrepreneur and their firms performance during the early stages. They found out that the successfulness measured in terms of profit and growth will be higher when an entrepreneur has more experience and education in the line of business. Jo & Lee (1996) measure

the financial performance in terms of sales, profit, employees and assets the companies achieved in their third and fifth year. Taking two or more moments of measuring financial performance is better than taking only one moment into account because that would give a better understanding about the real performance over time (Jo & Lee, 1996). Another perception is the perception of Dickson, Solomon & Weaver (2008) which measured the relationships between a range of entrepreneurial activities, general education and specific forms of entrepreneurial education. They have analysed many published articles between 1995 and 2006 about education and entrepreneurial success. There is strong evidence for a relationship between level of education and several entrepreneurial success measures. Again, the most used and suitable ways of measuring success contains income, profit, turnover, exit/survival and growth (Dickson et al., 2008). Another study has been done by Read, Song & Smith (2009) which also compared studies which are measuring performances of ventures and trying to find relations with effectual principles. They have allocated the studies in topics of effectuation and labelled the studies as relevant or irrelevant to effectuation. However, no big differences appeared in the indicators of measuring performance and the conclusion is that the most scholars whom are measuring financial performance of venture are making use of financial indicators such as turnover, profit, employees and growth.

2.4 Hypotheses

In order to answer the research question the following hypotheses in the fields of cognition, effectuation and success are set and will be tested. Figure 1 is a conceptual model to provide more understanding of the relations between the concepts and whether these are positive or negative related.

Figure 1: Conceptual model



The literature mentioned relations with dimensions of causation and cognition but also between effectuation and intuition. However, this has not been elaborated and tested so far (Blume & Covin, 2011; Dew et al., 2009; Read & Sarasvathy, 2005). It does not say anything about to what extend cognition and causation are related or in which ways these dimensions are related. The relation of intuition and effectuation is even weaker explained. Therefore the following hypothesis will focus on if entrepreneurs with, as called in the scale of Epstein et al. (1996), a rational-analytical style have a

higher propensity to use causation. The same will be tested for entrepreneurs with, as called in the scale of Epstein et al. (1996), an intuitive-experimental style and the relation with effectuation. Hypothesis 1 & 2 are stated as the following.

H1: Entrepreneurs who act more rational-analytical are more causal.

H2: Entrepreneurs who act more intuitive-experimental are more effectual.

Expert entrepreneurs are successful in managing their business according to the research of Dew et al. (2009). The tested group of expert entrepreneurs is a small and specific selected group. These expert entrepreneurs applied (probably unconscious) effectual principles. This might be the result of that expert entrepreneurs know very well how to manage their business and therefore use these principles which make them successful. Next to that, in the research of Wiltbank et al. (2009) becomes clear that angel investors who apply a causal approach have the same number of failures and successes compared to investors who apply an effectual approach. However, the investors who applied an effectual approach invested smaller amounts which makes the losses also smaller. Because of this, people who apply an effectual approach might be more successful than people who apply a causal approach. To get this clear hypothesis 3 will be tested and has been stated as the following.

H3: A higher level of effectuation will have a positive influence on successfulness.

So far, it is unclear if applying a certain style is more successful than another. However, the literature says that a high level of only cognition or intuition is not the best, the presence of both components are important and are strengthening each other (Epstein et al., 1996). Some cases require a more rational-analytical approach and others require a more intuitive-experimental approach, but both are always relevant (Allinson & Hayes, 1996; Hayes & Allinson, 1994; Mintzberg, 1976; Schweiger, 1983). This might indicate that entrepreneurs, who have cognitive as well as intuitive characteristics, become more successful. To test if this is true and also applies for entrepreneurs, hypothesis 4 is set up.

H4: Entrepreneurs are more successful when their entrepreneurial style combines high levels of cognition as well as intuition.

3. Methodology

The aim of this research is to clarify the decision making behaviour and drivers of entrepreneurs and this will be done by measuring the level of cognition, effectuation and successfulness. This chapter will discuss the sample, research method, data collection, pilot study, main study and data analysis.

3.1 Sample

The sample will consist out of novice entrepreneurs in the Netherlands with an entrepreneurial age of 0-5 years and who have started the venture themselves. The reason to focus on this is that in this type of entrepreneur 'real' and 'free' entrepreneurs are expected. And there is no bias, this group of entrepreneurs has not been widely researched in the fields of effectuation and causation in combination with success. A 'real' entrepreneur comes close to meet the characteristics as described in the theory and as mentioned in the introduction. This approach should exclude as much as possible entrepreneurs which are not really entrepreneurial entrepreneurs but more 'venture holders' and who are always doing the same as they have been told to do. Entrepreneurs with all levels of education are invited to join in order to find a correlation between higher and lower educated people and how they do business. The choice for novice entrepreneurs is because novice entrepreneurs are at the begin of their entrepreneurial career where they have 50% chance of survival in the first 5 years (Kamer van Koophandel, 2015). In this period it will be highly beneficial to make the best decisions. Novice entrepreneurs are also more 'free', they don't have restriction in doing business, don't have entrepreneurial experience they rely on, they can make the choices they want and they enjoy a high degree of freedom (Odorici & Presutti, 2013). The self-identity is the hearth of the entrepreneur and will influence the venture and venture performance (Cardon et al., 2013).

3.2 Research method

This paragraph describes the research method and the applied scales for each dimension.

3.2.1 Cognition

To measure cognition the ten item scale of Epstein et al. (1996) is the best to apply in this research because it is suitable to assess entrepreneurs, easy applicable, complete and it has a high validity in combination with a low amount of items which should lower the risk of fatigue (Krebbbers, 2015). Next to that, Epstein et al. (1996) is distinguishing his scale from others by having a focus not only on intuition but also on experience which is more relevant than people thought so far (Blume & Covin, 2011). Another positive aspect is that Epstein et al. (1996) is using a 7-point Likert scale which is considered highly reliable (Zikmund et al., 2013). Using a 7 point Likert scale is better than for example using a 3 point scale, which has been used in the CSI scale of Allinson & Hayes.

3.2.2 Causation & effectuation

In order to measure the level of causation and effectuation scale developed by Alsos, Clausen & Solvoll (2014) will be used. In the field of causation and effectuation several qualitative scales are applied (Brettel, Mauer, Engelen, & Küpper, 2012; Dew et al., 2009). There are also other scholars using questionnaires (Brettel et al., 2012; Chandler et al., 2011; Dew et al., 2009). However, Brettel et al. (2012) focussed on R&D performance and the scale of Chandler is not broadly shared (Alsos et al., 2014) and applied by others. Next to that, the Cronbach's Alpha are better in the scale of Alsos et al. (2014) than in the scale of Chandler et al (2014). The scale of Alsos, Clausen & Solvoll (2014) fits the best in this situation due to the focus on entrepreneurs, high reliability and the limited

amount of items but still takes all ten principles into account where some other scales do not.

3.2.3 Success

The next less clear but important aspect which will be measured is successfulness. Successfulness is difficult to measure but the article of Dickson (2008) helped clarifying this aspect and how to measure it. This research will take the applicable successfulness dimensions as used in the article of Jo & Lee (1996) to measure successfulness by looking at returns and growth. Growth is important to measure because it would give information about a certain period instead of a certain moment. This will be done by self-reported information. There are no other options on this scale since novice entrepreneurs barely have to report their financial statements. Entrepreneurs should be aware of their financial performance because this is always important information and it was recently the end of the book year.

3.2.4 Control variables

The control variables gender, age, level of education and working experience before starting a business will be applied in this research in order to find if other factors also have influence on the outcomes (Bardasi, Sabarwal, & Terrell, 2011; Robinson & Stubberud, 2014). The reason to make use of these control variables is that these variables say something about the entrepreneur itself which might have influence on success (Cardon et al., 2013). Especially experience and level of education might play a role in different outcomes (Dickson et al., 2008; Jo & Lee, 1996; Nurmi, 1992). However, some other variables will be taking into account as well in order to make it possible to collect data for eventual other research purposes which goes beyond the scope of this research.

3.2.5 Survey

To measure the level of cognition, effectuation and successfulness a survey has been conducted which has been created via Google Forms. An incentive, in the way of receiving results at the end of the research, has been offered as a trigger for entrepreneurs to complete the survey. The reason to make use of a survey is the ease of applicability, the relatively low level of efforts expected from the participants, the ability to cover all the aspects in a limited amount of time, the availability of validated scales and the high reliability (Verckens, 2011).

3.3 Data collection

The data has been collected by conducting an online survey addressed to the entrepreneurs as described above in the sample.

To reach these entrepreneurs, addresses are collected by using the databases of the Kamer van Koophandel (Dutch Chamber of Commerce). This database has been used to find information about entrepreneurs who started a new business in the past five years and who are seen as 'real' entrepreneurs. Also personal and social (Twitter, Facebook & LinkedIn) networks have been used to approach entrepreneurs. Next to that, incubators and other novice entrepreneurial platforms have been contacted in order to reach more novice entrepreneurs.

3.4 Pilot study

A pilot study has been conducted to test the survey. The scales are existing, tested and valid scales but they have been putted together and translated to Dutch. No errors were expected but the pilot

study should confirm that this is indeed the case. Another reason for the pilot study are the control variables, the variables shouldn't face confusion by the respondents and should measure what is expected to measure. If any errors appear, than this should be adjusted. The survey of the pilot study can be found in appendix A and the email to approach entrepreneurs can be found in appendix B.

To determine the sample size required for the pilot study some research is required. The literature is not clear about this subject and not much information is published about this in relation with the importance of the subject. However, some scholars did research or came up with a theory to organize a proper pilot group. First of all not all situations are equal, the population, purpose (testing feasibility or scale development for example) and desired effect can differ a lot. Important is that the pilot group is representing the total population (Johanson & Brooks, 2010). Most of the scholars recommending ten to thirty participants for the pilot study (Hill, 1998; Johanson & Brooks, 2010). Other recommend a minimum of twelve (Johanson & Brooks, 2010; Julious, 2005) or 10% of the population (Johanson & Brooks, 2010). Hertzog (2008) recommends for feasibility studies ten to fifteen respondents and for instrument development 25-40 respondents.

Therefore the pilot study should contain at least ten participants and these participants should differ in level of education, age, industry and gender to make sure this group is representing the population. This research is not developing a new instrument but should test that it is truly measuring what is intended to measure. Because of this ten to fifteen respondents should be sufficient if this group is representing the project sample.

For the pilot study the database of the Chamber of Commerce and a limited part of personal network has been used only, in order to control the number of respondents. A total of 1520 entrepreneurs have been looked up via the database of the Kamer van Koophandel and a total of 795 entrepreneurs have been contacted directly. These approaches and the use of personal networks resulted in 35 respondents. One response is in the English survey, the other responses are in the Dutch survey. Some of these responses are not useful due to the missing financial information, a double response, longer than 5 years entrepreneur, not started the venture themselves or being a franchisee which is limiting the degree of freedom. 27 responses are complete and useful. The respondents are active in nine different industries, have different ages (29-64), have different study background (9 lower education, 18 higher education) and have six different motives and have a balance in gender (16 male, 11 female). This means that the requirements of number of respondents and diversity have been met and the pilot study can be analysed.

For the analysis respondents are asked to leave feedback for improvement and also their phone number when they are available for a phone call. Also two entrepreneurs out of a personal network have been asked to review the pilot study and discuss this. Next to that, the responses have been analysed in order to find out if the collected data was useful to measure what is expected to measure. Three of the respondents have been called in order to find out how they experienced the survey and if everything was clear.

The results of the analysis are the following:

- An approached entrepreneur sent an email that she was not a novice entrepreneur anymore because she was already for five years an entrepreneur.

- Some respondents did not find their industry in the list and it was unclear which industry to select.
- The industries 'consumer goods' and 'fast moving consumer good' have overlap.
- Some respondents do not want to give financial information.
- An entrepreneur said that he did not want to click just on a link sent to him.
- Some respondents are part of a franchise and have a limited degree of freedom.
- Two different ways of entering age have been applied (for example 42 and 1974).
- A respondent found out later that the scales were changing; he did not read the description.
- Some respondents fill in absolute numbers where percentages are asked.
- The participants stay easily under the ten minutes when filling in the survey.
- A respondent was missing how information would be used (confidentially or not).

In general the pilot study is measuring what is expected to be measured. However, some errors occurred and some experiences were useful in order to optimize the survey. Some issues could be optimized, some others could not. For the main study some adjustments have been made:

- The term 'novices' has been removed in the subject line and in the description the target group has been explained.
- A note has been made that the information will be used confidentially.
- The option 'other' has been added to the question about the industry the entrepreneur is operating in.
- The industry 'fast moving consumer goods' has been removed, this will be covered by the industry 'consumer goods'.
- Respondents who are franchisees or took over a company will be filtered.
- When people, at the question about age, fill in the year they are born, it will be calculated to years.
- To solve the issue of changing scales a bar will appear when the scales are changing and this bar will also inform the participant how much time it will take to complete the survey.
- To avoid that entrepreneurs fill in absolute numbers when percentages are expected the percentage sign (%) has been added and the euro sign (€) has been added when absolute number are expected.
- After a thorough consideration and discussion with Dr. Harrie van der Kaap, lecturer in research methods and statistics, the choice has been made to make entering financial data not compulsory but open to the respondent but keep the data in absolute numbers.

The adjusted and final version of the survey can be found in appendix C.

3.5 Main study

A total of 5650 entrepreneurs have been looked up via the database of the Kamer van Koophandel and a total of 2663 entrepreneurs have been contacted directly. After a week a reminder has been sent with a total of 2505 reminders. The application Newsletter2Go has been used to get more information about the emails which has been sent out for the first 500 emails. The first email has been opened by 53% and 4.5% of the approached entrepreneurs clicked on the link to the survey. The reminder has been opened by 52% and 5.2% clicked on the link. Personal and social networks (Twitter, Facebook & LinkedIn) have been used to approach entrepreneurs as well. Also incubators and other novice entrepreneurial platforms have been contacted in order to reach more novice

entrepreneurs. Entrepreneur Wieger Waardenburg wrote a blogpost about this research and published this post on several entrepreneurial platforms and his personal network.

A total of 198 respondents have filled in the survey. Only 3 respondents filled in the English version of the survey, the remaining part filled in the Dutch version of the survey. After filtering out respondents who are not the founder, entrepreneurs with an entrepreneurial age above the five years and franchisees, a number of 137 respondents are remaining. Of these respondents a number of 70 entrepreneurs also left their full financial information. This number is sufficient in order to draw conclusions. In general the rule holds, the more the better. However, according to Kent, for quantitative research a number of 100 respondents is a minimum (1993). Next to that, some researchers apply a thumb rule of a minimum of 10 respondents per dimension. In this research that would be a minimum of 50 respondents.

3.6 Data analysis

For analysing data the IBM software SPSS (version 23) has been used. First, all the gathered data has been encoded to numeric values in Microsoft Excel and after that, the data has been entered into SPSS. After entering the data in SPSS some items have been reversed coded as mentioned in the articles (Epstein et al., 1996).

The first tests that have been done were calculations about liability like calculating Cronbach Alpha's. In this part an error occurred. The Cronbach Alpha of the cognitive side of cognition (analytical-rational, or, as named in de concerning table: 'Need For Cognition') was exceptionally low, .23, while it was .73 in the original study of Epstein et al. (1996). This means that, or the data is not of proper quality or something else went wrong. After rigorous research and testing it has been found that the fifth item of the 'Need for Cognition' side has a negative attitude towards cognition but is not reversed coded in the article while other items which have a negative attitude towards cognition do have. After testing this with the fifth item reversed coded it looks acceptable that this is the case. Professor Seymour Epstein has been emailed. After contact with the 99 year old professor Seymour Epstein it is clear and confirmed that the fifth item should indeed be reversed coded. With this information, as shown in table 1, the Cronbach Alpha for the analytical-rational side is .66 and for the intuitive-experiential side it is .76.

Table 1: Cronbach's Alphas in current and original study

<u>Cronbach's Alpha</u>	<u>Current study</u>	<u>Original study</u>
Causation	.71	.80
Effectuation	.68	.76
Analytical-rational	.66	.73
Intuitive-experiential	.76	.72

In order to optimize the Cronbach's Alphas, to eliminate eventual less optimal matching items and to identify items which might be part of more than one concept, a factor analysis has been done. This analysis can be found in table 2. The analysis does not show any overlap of items between the concepts nor it suggests to eliminate items in concepts where that would be possible.

Table 2 – Factor loadings

Factor loadings			
<u>Cognition</u>	<u>Intuition</u>	<u>Causation</u>	<u>Effectuation</u>
.641	-.017	.088	-.235
.609	-.013	.067	-.160
.637	-.050	.096	-.093
.661	-.107	.185	-.103
.699	-.233	-.024	-.106
-.202	.697	-.013	.063
-.068	.758	-.032	-.052
-.050	.681	-.014	-.037
-.211	.801	-.017	.010
.050	.662	.047	.016
.157	.010	.694	-.353
.173	-.112	.704	-.256
.070	.035	.551	-.109
.074	.075	.723	-.372
-.033	-.032	.716	-.353
-.212	-.035	-.255	.717
-.163	-.055	-.189	.637
-.146	.075	-.297	.650
.014	.054	-.241	.564
-.174	-.008	-.450	.746

N = 137

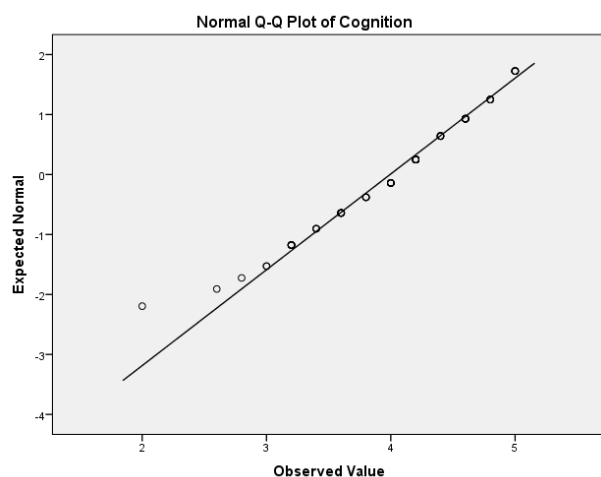
Also a new variable to measure success has been created. The profit has been divided by the turnover to get the profit margin. The profit margin (profit/turnover) is a good measure because it is size neutral and comparable (Davidsson, 2006). This has been done in order to make it possible to compare success on a different measure and give more insights about the entrepreneurs' successfulness.

The liability is sufficient to draw conclusions. The data is also normally distributed. However, as shown in table 3, it seems that cognition is non normal distributed according the Shapiro-Wilk analysis. The Shapiro-Wilk test has been applied because this test has more power to detect differences from normality compared to the Kolmogorvo-Smirnov test (Field, 2009). Again according to Field (2009), an analysis is not only about calculating, but also about plotting the data. Figure 2 shows that the data of cognition is normally distributed and therefore we can assume that, despite the significance in the Shapiro-Wilk test, the data of cognition is normally distributed.

Table 3: Data distribution

	<u>Statistic</u>	<u>Df</u>	<u>Significance</u>
Success	.967	70	.064
Cognition	.963	70	.035
Intuition	.974	70	.154
Causation	.982	70	.407
Effectuation	.984	70	.514

Figure 2: Plot of cognition



After solving the occurred issues, calculating reliability measures, creating new variables, calculating normal distributions and conducting an factor analysis, some tests are done and the Pearson's correlations coefficient has been applied because of the interval data (Field, 2009). First of all, the correlations are checked in order to find multicollinearity between independent variables. If there is some multicollinearity between independent variables it is impossible to identify unique effect of the

regression coefficient. The correlation matrix gives also a first indication of eventual associations between independent and dependent variables. Next to that, a linear regression has been executed in order to test the hypotheses. In order to test hypothesis 4, independent variables have been standardized and an interaction term has been added to the linear regression analysis. It is important that independent variables are standardized, otherwise different scales of measuring would make it impossible to interpret the interaction variables correctly. The interaction term will be used to find out, as expected, that the presence of cognition and intuition are strengthening each other (Epstein et al., 1996). This will be tested by applying a moderation effect. The correlations between predicting variables should not be higher than 0.8 and the VIF value should not be higher than ten (Field, 2009).

4. Results

The results of the statistical research take a central place in this chapter. First of all, the descriptive statistics and correlations will be discussed, followed by testing the hypothesis. The hypothesis have been tested by conducting linear regression analysis.

4.1 Descriptive statistics

In table 4, the average, standard deviation and bivariate correlations are reported for all of the variables. A total of 137 respondents have an average age of 42.7 years and 60% of the respondents are male. Higher education (Bachelor, Master, Doctoral, Professional) has been attended by 69% and the 137 respondents have an average of 16.5 years of working experience before starting their own business. The average (starting) age, male/female ration, diversity in industry and nationality are matching with the population (Kamer van Koophandel, 2015). Entrepreneurs seem to use more effectuation ($\mu = 4.30$) than causation ($\mu = 3.82$) which means that it looks like that entrepreneurs are slightly less focused on strategic, structured, calculated and long term vision and more focused on anticipating on the means they have available in the current (changing) environment. 70 respondents reported also full financial information. The average turnover in 2015 was € 121.279, the average profit in 2015 was € 34.274 and the average turnover and profit per employee in 2015 was respectively € 53.342 and € 21.419. The average turnover and profit growth in the past five years was 28%. Lastly, the average profit margin is 50%.

As reported in table 4, age has a significant and positive correlation with experience ($r = .76$, $p < .01$) which is logical. The older the person, the more likely it is that this person has more working experience. The significant, negative correlation between age and success seems less logical ($r = -.26$, $p < .05$). An explanation for this could be that older people might have different drivers than younger people and are differently motivated (Nurmi, 1992). Another explanation might be that older people are more convinced about their own capabilities because they have life and working experience and they think to know how to do business by themselves and don't need external information and knowledge (Robinson & Stubberud, 2014). The last mentioned could be in line with the next correlation. Entrepreneurs who have a lot of working experience before they start their own venture are significantly less educated ($r = -.19$, $p < .05$). Education has a significant, positive correlation with cognition ($r = .39$, $p < .01$). Which can be explained as that education has the main focus on cognitive knowledge. Cognition has a significant, negative correlation with effectuation ($r = -.21$, $p < .05$) which is not surprising because cognition focuses on knowledge, analyses, planning and prediction where effectuation has a focus on available means, the environment and control. Causation has a significant negative correlation with effectuation ($r = -.43$, $p < .01$). These two dimensions can be dichotomous but are clearly partly also opposites. The last significant, negative correlation is between causation and success ($r = -.24$, $p < .05$). Next to that, effectuation has a significant, positive correlation with success ($r = .30$, $p < .05$). The highest VIF value is 2.61 and the collinearity coefficients do not exceed 0.8, therefore multicollinearity is not a problem. Identifying unique effect of the regression coefficients is now possible and independent variables can be put into one model (Field, 2009).

Table 4 – Descriptive statistics and correlations

	N	M	SD	1	2	3	4	5	6	7	8	9
Gender (1)	137	.40	.49	-								
Age (2)	137	42.73	12.00	.17	-							
Education (3)	137	.69	.47	.04	.01	-						
Experience (4)	137	16.52	10.89	-.03	.76**	-.19*	-					
Cognition (5)	137	3.92	.63	.00	.09	.39**	-.12	-				
Intuition (6)	137	3.99	.53	.13	.01	-.06	.09	-.14	-			
Causation (7)	137	3.82	1.10	.00	-.03	-.13	.04	.13	-.01	-		
Effectuation (8)	137	4.30	1.09	-.14	-.06	-.02	-.11	-.21*	.01	-.43**	-	
Success (9)	70	49.68	28.42	.06	-.26*	.16	-.19	.08	-.01	-.24*	.30*	-

**, * Coefficient is statistically significant for respectively $p < .01$ and $p < .05$.

4.2 Hypotheses testing

This paragraph will test the four hypotheses and these hypotheses will be accepted or rejected.

4.2.1 Hypotheses 1

Hypothesis 1 predicts that the level of cognition has a positive association with causation. There is, as stated in table 5, marginal significant proof to accept this hypotheses ($\beta = 0,13$, $p < 0,1$). Therefore, hypotheses 1 will be accepted.

Table 5 – Regression analysis cognition and causation

	Causation
<i>Independent variable</i>	
Cognition	.13*
R ²	.02
Adjusted R ²	.01
Highest VIF	1.00

***, **, * Coefficient is statistically significant for respectively $< .01$, $p < .05$ and $p < .10$ (based on 2 tailed testing, with exception of H 1-4).

All mentioned coefficient are standardized Bèta's.

N = 137

4.2.2 Hypotheses 2

Hypothesis 2 predicts that the level of intuition has a positive association with effectuation. There is, as stated in table 6, no significant prove to accept this hypotheses. Therefore, hypotheses 2 will be rejected.

Table 6 – Regression analysis intuition and effectuation

	Effectuation
<i>Independent variable</i>	.01
Intuition	
R ²	.00
Adjusted R ²	-.01
Highest VIF	1.00

***, **, * Coefficient is statistically significant for respectively $< .01$, $p < .05$ and $p < .10$ (based on 2 tailed testing, with exception of H 1-4).

All mentioned coefficient are standardized Bèta's.

N = 137

4.2.3 Hypotheses 3

Model 1 in table 7 contains an analysis with the control variables in relation with success, model 2 contains the control variables in relation with success including the independent variable effectuation. Model 3 in table 7 contains an analysis with the control variables in relation with success including the independent variable cognition, model 4 contains independent variable intuition and model 5 contains interaction term of cognition and intuition, in order to analyse the moderator effect of cognition and intuition on success. Table 7 will be used to test hypothesis 3 & 4.

Hypothesis 3 predicts that the level of effectuation has a positive association with success. There is, as stated in table 7, significant prove to accept this hypotheses ($\beta = 0,30$, $p < 0,01$). Therefore, hypotheses 3 will be accepted.

Table 7 – Results of regression analysis

	Success				
	Model 1	Model 2	Model 3	Model 4	Model 5
<i>Control variables</i>					
Gender	-.01	.06	-.01	-.02	-.01
Age	-.33*	-.33*	-.34*	-.32*	-.32*
Education	.20	.21*	.18	.21	.18
Experience	.07	.08	.07	.06	.05
<i>Independent variables</i>					
Effectuation	-	.30***	-	-	-
Cognition	-	-	.05	-	.06
Intuition	-	-	-	.03	.06
Cognition x Intuition	-	-	-	-	-.07
R ²	.10	.19	.11	.11	.11
Adjusted R ²	.05	.13	.04	.04	.01
Highest VIF	2.48	2.48	2.55	2.50	2.61

***, **, * Coefficient is statistically significant for respectively $< .01$, $p < .05$ and $p < .10$ (based on 2 tailed testing, with exception of H 1-4).

All mentioned coefficient are standardized Bèta's.

N = 70

In addition, another test has been conducted in order to find out if particular effectual principles are generating a higher rate of success. As stated in table 8, the principle 'We base our cooperation with others on informal agreements, which are changed depending on what they can offer.' has a positive significant relation with success.

Table 8 – Effectual items analysis

	Success
	.17
	.08
	-.15
	.25**
	.13
R ²	.16
Adjusted R ²	.10
Highest VIF	1.58

***, **, * Coefficient is statistically significant for respectively < .01, $p < .05$ and $p < .10$ (based on 2 tailed testing).

All mentioned coefficient are standardized Bèta's.

N = 70

4.2.4 Hypotheses 4

Hypothesis 4 predicts that the level of cognition as well as intuition has a positive association with success and cognition and intuition are strengthening each other in the positive association on success.

There is, as stated in table 7, no significant prove to accept this hypotheses. Therefore, hypotheses 4 will be rejected. This means that cognition and intuition are not significantly strengthening or weakening each other.

5. Discussion & conclusion

This chapter will discuss the gathered data and results from the research and the practical implications. This chapter will also discuss the limitations and suggestions for future research. The chapter ends with a conclusion.

5.1 Key findings

This research started with introducing the subjects and research gaps. Examples of these gaps are the limited research towards success of novice entrepreneurs and the not proven association between cognition and causation (Blume & Covin, 2011; Dew et al., 2009; Krueger & Kickul, 2011). However, limited research was not able to get these aspects clear. Explanations for this can be the fact that it is difficult to measure success in a proper way, especially by novice entrepreneurs. However, the primary research goal was to clarify the decision making behaviour of entrepreneurs, drivers of entrepreneurs, the way how entrepreneurs treat business and find the correlation of cognition and effectuation in order to see which style is the most successful.

5.1.1 Cognition & intuition

As stated in the theoretical framework, a positive relation between cognition and causation as well as a positive relation between intuition and effectuation was expected. The literature mentioned these relations but this has never been tested so far. This research shows that there is a marginal significant prove that cognition and causation are positively related. However, there is no prove that intuition and effectuation are positively related. Now, it is clear that cognition and causation are related to each other but are clearly not the same, intuition and effectuation are two clear different dimensions.

A positive relation between cognition and success was also expected. The theory does not say anything about a best style to apply, but expects that entrepreneurs who make use of cognitive abilities as well as intuition would be more successful. So far, no significant evidence is available to support this theory which makes it still possible that one style could be more successful than the other and that it should not be assumed that a mix of both styles is the best. This is in contradiction with the current existing literature.

Some other correlations concerning cognition and intuition are found. Cognition has a significant, positive relation with education, but a significant, negative relation with effectuation. This is not difficult to explain when the characteristics of the dimensions will be compared. Intuition does not have significant correlations with any of the variables. A reason for this might be that intuition and experience can be different for every entrepreneur what makes is more diverse and so, more difficult to compare. Next to that, verifying that entrepreneurs are truly using their intuition is very difficult (Blume & Covin, 2011).

5.1.2 Causation & effectuation

Literature expects that entrepreneurs who apply effectual principles might be more successful but this has not been clearly proven so far (Arend et al., 2015). According to this research it is indeed the case that novice entrepreneurs who applied effectual principles are more successful than others. Next to that, causation has a significant, negative correlation with success. Causation and effectuation are also significant, negatively correlated and effectuation is also significant, negatively correlated with cognition.

A note that should be made is that not all scholars agree with the term effectuation as it is stated so far. Scholars think that research towards effectuation is incomplete and lacks testing. One of the most recent published articles at this moment is the article: 'Effectuation as ineffectual?' by Arend et al. (2015) where they claim that effectuation appears when entrepreneurs have the right means, imagination, abilities, aspiration, co-creator network and when the entrepreneur is in an uncertain and dynamic context. Entrepreneurs who are not in this context, which is the majority, are the entrepreneurs who are not effectual and are the franchisees, the 'compete-entrepreneurs, the local imitators, the lifestyle business owners, the local efficiency improvers and the local professionals. This means basically that it is barely possible to be an effectual entrepreneur and totally depends on the situation in which the venture and the entrepreneur are. Another critique by Arend et al. (2015) is that it should be measured in which situation an entrepreneur is using an effectual approach and measured how it worked out. Future research should investigate in which situation an effectual approach is beneficial.

However this research proved that novice entrepreneurs can also apply effectual principles and become more successful by applying them. The effectual item 'We base our cooperation with others on informal agreements, which are changed depending on what they can offer.' has a significant positive correlation with success. Therefore the critiques of Arend et al. (2015) cannot be assumed true without future research. Though, this research agrees that future research should investigate which style is the best to apply in different situations.

5.1.3 Success

The way of measuring success before the survey started was to have a look at turnover, profit and the growth of these two dimensions. However, due to the limited number of full applicable and complete financial data, success will be measured by calculating the profit margin (Davidsson, 2006).

Many success measures have been reviewed but the type of the sample group is cancelling out many success measures. The financial data has to be self-reported (because most of the entrepreneurs in the sample do not report financial information publicly) and preferably complete. Next to that, the respondent will quit the survey when it takes too many efforts. Novice entrepreneurs do not have much history which makes measuring growth more difficult but not impossible. The most entrepreneurs are able to report the number of employees, turnover and profit. Most of the entrepreneurs do have an idea of the average growth over the past years. Other more complicated measures like assets, ratios, performance compared to others and future forecasts are in the most cases not available. If these measures are available, it is highly challenging to collect data which represents the diversity of this sample group. Many entrepreneurs do not have much time for surveys and are not willing to report all the ins and outs of their company. Gladly many entrepreneurs took time to fill in the survey and partially including financial information. This made it possible to investigate performance of different styles by making use of the profit margin.

Applying the profit margin also solves the problem of size, since over 70% of the businesses counts only one employee which has influence on the financial performance. Another unforeseen issue is that by asking profit and turnover growth over the past years, it was not possible to use this data from respondents who were one or two years entrepreneurs. An entrepreneur who started a year ago cannot report any growth. An entrepreneur in his second year might report incorrect growth

because it might be that he started half the year which has influence on the performance of the first year (since it contains for example 6 months). Therefore, it is better to apply the profit margin.

By applying the profit margin some results are drawn. The correlation of success on cognition and effectuation has been discussed already, however, some other results regarding to success became clear. Age has a negative relation with success, the older people get, the less successful they become. Reasons for this might be that older and more experienced people get, the more stubborn they become and drivers might change (Nurmi, 1992; Robinson & Stubberud, 2014).

5.1.4 Control variables

The control variable age is highly positively correlated with experience, which is logical. The respondents are an entrepreneur for a maximum of five years. The older a person is, the more likely it is that this person has more working experience before starting the venture. Another outcome is, the higher the people are educated, the less experience the respondents have. A possible explanation could be that higher educated people might start their own venture when they are younger compared to lower educated people who first want to gain experience.

5.2 Practical implications

Based on the findings some implications are proposed.

As reported in the introduction, every year many people become an entrepreneur but also many entrepreneurs will, for many different reasons, quit being an entrepreneur within five years. Therefore, this research tries to clarify the decision making behaviour of entrepreneurs, the drivers of entrepreneurs, the way how entrepreneurs treat business and to see which style is the most successful.

First of all, the scientific gap of the correlations between cognition and causation has been solved. This research shows that cognition and causation are significant, positively correlated but are clearly not the same. Intuition and effectuation are not correlated and the results suggest that they are not so closely tight as Blume and Govin assume (2011). This means that intuition completely differs from effectuation and it might look like that applying effectual principles is not only based on experience and intuition as Read and Sarasvathy (2005) think.

Secondly, so far literature always assumed that there is not one best entrepreneurial style to apply but the content of the situation depends which approach is required (Allinson & Hayes, 1996; Hayes & Allinson, 1994; Mintzberg, 1976; Schweiger, 1983). This research found that intuition is not strengthening the association between cognition and success and vice versa, which was expected by literature to do so. Though, this research found also that entrepreneurs whom applying effectual principles are more successful which is not in line with existing literature. Next to that, causation is negatively related with success. These results might be interesting for first of all (novice) entrepreneurs who could anticipate on the way how they are doing business currently compared with success factors in order to become more successful. Also educational institutions and venture labs which are focused on providing entrepreneurial support, courses or trainings could benefit from this knowledge. They could adjust their curriculum in order to fulfil their clients' needs with better and more specified education.

In addition, older entrepreneurs should be aware that this research claims that older entrepreneurs are less successful. A reason could be that entrepreneurs above forty years old are less willing to accept external help (Robinson & Stubberud, 2014). A side note, a high level of cognition is not positively correlated with success which probably means that external help should not only contain cognitive knowledge.

However, further research should investigate that these implications are indeed true and liable since this research has some limitations as reported in the next section.

5.3 Limitations

Every research knows some limitations, and as mentioned in the previous section, so does this research. The first limitation is a limited validity. For the theoretical part the research contained 137 respondents, for the performance part only 70. Which is sufficient to draw results and conclusions but insufficient to generalize it for all entrepreneurs in the world. It is recommendable to do further research on a bigger scale.

A second limitation is also related to liability. The Cronbach's Alpha's in this research are lower than the Cronbach's Alpha's reported in the articles and original scales. This might be due to that the survey has been translated from the original English version to a Dutch version. A second reason could be that the cognitive scale is developed and widely used and tested in psychology but has been applied now in entrepreneurial research.

The third limitation is that only one way of measuring of success has been applied. Even while it is a good way of measurement (Davidsson, 2006), it is better to use more and different ways of measuring success to cover more success factors and cancel out coincidences, for example growth ratios (Jo & Lee, 1996). The applied way of measuring success will report for companies who are offering services, in most cases, a higher rate of success than companies who offer products. This is because of the higher costs of good by companies who are selling products instead of offering services. Next to that, this measure takes only results from one year and does not take growth into account.

In addition to the limitation of the success measure is that the data is self-reported. It is not possible to get officially reported data from novice entrepreneurs. So self-reported data is the only way to get financial data. When entrepreneurs report it by themselves it can be influenced by many factors and can lack liability.

Some other issues in the survey went not as expected. This research tried to allocate respondents to different industries but failed in a proper allocation. Some industry suggestions have been made, but also the open option has been offered which became a mess and not possible anymore to allocate the respondents to the right industries.

Lastly, this research is correlational and partly regressional research. However, it is not possible to draw full conclusions about the causality of the correlations.

5.4 Future research

Next to the suggestions for future research mentioned in the previous sections some other suggestions will be adduced.

First of all, more research should be done on the same and different sample groups to support the results and overcome the limitations of this research.

Secondly, future research should research which aspects of effectuation makes effectuation more successful. It should also become clear if these effectual principles are teachable. Next to that, other elements could be taken into account which might have an influence on successfulness and the diversity in entrepreneurs. For example researching and comparing styles with industries or specific educational background. When this is clear an entrepreneur, as well as educational institutions, could better anticipate in order to become more successful.

Another remark in this research regarding success is that this research limited measuring success to financial data. However, being financially healthy is highly important for survival but a company might have also social entrepreneurial goals (Drucker, 1964; Goethner et al., 2012; Herrington et al., 2010; Junaid et al., 2015; Schumpeter, 1934). This has not been taken into account in this research. Future research should investigate what is the best, most liable way of measuring success and should also take time into account as well as social entrepreneurial goals.

Also, the diversity of respondents looks like it is representing the sample group but a gap occurred. The diversity is good, the respondents operate in different industries, have a diversity in study backgrounds and motives for starting their own venture and have a balance in educational level, gender and age. However, most of the entrepreneurs are operating by themselves. Over 70% is a so called one man company. Next to that, it is not measured if the one man company still has a job next to the venture. This probably will influence the financial data. Future research should take this into account and avoid these uncertainties and should focus on more number of employees diversity.

In order to find the best possible outcome of success, future research could look for curvilinear correlations in order to find when effectuation is most successful and when it becomes less successful.

A last future research implication is that future research could clarify other factors which have influence on success. So far, only thirteen, four and one percent, has been explained by the variables which are taking into account in this research.

5.5 Conclusion

This research investigated the decision making behaviour of entrepreneurs, the drivers of entrepreneurs, the way how entrepreneurs treat business and how successful they are. This has been done in order to answer the following research question: 'To what extent are entrepreneurial decision making processes influenced by cognitive styles of entrepreneurs and is this reflected in the success of the new venture?'. The results showed that entrepreneurs who apply effectual principles are more successful, there is a correlation between causation and cognition but not between effectuation and intuition and it is not proven that intuition and cognition are strengthening each other which is against the expectations of the literature. Next to that, causation and age are significantly negative related with success.

The results suggest that novice entrepreneurs should, in order to become more successful, apply effectual principles and perhaps should be willing to accept external help if needed. This might help them in doing business more successfully. In addition, educational institutions and venture labs

which are focused on providing entrepreneurial support, courses or trainings can adjust their curriculum in order to fulfil their clients' needs with better and more specified education.

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Appendix

Appendix A Survey pilot study

Entrepreneurial behaviour

Dear participant,

First of all, thank you for your participation. The research will take less than 10 minutes. If you wish to receive the results at the end of the research, don't forget to leave your e-mail address in the last question. You can leave there also other comments for the researchers.

The research contains several question about different subjects. Also the scales will differ, so please your attention for this. Next to that, it is not possible to enter a wrong answer, so please be as honest as possible in the best interest of the research.

Again, thanks a lot for your participation!

***Vereist**

I don't like to have to do a lot of thinking. *

	1	2	3	4	5	
Completely false	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Completely true

I try to avoid situations that require thinking in depth about something. *

	1	2	3	4	5	
Completely false	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Completely true

I prefer to do something that challenges my thinking abilities rather than something that requires little thought. *

	1	2	3	4	5	
Completely false	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Completely true

I prefer complex to simple problems. *

	1	2	3	4	5	
Completely false	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Completely true

Thinking hard and for a long time about something gives me little satisfaction. *

1	2	3	4	5
---	---	---	---	---

Completely false ☐ ☐ ☐ ☐ ☐ Completely true

I trust my initial feelings about people. *

1 2 3 4 5

Completely false ☐ ☐ ☐ ☐ ☐ Completely true

I believe in trusting my hunches. *

1 2 3 4 5

Completely false ☐ ☐ ☐ ☐ ☐ Completely true

My initial impressions of people are almost always right. *

1 2 3 4 5

Completely false ☐ ☐ ☐ ☐ ☐ Completely true

When it comes to trusting people, I can usually rely on my "gut feelings." *

1 2 3 4 5

Completely false ☐ ☐ ☐ ☐ ☐ Completely true

I can usually feel when a person is right or wrong even if I can't explain how I know. *

1 2 3 4 5

Completely false ☐ ☐ ☐ ☐ ☐ Completely true

1 2 3 4 5 6 7

Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly agree

	1	2	3	4	5	6	7	
Strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly agree

	1	2	3	4	5	6	7	
Strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly agree

	1	2	3	4	5	6	7	
Strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly agree

	1	2	3	4	5	6	7	
Strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly agree

	1	2	3	4	5	6	7	
Strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly agree

	1	2	3	4	5	6	7	
Strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly agree

	1	2	3	4	5	6	7	
Strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly agree

	1	2	3	4	5	6	7	
Strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly agree

	1	2	3	4	5	6	7	
Strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly agree

There are many social norms that people are supposed to abide by in this country. *

	1	2	3	4	5	6	
Strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Stongly agree

People agree upon what behaviors are appropriate versus inappropriate in most situations in this country. *

	1	2	3	4	5	6	
Strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Stongly agree

In this country, there are very clear expectations for how people should act in most situations. *

	1	2	3	4	5	6	
Strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Stongly agree

People in this country have a great deal of freedom in deciding how they want to behave in most situations. *

	1	2	3	4	5	6	
Strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Stongly agree

In this country, if someone acts in an inappropriate way, others will strongly disapprove. *

	1	2	3	4	5	6	
Strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Stongly agree

People in this country almost always comply with social norms. *

	1	2	3	4	5	6	
Strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Stongly agree

Gender *

- ☐ ☐ Male
- ☐ ☐ Female

How old are you? *

Please, add your age in full numbers.

What is the highest level of education you have attended? *

- ☐ ☐ Secondary education/Associate
- ☐ ☐ Higher education (Bachelor, Master, Doctoral, Professional)

In which country are you grown up? *

Are you the owner of the company? *

- ☐ ☐ Yes
- ☐ ☐ No

Are you the founder of the company? *

- ☐ ☐ Yes
- ☐ ☐ No

Did you follow any entrepreneurial courses? *

Does not matter at what kind of institution.

- ☐ ☐ Yes
- ☐ ☐ No

Did you follow a business related study? *

- ☐ ☐ Yes

- ☐ ☒ No

Is this the first company you have started? *

If not, how many companies did you started?

- ☐ ☒ Yes
- ☐ ☒ Anders:

What is the age of your company? *

Please, add the age in full years.

How many years have you been an entrepreneur? *

Please, add the age in full years.

What is the size of your company In terms of employees? *

Number of employees including yourself.

In which industry are you operating? *

What was your main motive for starting a new venture? *

- ☐ ☐ Having a great idea
- ☐ ☐ Improving financial position
- ☐ ☐ Avoiding of unemployment
- ☐ ☐ Taking over a company
- ☐ ☐ Following a dream
- ☐ ☐ Improving the world
- ☐ ☐ Becoming independent
- ☐ ☐ Better balance between work and private
- ☐ ☐ Anders:

Is one of your parents an entrepreneur? *

- ☐ ☒ One of them
- ☐ ☒ Both
- ☐ ☒ No

Are you familiar with the term 'effectuation'? *

- ☐ ☒ Yes
- ☐ ☒ No
- ☐ ☒ Vague

What was your turnover in 2015 in euro's? *

Please, use full numbers and excluding VAT.

What was your profit in 2015 in euro's? *

Please, use full numbers and before taxations.

What is the average turnover growth in percentages? *

With a maximum of the last 5 operating years in full numbers.

What is the average profit growth in percentages? *

With a maximum of the last 5 operating years in full numbers.

Do you want to receive the results of this research?

Enter your e-mail adress if you want to receive the final report and/or leave your recomments you have for the researchers.

Verzenden

Verzend nooit wachtwoorden via Google Formulieren.

100%: je bent klaar.

Ondernemersgedrag

Geachte deelnemer,

Allereerst hartelijk dank voor uw medewerking. Het onderzoek zal minder dan 10 minuten duren. Als u de resultaten aan het eind van het onderzoek wenst te ontvangen, vergeet dan vooral niet uw e-mail adres achter te laten. Tevens kunt u hier ook andere opmerkingen achterlaten.

Het onderzoek bevat verschillende vragen over verschillende onderwerpen. Ook de keuze mogelijkheden zullen verschillen dus let hierop. Verder is het niet mogelijk een fout antwoord te geven, dus wees vooral zo eerlijk mogelijk in het belang van het onderzoek.

Nogmaals, hartelijk dank voor uw medewerking!

***Vereist**

Ik houd er niet van veel te moeten nadenken. *

	1	2	3	4	5	
Helemaal mee eens	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Helemaal mee oneens

Ik probeer situaties te vermijden die vereisen dat ik ergens diep over na moet denken. *

	1	2	3	4	5	
Helemaal mee eens	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Helemaal mee oneens

Ik geef de voorkeur aan het uitvoeren van iets waarbij mijn denkvermogen uitgedaagd wordt in plaats van het uitvoeren van iets waar ik weinig aandacht voor nodig heb. *

	1	2	3	4	5	
Helemaal mee eens	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Helemaal mee oneens

Ik prefereer complexe problemen boven simpele problemen. *

	1	2	3	4	5	
Helemaal mee eens	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Helemaal mee oneens

Ergens diep en voor langere tijd aan denken schenkt mij weinig tevredenheid. *

	1	2	3	4	5	
Helemaal mee eens	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Helemaal mee oneens

Ik ga af op mijn eerste gevoel bij mensen. *

	1	2	3	4	5	
Helemaal mee eens	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Helemaal mee oneens

Ik vertrouw mijn intuïtie. *

	1	2	3	4	5	
Helemaal mee eens	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Helemaal mee oneens

Mijn eerste indruk van mensen is bijna altijd correct. *

	1	2	3	4	5	
Helemaal mee eens	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Helemaal mee oneens

Als het gaat om het vertrouwen van mensen kan ik vaak afgaan op mijn “gut feeling”. *

	1	2	3	4	5	
Helemaal mee eens	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Helemaal mee oneens

Ik voel vaak aan of een person het goed of fout heeft ook al kan ik niet uitleggen hoe dat komt. *

	1	2	3	4	5	
Helemaal mee eens	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Helemaal mee oneens

	1	2	3	4	5	6	7	
Helemaal mee eens	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Helemaal mee oneens

	1	2	3	4	5	6	7	
--	---	---	---	---	---	---	---	--

Helemaal mee eens	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Helemaal mee oneens
-------------------	-----------------------	-----------------------	-----------------------	-----------------------	-----------------------	-----------------------	-----------------------	---------------------

	1	2	3	4	5	6	7	
--	---	---	---	---	---	---	---	--

Helemaal mee eens	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Helemaal mee oneens
-------------------	-----------------------	-----------------------	-----------------------	-----------------------	-----------------------	-----------------------	-----------------------	---------------------

	1	2	3	4	5	6	7	
--	---	---	---	---	---	---	---	--

Helemaal mee eens	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Helemaal mee oneens
-------------------	-----------------------	-----------------------	-----------------------	-----------------------	-----------------------	-----------------------	-----------------------	---------------------

	1	2	3	4	5	6	7	
--	---	---	---	---	---	---	---	--

Helemaal mee eens	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Helemaal mee oneens
-------------------	-----------------------	-----------------------	-----------------------	-----------------------	-----------------------	-----------------------	-----------------------	---------------------

	1	2	3	4	5	6	7	
--	---	---	---	---	---	---	---	--

Helemaal mee eens	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Helemaal mee oneens
-------------------	-----------------------	-----------------------	-----------------------	-----------------------	-----------------------	-----------------------	-----------------------	---------------------

	1	2	3	4	5	6	7	
--	---	---	---	---	---	---	---	--

Helemaal mee eens	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Helemaal mee oneens
-------------------	-----------------------	-----------------------	-----------------------	-----------------------	-----------------------	-----------------------	-----------------------	---------------------

	1	2	3	4	5	6	7	
--	---	---	---	---	---	---	---	--

Helemaal mee eens	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Helemaal mee oneens
-------------------	-----------------------	-----------------------	-----------------------	-----------------------	-----------------------	-----------------------	-----------------------	---------------------

	1	2	3	4	5	6	7	
Helemaal mee eens	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Helemaal mee oneens

	1	2	3	4	5	6	7	
Helemaal mee eens	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Helemaal mee oneens

Er zijn vele sociale normen waar mensen in dit land geacht worden zich aan te houden. *

	1	2	3	4	5	6	
Helemaal mee eens	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Helemaal mee oneens

Mensen in dit land zijn het er over eens welk gedrag in bepaalde situaties passend danwel niet passend is. *

	1	2	3	4	5	6	
Helemaal mee eens	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Helemaal mee oneens

In dit land zijn zeer duidelijke verwachtingen over hoe mensen zich in de meeste gevallen moeten gedragen. *

	1	2	3	4	5	6	
Helemaal mee eens	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Helemaal mee oneens

Mensen in dit land hebben een grote mate van vrijheid in hoe ze besluiten zich te gedragen in de meeste gevallen. *

	1	2	3	4	5	6	
Helemaal mee eens	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Helemaal mee oneens

Als iemand zich niet gedraagt dan zullen anderen in dit land dit sterk afkeuren. *

	1	2	3	4	5	6	
--	---	---	---	---	---	---	--

Helemaal mee eens ☐ ☐ ☐ ☐ ☐ ☐ Helemaal mee oneens

Mensen in dit land leven bijna altijd sociale normen na. *

1 2 3 4 5 6

Helemaal mee eens ☐ ☐ ☐ ☐ ☐ ☐ Helemaal mee oneens

Geslacht *

- ☐ ☐ Man
☐ ☐ Vrouw

Hoe oud bent u? *

Vul hele jaartallen in.

Wat is uw hoogst genoten onderwijs? *

- ☐ ☐ Voortgezet onderwijs of MBO
☐ ☐ Hoger onderwijs (HBO/WO)

In welk land bent u opgegroeid? *

Bent u de eigenaar van het bedrijf? *

- ☐ ☐ Ja
☐ ☐ Nee

Bent u de oprichter van het bedrijf? *

- ☐ ☐ Ja
☐ ☐ Nee

Heeft u ondernemerschaps gerelateerde cursussen/vakken gevolgd? *

Maakt niet uit aan welk instituut.

- ☐ ☐ Ja
☐ ☐ Nee

Heeft u een bedrijfskundige studie gevolgd? *

Maakt niet uit aan welk instituut.

- ☐ ☐ Ja
☐ ☐ Nee

Is dit het eerste bedrijf dat u heeft gestart? *

Indien nee, hoeveel bedrijven heeft u gestart?

- ☐ ☐ Ja
- ☐ ☐ Anders:

Hoelang bestaat uw bedrijf? *

Graag hele jaartallen invoeren.

Hoeveel jaar bent u nu ondernemer? *

Graag hele jaartallen invoeren.

Hoeveel werknemers telt uw bedrijf? *

Aantal werknemers inclusief uzelf.

In welke industrie bent u actief? *

Wat was uw belangrijkste beweegreden voor het starten van een eigen bedrijf? *

- ☐ ☐ Hebben van een geweldig idee
- ☐ ☐ Verbeteren van de financiële positie
- ☐ ☐ Voorkomen werkloosheid
- ☐ ☐ Mogelijkheid tot bedrijfsovername
- ☐ ☐ Volgen van een droom
- ☐ ☐ Verbeteren van de wereld
- ☐ ☐ Onafhankelijk worden
- ☐ ☐ Betere balans tussen werk en privé
- ☐ ☐ Anders:

Is één van uw ouders een ondernemer? *

- ☐ ☐ Eén van beide
- ☐ ☐ Beide
- ☐ ☐ Nee

Bent u bekend met de term 'effectuation'? *

- ☐ ☐ Ja
- ☐ ☐ Nee
- ☐ ☐ Heb ik van gehoord

Hoeveel bedroeg uw omzet in 2015 in euro's? *

Graag in hele euro's en exclusief BTW.

Hoeveel bedroeg uw winst in 2015 in euro's? *

Graag in hele euro's en exclusief BTW.

Hoe groot was de gemiddelde omzet groei in procenten per jaar? *

Tot maximaal 5 jaar geleden in hele getallen.

Hoe groot was de gemiddelde winst groei in procenten per jaar? *

Tot maximaal 5 jaar geleden in hele getallen.

Wilt u de resultaten ontvangen van dit onderzoek?

Laat uw e-mail adres achter om het eindrapport te ontvangen en/of laat uw reactie achter voor de onderzoekers omtrent dit onderzoek.

Verzenden

Verzend nooit wachtwoorden via Google Formulieren.

Appendix B Email to entrepreneurs

E-mail

Subject: Participation in research about entrepreneurial behavior of novice entrepreneurs

Dear Sir/Madame,

You are selected to participate in a research towards entrepreneurial behavior of a small group of entrepreneurs. I would like to draw your attention on the following.

The research will take less than 10 minutes of your time ([Click here to participate](#)). The person who will participate in this research is the founding entrepreneur, and not for example, an employee. This research is coordinated by the University of Twente and is part of a master thesis as well as a doctoral thesis research project.

The goal of the research is to measure different entrepreneurial styles and associated results. This research will contribute to develop entrepreneurial profiles and will provide tools for success optimization. The results of the research might give you more insight in whether the strategies and decisions you take are leading to successful outcomes.

I would like to invite you to participate in this research. This will help the researchers a lot and can be also beneficial for yourself. Please, ([Click here](#)) to participate. If you want to receive the result of the research, leave your e-mail address in the last question of the research.

We would like to contact entrepreneurs to discuss the survey in order to improve it. If you are okay in us approaching you, do please leave your phone number in the last question.

Kind regards,

Jelle Waardenburg (master student University of Twente)

Martin Stienstra (PhD researcher University of Twente)

For English version, see below.

Onderwerp: Deelname in onderzoek naar ondernemersgedrag bij beginnende ondernemers

Geacht heer/mevrouw,

U bent geselecteerd om mee te doen aan een onderzoek van de Universiteit Twente op het gebied van ondernemerschap.

Het onderzoek gaande naar strategieën die ondernemers gebruiken bij het opzetten van hun bedrijf dan wel die zij nadat ze gestart zijn volgen, zal minder dan 10 minuten van uw tijd innemen [Klik hier om deel te nemen](#)). De persoon die de vragenlijst invult moet de ondernemer zijn die het bedrijf gestart heeft, en niet bijvoorbeeld een werknemer. Dit onderzoek wordt uitgevoerd door de Universiteit Twente en is onderdeel van zowel het onderzoek van een masterstudent als van het onderzoek van een promovendus.

Het doel van dit onderzoek is het meten van verschillende ondernemersstijlen en de daarbij behorende resultaten. Op deze manier wordt een bijdrage geleverd aan het ontwikkelen van een ondernemersprofiel en worden er handvatten gegeven voor succes optimalisatie. Een vraag die voor u mogelijk beantwoord kan worden is bijvoorbeeld of de manier van zaken doen die u hanteert leid tot de meest succesvolle uitkomsten.

Graag wil ik u uitnodigen om deel te nemen aan dit onderzoek. Dit zal de onderzoekers enorm helpen en kan uzelf ook voordelen bieden. Het onderzoek zal minder dan 10 minuten in beslag nemen. Dit onderzoek kan u mogelijk nieuwe inzichten geven in ondernemersstijlen en handvatten bieden naar nog meer succes. Klik ([hier](#)) om deel te nemen. Als u dit rapport wilt ontvangen kunt u uw e-mail adres achter laten bij de laatste vraag van het onderzoek.

Mogen wij u enkele vragen stellen na de enquête ter verbetering van dit onderzoek? Laat in dat geval uw telefoonnummer achter bij de laatste vraag s.v.p..

Hartelijk dank voor uw medewerking.

Met vriendelijke groet,

Jelle Waardenburg (Master student Universiteit Twente)

Martin Stienstra (Promovendus Universiteit Twente)

Research University Twente

Dear participant,

First of all, thank you for your participation. The research will take less than 10 minutes. If you wish to receive the results at the end of the research, don't forget to leave your e-mail address in the last question. You can leave there also other comments for the researchers. Your information will be used confidentially and for research purposes only.

The research contains several question about different subjects. Also the scales will differ, so please your attention for this. Please, fill in the answer which comes closest to your ideas.

Again, thanks a lot for your participation!

***Required**

I don't like to have to do a lot of thinking. *

1	2	3	4	5
Completely false	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
				Completely true

I try to avoid situations that require thinking in depth about something. *

1	2	3	4	5
Completely false	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
				Completely true

I prefer to do something that challenges my thinking abilities rather than something that requires little thought. *

1	2	3	4	5
Completely false	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
				Completely true

I prefer complex to simple problems. *

1	2	3	4	5
Completely false	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
				Completely true

Thinking hard and for a long time about something gives me little satisfaction. *

1	2	3	4	5
Completely false	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
				Completely true

I trust my initial feelings about people. *

1	2	3	4	5
Completely false	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
				Completely true

I believe in trusting my hunches. *

1	2	3	4	5
Completely false	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
				Completely true

My initial impressions of people are almost always right. *

1	2	3	4	5
Completely false	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
				Completely true

When it comes to trusting people, I can usually rely on my "gut feelings." *

1	2	3	4	5
Completely false	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
				Completely true

In this country, there are very clear expectations for how people should act in most situations. *

1	2	3	4	5	6
Strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
					Strongly agree

People in this country have a great deal of freedom in deciding how they want to behave in most situations. *

1	2	3	4	5	6
Strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
					Strongly agree

In this country, if someone acts in an inappropriate way, others will strongly disapprove. *

1	2	3	4	5	6
Strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
					Strongly agree

People in this country almost always comply with social norms. *

1	2	3	4	5	6
Strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
					Strongly agree

The following questions are about you and your venture.

You are on 70% of the total duration of this research, your attention for the following questions please.
Your information will be used confidently and for reseach purposes only.

Gender *

☐ Male

☐ Female

How old are you? *

Please, add your age in full numbers.

Your answer

What is the highest level of education you have attended? *

- ☐ Secondary education / high school
- ☐ Higher education (Bachelor, Master, Doctoral, Professional)
- ☐ Other:

At which institution did you attended your education and what was your study direction? More options are possible.

Your answer

What is your nationality? *

Choose



In which country is your company doing business? *

If not, you can explain at the bullet point 'Overig...'

- ☐ Netherlands
- ☐ Other:

Are you the owner of the company? *

- ☐ Yes
- ☐ No

Are you the founder of the company? *

- ☐ Yes
- ☐ No

Did you attend any entrepreneurial courses? *

Does not matter at what kind of institution.

- ☐ Yes
- ☐ No

Did you attend a business related study? *

Does not matter at what kind of institution.

- ☐ Yes
- ☐ No

Is this the first company you have started? *

- ☐ Yes
- ☐ Other:

What is the age of your company? *

Please, add the age in full years.

Your answer

How many years have you been an entrepreneur? *

Please, add the age in full years.

Your answer

What was your main motive for starting a new venture? *

- ☐ Having a great idea
- ☐ Improving financial position
- ☐ Avoiding of unemployment
- ☐ Taking over a company
- ☐ Following a dream
- ☐ Improving the world
- ☐ Becoming independent
- ☐ Better balance between work and private
- ☐ Other: _____

Is one of your parents an entrepreneur? *

- ☐ One of them
- ☐ Both
- ☐ No

Are you familiar with the term 'effectuation'? *

- ☐ Yes
- ☐ No
- ☐ Vague

What was your turnover in 2015 in € euros?

Please, use full numbers € and excluding VAT.

Your answer _____

What is the size of your company in terms of employees? *

Number of employees including yourself.

Your answer _____

How many years do you have been an employee before founding your venture? *

Please, add full years.

Your answer _____

In which industry are you operating? *

- ☐ Materials
- ☐ Consumer discretionary
- ☐ Health Care
- ☐ Energy
- ☐ Financials
- ☐ Industrials
- ☐ Information Technology
- ☐ Utilities
- ☐ Transportation
- ☐ Other: _____

Onderzoek Universiteit Twente

Geachte deelnemer,

Allereerst hartelijk dank voor uw medewerking. Het onderzoek zal minder dan 10 minuten van uw tijd vergen. Als u de resultaten aan het eind van het onderzoek wenst te ontvangen, vergeet dan vooral niet uw e-mailadres achter te laten. Tevens kunt u hier ook andere opmerkingen achterlaten. Uw gegevens worden vertrouwelijk behandeld en enkel gebruikt voor onderzoek.

Het onderzoek bevat verschillende vragen over verschillende onderwerpen. Ook de keuzemogelijkheden zullen verschillen. Verder is het niet mogelijk een fout antwoord te geven, dus kies het antwoord dat het meest overeenkomt met uw ideeën.

Nogmaals, hartelijk dank voor uw medewerking!

***Required**

UNIVERSITEIT TWENTE.

What was your profit in 2015 in € euros?

Please, use full numbers and before taxations.

Your answer

What is the average turnover growth in % percentages?

With a maximum of the last 5 operating years in full % numbers.

Your answer

What is the average profit growth in % percentages?

With a maximum of the last 5 operating years in full % numbers.

Your answer

Do you want to receive the results of this research?

Enter your e-mail adress if you want to receive the final report and/or leave your recomments you have for the researchers.

Your answer

SUBMIT

Ik houd er niet van veel te moeten nadenken. *

	1	2	3	4	5	
Helmaal mee oneens	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Helmaal mee eens

Ik probeer situaties te vermijden die vereisen dat ik ergens diep over na moet denken. *

	1	2	3	4	5	
Helmaal mee oneens	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Helmaal mee eens

Ik geef de voorkeur aan het uitvoeren van iets waarbij mijn denkvermogen uitgedaagd wordt in plaats van het uitvoeren van iets waar ik weinig aandacht voor nodig heb. *

	1	2	3	4	5	
Helmaal mee oneens	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Helmaal mee eens

Ik preferer complexe problemen boven simpele problemen. *

1	2	3	4	5	
Helemaal mee oneens	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Helemaal mee eens

Ergens diep en voor langere tijd aan denken schenkt mij weinig tevredenheid. *

1	2	3	4	5	
Helemaal mee oneens	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Helemaal mee eens

Ik ga af op mijn eerste gevoel bij mensen. *

1	2	3	4	5	
Helemaal mee oneens	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Helemaal mee eens

Ik vertrouw mijn intuïtie. *

1	2	3	4	5	
Helemaal mee oneens	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Helemaal mee eens

Mijn eerste indruk van mensen is bijna altijd correct. *

1	2	3	4	5	
Helemaal mee oneens	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Helemaal mee eens

Als het gaat om het vertrouwen van mensen kan ik vaak afgaan op mijn "gut feeling". *

1	2	3	4	5	
Helemaal mee oneens	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Helemaal mee eens

In dit land zijn zeer duidelijke verwachtingen over hoe mensen zich in de meeste gevallen moeten gedragen. *

Wat is uw leeftijd? *
In hiele getallen, bijvoorbeeld: 37 of 55.

Your answer 

	1	2	3	4	5	6	
Helemaal mee oneens	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Helemaal mee eens

Mensen in dit land hebben een grote mate van vrijheid in hoe ze besluiten zich te gedragen in de meeste gevallen. *

- Wat is uw hoogst genoten onderwijs? ***
- ☐ Voortgezet onderwijs of MBO
 - ☐ Hoger onderwijs (HBO/WO)
 - ☐ Other: _____

	1	2	3	4	5	6	
Helemaal mee oneens	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Helemaal mee eens

Als iemand zich niet gedraagt dan zullen anderen in dit land dit sterk afkeuren. *

Aan welk instituut heeft u onderwijs gevolgd en welke studierichting was dit? Meerdere opties zijn mogelijk.

Your answer

	1	2	3	4	5	6	
Helemaal mee oneens	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Helemaal mee eens

Wat is uw nationaliteit? *

Choose

Mensen in dit land leven bijna altijd sociale normen na. *

	1	2	3	4	5	6	
Helemaal mee oneens	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Helemaal mee eens

In welk land is uw bedrijf actief? *

- ☐ Alleen in Nederland
- ☐ Other: _____

Nu volgen enkele vragen over u en uw onderneming.

Bent u de eigenaar van het bedrijf? *

U heeft 75% van de totale duur van het onderzoek gehad, graag nog even uw aandacht voor de laatste vragen.
Uw gegevens worden vertrouwelijk behandeld en alleen gebruikt voor onderzoek.

- ☐ Ja
- ☐ Nee

Geslacht *

- ☐ Man
- ☐ Vrouw

Bent u de oprichter van het bedrijf? *

- ☐ Ja
- ☐ Nee

Heeft u ondernemerschaps gerelateerde cursussen/vakken gevolgd? *

Maakt niet uit aan welk instituut.

- ☐ Ja
☐ Nee

Heeft u een bedrijfskundige studie gevolgd? *

Maakt niet uit aan welk instituut.

- ☐ Ja
☐ Nee

Is dit het eerste bedrijf dat u heeft gestart? *

Indien nee, hoeveel bedrijven heeft u gestart?

- ☐ Ja
☐ Other: _____

Hoelang bestaat uw bedrijf? *

Graag hele getallen invoeren.

Your answer

Hoeveel jaar bent u nu ondernemer? *

Graag hele getallen invoeren.

Your answer

Hoeveel werknemers telt uw bedrijf? *

Aantal werknemers inclusief uzelf.

Your answer

Hoeveel jaren werkervaring heeft u in loondienst voordat u dit bedrijf heeft gestart? *

Graag hele getallen invoeren.

Your answer

In welke industrie bent u actief? *

- ☐ Transport
☐ Gezondheidszorg
☐ Energie
☐ ICT
☐ Consumenten goederen
☐ Werzaam als een productie bedrijf
☐ Financien
☐ Nutsbedrijf
☐ Other: _____

Wat was uw belangrijkste beweegreden voor het starten van een eigen bedrijf? *

- ☐ Hebben van een geweldig idee
☐ Verbeteren van de financiële positie
☐ Voorkomen werkloosheid
☐ Mogelijkheid tot bedrijfssovereiniteit
☐ Volgen van een droom
☐ Verbeteren van de wereld
☐ Onafhankelijk worden
☐ Beter balans tussen werk en privé
☐ Other: _____

Is één van uw ouders een ondernemer? *

- ☐ Eén van beide
- ☐ Beide
- ☐ Nee

Bent u bekend met de term 'effectuation'? *

- ☐ Ja
- ☐ Nee
- ☐ Heb ik van gehoord

Hooveel bedroeg uw omzet in 2015 in € euro's?

Graag in hele euro's en exclusief BTW.

Your answer

Hooveel bedroeg uw winst in 2015 in € euro's?

Graag in hele euro's en voor belasting.

Your answer

Hoe groot was de gemiddelde omzetgroei in % procenten per jaar?

Tot maximaal 5 jaar geleden in hele %

Your answer

Hoe groot was de gemiddelde winstgroei in % procenten per jaar?

Tot maximaal 5 jaar geleden in hele %

Your answer

Wilt u de resultaten ontvangen van dit onderzoek?

Laat uw e-mail adres achter om het rapport te ontvangen en/of laat uw reactie achter voor de onderzoekers omtrent dit onderzoek.

Your answer

Hartelijk dank voor uw deelname!

SLUIT