MASTER THESIS

EFFECTUAL ORIENTATION: THE INFLUENCE OF ENTREPRENEURIAL PASSION AND EXPERTISE

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Abstract

Entrepreneurship research involves various different disciplines such as management, finance, economics, policy, sociology, and psychology. In each of those disciplines one of the most important points of attention is the entrepreneur itself. This is because the entrepreneur is responsible for different tasks within a company. These tasks can vary and may include developing, producing, marketing, or selling a product or business. In this sense, entrepreneurs have to make various types of decisions in their careers. To understand how entrepreneurs are framing their decisions scholars constructed different types of entrepreneurial decision-making models. One of those models was introduced by Sarasvathy (2001) who argues that there are entrepreneurs who follow an effectual or causal logic. The causational decision-making approach focuses on predefined goals. Once these goals are defined, the entrepreneur aims for finding the necessary means to achieve this goal. In contrast to that, the effectual approach focuses on the means first. This indicates that the main point of attention is the availability of resources and knowledge. Based on that means decisions are made. As previous research found that experts prefer the effectual logic over the causal, effectuation is often referred to as the logic of expertise. But entrepreneurs not only differ in their choice of decision-making. They also differ in their degree of entrepreneurial passion which is according to Cardon (2009) *"at the heart of entrepreneurship"*. There are two different dimensions of entrepreneurial passion intense positive feelings and identity centrality. These two dimensions can be found in three different domains of entrepreneurial passion. Those are passion for founding, passion for inventing and passion for developing. As each entrepreneur is experiencing passion differently, differences among expert and novice entrepreneurs can't be excluded. In this sense, the variables of interest for this Master Thesis will be entrepreneurial expertise, entrepreneurial passion, and effectual orientation. The following main research question has been created to capture relationships among the presented variables:

How is entrepreneurial passion and entrepreneurial expertise influencing an entrepreneur's effectual orientation?

To analyse different relationships among these variables a survey has been conducted including entrepreneurs from different age groups in Germany. The concepts have been captured by using existing scales that have been proven to be reliable and valid. In total 113 surveys have been collected from which 77 participants were expert and 36 participants were novice entrepreneurs. To analyse the collected data SPSS 26 has been used and different statistical analysis have been conducted.

The results indicate that an entrepreneur's effectual orientation can be influenced by certain domains of entrepreneurial passion. Especially the domains passion for developing and passion for inventing seem to have a significant influence on effectual orientation as they can be found significant for both groups expert and novice entrepreneurs. Passion for founding on the other hand has no significant influence on effectual orientation in both groups. These outcomes could have been partly expected as previous research did indicate an influence of entrepreneurial passion on effectual orientation. In addition to that it has been found that there is no difference in the effectual orientation of expert and novice entrepreneurs. This is surprising because previous research found opposite results, namely that experts clearly

frame their decisions differently than novice entrepreneurs. Therefore, this study provides additional insights to the literature among the topics, entrepreneurial passion, entrepreneurial expertise, and effectual orientation. Furthermore, the results question current effectuation literature and stress further confirmation on the different preferences between expert and novice decision-making processes.

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1. Introduction

In this first section of the paper the background of the study, the research purpose, and design will be explained. The general research field of this study is entrepreneurship with a focus on entrepreneurial decision-making processes.

1.1 Background of the study

Over the past decades, the research field of entrepreneurship has been growing and is attracting more and more attention (Grégoire, 2020; McMullen, 2020; Ratten, 2021). From a small and emerging research field in the academic literature the interest is growing and today thousands of researchers around the globe see themselves as entrepreneurship scholars (Grégoire, 2020; McMullen, 2020; Ratten, 2021). The origins of this research field can be found in the 18th century in which the entrepreneurial phenomenon was formally introduced first to the literature on trade, economy, and business (Nielsen, 2021). The first known scientific contributions and pioneering thoughts about entrepreneurship have been made by French scientists and are followed by British, German, and American scientists a decade later when the industrialization in Europe started (Landström, 2020).

The term entrepreneurship is used in different disciplines and is defined in many different ways over the past centuries (Diandra, 2020; Nielsen, 2021). A widely known definition which in parts still reflects todays understanding of entrepreneurship is introduced by Schumpeter in 1934. Schumpeter (1934) argues that entrepreneurship is defined by the functions that are attached to an entrepreneur. However, over the past decades research has focused on introducing new definitions that reflect a more recent view on entrepreneurship (Nielsen, 2021). As entrepreneurship is often used in different disciplinary backgrounds it has to be considered that these definitions can be different from one another and describe different concepts. In this sense, entrepreneurship is defined in many different ways and there will probably be no agreement among scholars on a uniform definition. (Diandra, 2020; Landström, 2020; Nielsen, 2021).

Today's entrepreneurship research is mostly theory-driven and self-reflective. By being more internally oriented the research focuses on developing knowledge within the own research field (Landström, 2020). In fact, the importance of and influence of outsiders has been decreased while the number of scholars and research within the field significantly increased (Landström, 2020). In addition to that, entrepreneurship research also shows a growing international isomorphism. Topics, concepts, and methodologies tend to align across borders and regions all around the world. Entrepreneurship research still differs among certain levels, i.e., country level, scholarly community level, and individual level. Nevertheless, the research field itself is connected through meeting places and journals that act as a mediator between various scholars (Landström, 2020).

Scholars around the world are arguing today about the definition of entrepreneurship. As the term entrepreneurship is used in various disciplines and contexts, there are multiple definitions used that are different from one another. In total it has been found that there are three different approaches to define entrepreneurship: (1) entrepreneurship as a function of the market; (2) the entrepreneur as an individual; and (3) entrepreneurship as a process (Landström, 2020). However, following Schumpeter's (1934) definition of entrepreneurship

one of the most important topics in entrepreneurship research is the entrepreneur itself, the individual. Today's entrepreneurs have to make different types of decisions on an everyday basis. An entrepreneur's decision-making process is based on different criteria and involves different processes (Sarasvathy, 2001; Sarasvathy & Dew, 2008; Cantamessa 2018). Sarasvathy (2001) introduced the concepts of causation and effectuation. Both concepts describe different approaches towards entrepreneurial decision-making. While the causational decision-making approach is characterized as being goal-oriented, the effectual approach implies that entrepreneurs focus on the means first to achieve goals that were not necessarily predefined (Sarasvathy, 2001). In the past twenty years, the topic of effectuation has been attracting more attention and is even studied beyond entrepreneurship circles (Grégoire, 2020). However, a further elaboration on that topic is still necessary as emerging issues can lead to new understandings (Landström, 2020).

To understand what drives entrepreneurs to follow different decision-making approaches research is looking into different topics. One of those topics is entrepreneurial expertise. Sarasvathy (2001) argues for instance that entrepreneurs who are characterized as experts tend to choose the effectual decision-making approach over the causal approach. In this sense, past experiences can be one source or influential factor in the decision-making process of entrepreneurs. However, another stream of literature argues that an entrepreneur's choice of choosing a certain decision-making approach is based on their degree of entrepreneurial passion (Cardon, 2009). Cardon (2009) for instance questions that entrepreneurial passion is not only a form of motivation towards entrepreneurship but also influences an entrepreneur's decision-making process. This raises the question of whether or not an entrepreneur's degree of passion favours effectual or causal actions and decisions.

To conclude, it can be said that the entrepreneurial decision-making process involves different actors and factors. The central actor in this process however is still the entrepreneur itself. During past experiences, the entrepreneur might already develop a certain amount of expertise that helps to predict future situations or solve problems in a different approach. Another factor of framing decisions can also be personal motivation or passion as some decisions might be more laborious than others.

In the following paragraphs of this Master Thesis, these different actors and factors will be discussed. It will be investigated how these actors and factors influence the entrepreneurial decision-making process.

1.2 Research purpose and design

In section 1.1 it has been shown that entrepreneurship research has been growing and attracting attention within the academic world over the past years. One of those topics within entrepreneurship research is effectuation which becomes a more important theory in small and mid-sized enterprises internationalisation (Karami, 2019). Also, already established companies benefit from further research on effectuation as it can facilitate their growth processes (Matalamäki, 2017). Thus, different types of companies would profit from a further understanding of the effectuation concept. One of the main points of attention within this concept is the entrepreneur itself and to understand its motivation and behaviour (Sarasvathy, 2001). In addition to that, it is suggested that future research should explicitly focus on

effectuation and causation related behaviour (Perry and Chandler, 2012). Cardon (2009) already highlighted that the concept of entrepreneurial passion can be one explanation of why entrepreneurs are more motivated for certain tasks and why they behave in certain situations. However, similar to the field of effectuation, the concept of entrepreneurial passion is not yet able to explain how and why passion influences entrepreneurs (Newman, 2019). Nevertheless, both research fields seem to share future research opportunities and might be somehow influencing each other. In the same manner, the concept of entrepreneurial expertise is a research field that needs further insides. Especially, in terms of personal, behavioural, and environmental characteristics that influence skill development (Mueller, 2019). To further deepen the underlying academic knowledge on entrepreneurial decision-making processes this research paper aims to understand the influence of entrepreneurial expertise and entrepreneurial passion on the concept of effectuation (and causation) as introduced by Sarasvathy (2001). This research is based on data that has been gathered and analysed from entrepreneurs that have different levels of expertise. To conduct this research, the following research question has been developed:

- How are entrepreneurial passion and entrepreneurial expertise influencing an entrepreneur's effectual orientation?

The following sub-questions have been developed:

- What is the relationship between entrepreneurial expertise and effectual orientation?
- What is the relationship between entrepreneurial passion and effectual orientation?
- What is the relationship between entrepreneurial passion and entrepreneurial expertise?

In the following section of this paper, a literature review will be conducted to explain the underlying concepts of this research paper. After that, different hypotheses will be created that will help to give a final answer to the underlying research questions. This will be followed by an explanation of the methodological approach and the actual analysis of the data. Due to the ongoing COVID-19 pandemic, it has been decided that the country of choice for data collection is Germany as international travel is still restricted and therefore not possible. In the end, the final results will be shown and discussed. Finally, some limitations and recommendations will be given.

2. Literature review

In this second chapter of this thesis, different subjects and theories applied in the research will be explained. First, the research field of entrepreneurship will be explained. After that, the theory of effectuation, entrepreneurial expertise, and entrepreneurial passion will be reviewed.

2.1 Effectuation

Entrepreneurs are responsible for making the right decisions in every situation. While there are some decisions that are really easy to make, there are others that can be more influential to your overall business. In this sense, making the right decisions can be critical to sustain and grow the business. Entrepreneurial decision-making has therefore a major impact on the performance and future direction of the company (Shepherd, 2017). Thus, the right allocation of resources and decision-making structure can be a good tool to cope with uncertainties and to seize opportunities (Grégoire and Cherchem, 2020). The entrepreneurial decision-making process has been studied by various different scholars (Maine & Soh, 2015; Grégoire, 2020). Nevertheless, there is still a lot of research to do as "*the existing literature is far from fully capturing the complexity and dynamics of entrepreneurial decisions*" (Shepherd, 2017, p.258).

Effectuation is a concept that is related to the decision-making processes of entrepreneurs. The concept was first introduced by Sarasvathy in 1998 and 2001 when she defined the causational and effectual decision-making approach. This approach is characterized as being goal-oriented and includes principles of rational choice. However, in contrast to that, the effectual approach implies that entrepreneurs focus on the means first to achieve goals that were not necessarily predefined. In this sense, the main difference of the effectuation approach is the "*explicit focus on the unfolding of human action in the face of radical uncertainty*" (Gregoire, 2020, p.2) Sarasvathy (2001) argues that the effectual approach provides advantages in uncertain environments and is often used by expert entrepreneurs. Later, Sarasvathy & Dew (2009) refer to effectuation as the logic of entrepreneurial expertise. Based on earlier findings Sarasvathy & Dew (2009) outlined the process of creating value using the effectual logic.

Sarasvathy (2001, 2008) identified five dimensions that together build the concept of effectuation, as well as five dimensions that together build the concept of causation. In later work Dew (2003) developed a model of the dynamics of effectuation. In Figure 1 this extant model is visualized. It highlights the importance of relational and network-dependent processes of the effectual approach (Kerr & Coviello, 2019). Furthermore, it includes both, cognitive and behavioural components. The model starts with an entrepreneurs "means" namely who they are, what they know and whom they know. In section 2.2.1 I will explain in more detail what these concepts entail. In the following steps of the "chain", the entrepreneur engages in interactions with stakeholders. The goal here is to arrive at potential commitments that lead to two outcomes. This is on the one hand the inclusion of new means from the approached stakeholders. In this way, new information and resources can be acquired. The other outcome is that those stakeholders lead to the introduction of new goals and artifacts. Both potential outcomes can be seen as ongoing cycles that repeat infinite (Sarasvathy & Dew, 2005).

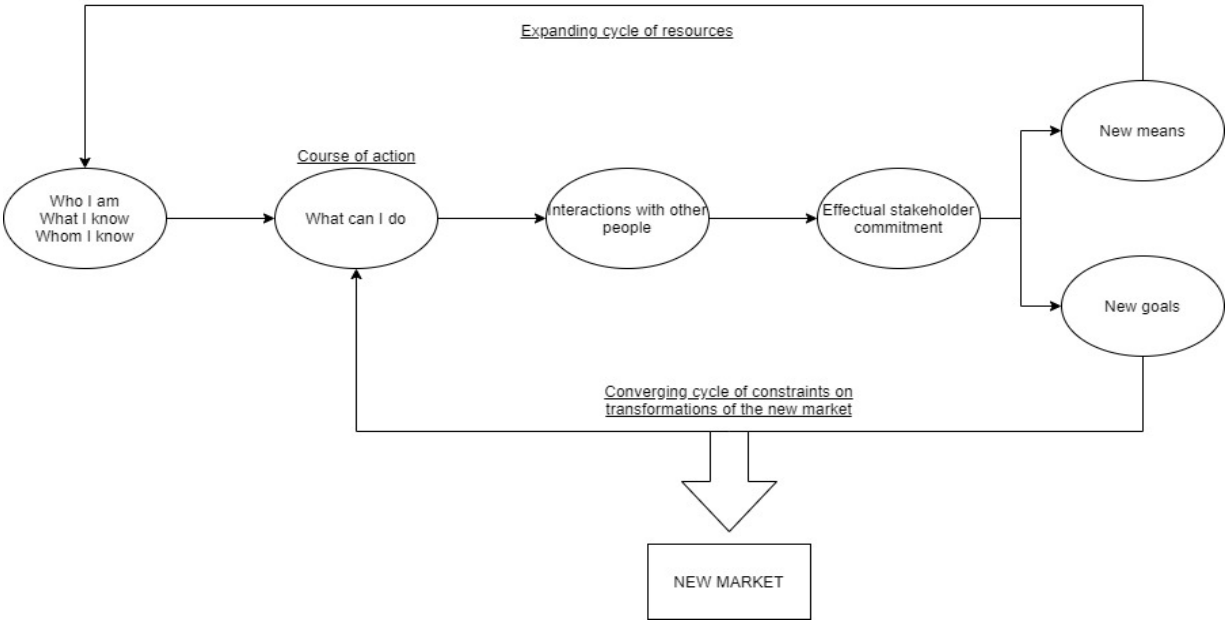

Figure 1: Dynamics of effectuation (Sarasvathy & Dew, 2009)

However, some scholars are criticizing this model for several reasons. Kerr & Coviello (2019) draw out some points of attention and argue that the constraint "others" has not a high priority and is underplayed. Furthermore, questions are framed as "I" although effectuation is more about the so-called "partnering principle". In addition to that, it is argued that both approaches, effectuation, and causation, can co-exist at the same time. Thus, the model lacks the influence of the causation approach. Lastly, it is questioned that only new network members are included in the model, but network dynamics are completely ignored (Kerr & Coviello, 2019).

In the following table effectuation and causation are compared based on the five dimensions as introduced by Sarasvathy (2001):

Table 1: Distinction of causation and effectuation

Causation	Effectuation
Goal	Means
Return	Loss
Competitors	Alliances
Exploiting knowledge	Exploiting contingencies
Predict	Control

In the following sub-sections, each dimension of the concept as introduced by Sarasvathy (2001) is described. By doing so differences between causation and effectuation are highlighted and explained.

2.1.1 Means based vs. Goal oriented

This first subdimension is the beginning stage for taking entrepreneurial action. The effectual approach starts with the means and possible decisions are evaluated based on this given set

of means. Those means are predefined by each entrepreneur and can be broken down into three different categories being: (1) Who am I, (2) What I know, (3) Whom I know (Sarasvathy et. al, 2008). This can also be found in Figure 1 as the initial steps in the effectuation process. The first category refers to an entrepreneur's traits, attributes, and abilities while the second category is about his/her education, experience, and expertise. The third category deals with the effectuators social networks (Sarasvathy et. al, 2008). Those categories together can be used to compute the entrepreneurs pool of resources ("(4) What I have") which basically involves all relevant information an entrepreneur considers during a decision-making process (Sarasvathy et. al, 2008). Thus, entrepreneurs following the effectual approach imagine opportunities that arise from their means.

In contrast to that, the causational decision-making approach focuses on a different strategy. Here, the goal/outcome is the point of attention. The concept of rational choice is the main driver to achieve the proposed goals.

2.1.2 Strategic alliances / Pre commitments vs. Competitive analysis

This subdimension of the effectuation concept is about how other players in the market influence entrepreneurs in their decision-making process. Entrepreneurs who follow an effectual approach are open towards creating strategic alliances with potential competitors. In addition, pre-commitments from stakeholders are also of interest for entrepreneurs following the effectual approach. This has different reasons. First, entry barriers can be erected and reduced. Second, risk can be reduced, and lastly uncertainty can be reduced or even eliminated (Sarasvathy, 2001).

While the effectual approach favours strategic alliances, the causational approach follows the opposite strategy. The entrepreneur sees other companies targeting the same customer as a competitor and not as a potential partner. However, this does not mean that entrepreneurs following this approach do not seek partnerships. The right partners are chosen based on criteria to be able to compete in the market and achieve the proposed goals (Sarasvathy, 2001).

2.1.3 Affordable loss vs. Expected return

The affordable loss dimension of the effectuation concept is about an entrepreneur's perception of risk and return. The effectual logic aims for maximizing future returns by using the given means to follow different strategies that offer future value. Entrepreneurs predetermine a value that a company can afford to lose which limits the ability to experiment and try different strategies. However, by doing so the entrepreneur reduces the risk to lose a high amount of money in uncertain situations (Sarasvathy, 2001). Potential downsides are not hindering the entrepreneur to follow a certain strategy if the opportunities outplay the risks (Sarasvathy, 2001; Gregoire, 2020).

The causational approach focuses on maximizing short-term returns. Decisions are based on selecting the optimal strategy that offers the highest return. In this sense, potential losses can be really high as in an uncertain environment, unforeseen situations can arise. After targeting the return, the entrepreneur focuses on minimizing the associated risk of his actions (Sarasvathy, 2001; Gregoire, 2020).

2.1.4 Exploiting contingencies vs. Exploiting knowledge

This subdimension is about an entrepreneur's stance towards upcoming contingencies. The effectual logic prefers an environment that is likely to change. Unforeseen situations in the future are preferred by entrepreneurs following the effectual approach as these situations can be exploited and used to generate value and return. This is because the effectual approach favours a more flexible strategy that can adapt to a changing environment. Thus, unforeseen situations are rather seen as a business opportunity than a problem (Sarasvathy, 2001).

Entrepreneurs following the causal decision-making approach are aiming for avoiding uncertainty and unforeseen events. This is because those situations would result in doing a new and expensive forecast analysis and a change in the underlying strategy. Nevertheless, this approach is favourable when expertise is the foundation for the competitive advantage (Sarasvathy, 2001).

2.1.5 Controlling an unpredictable future vs. Predicting future

This last dimension is about how an entrepreneur tries to control or not control an unpredictable future. Entrepreneurs following the causational approach center around the anticipatable parts of the obscure future.

On the other hand, expert entrepreneurs or entrepreneurs following the effectual decision-making approach rather focus on the elements that are within their own control. By doing so, the desired outcome will be the result of their own actions. Thus, it can be said that the effectual view is based on the concept that the future is rather created than discovered or anticipated (Sarasvathy, 2001; Gregoire, 2020).

2.2 Entrepreneurial expertise

The concept of expertise has been explored in various different domains. For instance, is expertise used in the research field of human factors, which is an interdisciplinary area of psychology. In this sense, it has been used to analyse human performance, task analysis, in studies of learning or training or in cognitive modelling. In addition, expertise is also studied as a cultural and social phenomenon. In political discussions as well as in organisations, expertise is an important topic, that has risen a substantial amount of attention in the past years (Farrington-Darby, 2006).

One of the most recent and used definitions for expertise is the one by Ericcson (2006). He defines experts as people who have superior decision-making skills and knowledge while also displaying quicker and more accurate problem-solving skills in their own specific domain. In previous research Ericcson (1993) already found that expert performers on average had 10 thousand hours of domain-specific work experience. This can be translated into a total amount of five years of work experience. In this sense, it has already been considered that expertise is highly domain-specific, and a generalization of the concept is hardly possible (Dew, 2015).

However, entrepreneurial expertise is conceptually grounded in two different disciplines. This is on the one hand cognitive psychology and on the other hand entrepreneurship. In psychology research on expertise, chess masters were the unit of analysis. It has been found that intelligence was not correlated with expertise and being a good chess player. But it has been found later that experience and deliberate practice in a domain can lead to a higher level

of knowledge and skills (Dew, 2015). Thus, expertise is influenced by different factors and not only by a person's intelligence. By integrating those scholarly works from cognitive psychology and entrepreneurship, scholars were able to tackle more specific questions on how expertise is influencing entrepreneurial decision-making processes. (Dew, 2015). As already shown in the previous section the degree of expertise is a driver of entrepreneurial decision-making processes and can favour certain decision-making approaches as outlined by Sarasvathy (2001). Also, research on expertise is coming to this conclusion by comparing expert and novice decisions to the optimal decision output (Farrington-Darby, 2006). One reason for expert's superior decisions compared to novices, is their experience and deliberate practice in a specific domain. In fact, expert entrepreneurs achieve a higher degree of skill and knowledge which is translated to superior performance (Dew, 2015).

Nevertheless, scholars have not come to a uniform definition of entrepreneurial expertise yet. Some definitions use thresholds that differ at all levels from one another. The researcher Nicholas Dew (2015) aimed for creating a definition that could be used in different domains and is easy to apply in qualitative and quantitative research. Dew (2015) defined expert entrepreneurs as people who have *"at least 10 years of experience within the domain, and/or involvement with more than 2 new ventures"* (Dew, 2015). The threshold of ten years of work domain-specific experience indicates the necessary condition for deliberate practice. In contrast to an expert entrepreneur, a novice entrepreneur has been earlier defined by Dew (2009) as "someone who has less than or equal to five years of [entrepreneurial] experience" (Dew et al., 2009, p.32)

2.3 Entrepreneurial passion

The topic of entrepreneurial passion has already been introduced by Schumpeter in 1951 where the concept has been used to understand and explain entrepreneurial behaviour (Cardon, 2009). While entrepreneurs themselves see passion as one of the main drivers for success, the academic literature argues that *"entrepreneurship can be thought of as a "tale of passion""* (Cardon, 2009, p.511).

The concept of entrepreneurial passion has been first introduced by Baron and Hannon (2002) who defined entrepreneurial passion as an entrepreneur's self-identity towards new ventures. However, there are also other scholars who were doing research on the topic of entrepreneurial passion and followed a different approach. Thus, different approaches and frameworks have been created to capture and measure the concept of entrepreneurial passion. One of those scholars was Vallerand (2003) who introduced the so-called dualistic model of passion. In this model, passion is defined as a "strong inclination toward an activity that people like, that they find important, and in which they invest time and energy "(Vallerand et al, 2003). This definition implies that passion is distinguished into two different aspects. On the one hand, there is harmonious passion which occurs when we adore and feel pleased while doing a certain activity and while finishing that activity. Harmonious passion leads to an increased level of concentration and a better well-being while performing the task. On the other hand, there is obsessive passion that occurs when there is an overwhelming desire that triggers pressure to take part in a certain activity. Instead of you controlling your own activities, this sort of passion is controlling you and you feel compelled to continue (Vallerand et al, 2003).

Later Cardon (2009) touched on Baron and Hannon (2002) and introduced a useable definition and scale to measure the concept. Prior research and definitions were missing certain elements such as; why entrepreneurs lose their passion when their venture grows, why passionate entrepreneurs are willing to pull back from their start-up and why passionate entrepreneurs are not willing to give up although obstacles cannot be overcome (Cardon, 2009).

Thus, Cardon (2009) came up with a definition that is not lacking the previously mentioned aspects. She defines the concept of entrepreneurial passion as the following:

"*consciously accessible, intense positive feelings experienced by engagement in entrepreneurial activities associated with roles that are meaningful and salient to the self-identity of the entrepreneur.*" (Cardon, 2009, p.517)

This definition highlights two task-specific dimensions of entrepreneurial passion. This is on the one hand intense positive feelings and on the other hand an entrepreneur's self-identity. Both dimensions are miscellaneous from one another and even differ empirically and conceptually at different levels. However, both dimensions have to be used when measuring the concept (Cardon, 2012).

In addition, the previously mentioned definition implies that an entrepreneur enters different roles throughout their entrepreneurial activities. There are three roles that have been identified by Cardon (2009) that are relevant to entrepreneurship. These roles are passion for inventing, passion for founding, and passion for developing. The three roles are later referred to as the three domains of entrepreneurial passion (Cardon, 2012). In each role, there can be elements found of the two task-specific dimensions of entrepreneurial passion.

In the following sub-sections, the two task-specific dimensions and the three roles/domains of entrepreneurial passion as introduced by Cardon (2009) will be further explained as those will be the theoretical foundation for measuring entrepreneurial passion in this Master Thesis.

2.3.1 Intense positive feelings

To measure the concept of entrepreneurial passion one has to consider an entrepreneur's experience of intense positive feelings. In this sense, entrepreneurial passion is rather a phenomenon that occurs when thinking about or becoming involved in certain activities. Thus, entrepreneurial passion is not considered as a personality trait but rather a result of positive and negative emotions towards activities. Furthermore, these intense positive feelings must be consciously accessible to better "distinguish passion from more instinctive and episodic emotions" (Cardon, 2012, p. 375).

2.3.2 Self-identity centrality

The other dimension that must be considered when measuring entrepreneurial passion is the self-identity of the roles that are associated with the intense positive feelings. In fact, there is a connection between the intensity of those feelings and the self-identity of the entrepreneur. Both, intense positive feelings, and its meaning to the self-identity of the entrepreneur, must be considered when understanding entrepreneurial passion (Cardon, 2012).

2.3.3 Passion for inventing

The first domain of entrepreneurial passion is passion for inventing. This refers to the passion of creating new products and/or services. There are basically three different aspects that have to be incorporated when talking about passion for inventing. This is first scanning the environment for new market opportunities. By doing so it is possible to uncover potential gaps in the market and seek new opportunities. Secondly, developing new products and services that directly address these gaps and offer customers value. Lastly, the entrepreneur should be capable of being able to work and create new prototypes as these can determine which parts of the product do its job and which ones need refining (Cardon, 2012). In the following sections of this paper, to this domain will be referred as “passion for inventing”.

2.3.4 Passion for founding

Passion for founding is the second domain of entrepreneurial passion. This domain describes an entrepreneur’s passion for founding new organizations. Here the focus is again on three different aspects and their allocation. The first aspect describes the passion towards allocating the financial resources of the new venture. Secondly, this domain involves aspects that are related to an entrepreneur’s passion for dealing with human resources. Lastly, the passion for social resources is considered (Cardon, 2012). In the following sections of this paper, to this domain will be referred as “passion for inventing”.

2.3.5 Passion for developing

Lastly, the domain of passion for developing has to be considered when measuring the concept of entrepreneurial passion. This entrepreneurial role deals with the development of organizations beyond their initial survival and success. In this manner, it is about the passion of further developing an existing organisation and not about setting up a new one (Cardon, 2012). In the following sections of this paper, to this domain will be referred as “passion for developing”.

2.4 Moderation

In the previous sections the concepts of entrepreneurial expertise, entrepreneurial passion and effectuation have been discussed. To create a bigger picture of the relationships among those three variables it has been decided to test for moderation. This is common type of analysis in the field of entrepreneurship research (Cardon, 2009; Shepard, 2017; Gregoire, 2020). Previous scholars argue that effectuation is the logic of entrepreneurial expertise. To test if this already existing relationship is influenced by a third variable a moderation analysis will be conducted. As each entrepreneur experiences entrepreneurial passion differently, it has been decided to test whether or not entrepreneurial passion is moderating the relationship of expertise and effectuation.

3. Hypotheses

In this part of the paper the underlying hypothesis for the research will be explained. All in all, six hypotheses have been created to discuss the underlying concepts of this paper. Based on the results the main research question will be answered. The hypotheses are based on the previous literature review as well as the research and sub-research questions. Furthermore, scores for each variable have been computed. This is because the results will be statistically interpreted. An explanation of how these scores for each variable have been computed can be found in section 5 of this paper.

Scholars agree that the different roles of entrepreneurial passion are perceived differently by each entrepreneur. This is because some entrepreneurs are more passionate for e.g., passion for inventing while others are more passionate for developing. Reasons for that may not only be the current situation an entrepreneur is facing but also his or her background and past experiences (Cardon et al., 2013). To understand whether the degree of entrepreneurial passion is influenced by the degree of entrepreneurial expertise different hypotheses and sub-hypotheses have been created. The main hypothesis is looking at the relationship of expertise and the whole construct of entrepreneurial passion while the sub-hypotheses focus on each of the domain of entrepreneurial passion. In the following the hypotheses can be found:

H1: Expert entrepreneurs show a significantly higher tendency for entrepreneurial passion than novice entrepreneurs.

H1.1: Expert entrepreneurs show a statistically significantly higher tendency for the entrepreneurial passion domain, passion for inventing from novice entrepreneurs.

H1.2: Expert entrepreneurs show a statistically significantly higher tendency for the entrepreneurial passion domain, passion for founding from novice entrepreneurs.

H1.3: Expert entrepreneurs show a statistically significantly higher tendency for the entrepreneurial passion domain, passion for developing from novice entrepreneurs.

Over twenty years ago Sarasvathy (2001) introduced effectuation as a decision-making approach for experts. Since then, research is based on those findings. Perry et al. (2012) follows this logic and agrees with Sarasvathy´s (2001) findings. He states that the effectuation approach seems to be widespread and preferred among expert entrepreneurs. Later, Gregoire (2020) draws the same conclusion and agrees on the relationship between expertise and effectuation. However, there are also scholars who argue that there are *"deficiencies in the inductive research upon which effectuation theory is based"* (Arend, 2016, p.17). It is highlighted that prior studies used hypothetical start-ups, didn't proof that expert entrepreneurs exist and did not highlight alternative explanations for expert entrepreneurs using a different way of thinking (Arend, 2016). In addition to that, Alsos et al. (2019) argues that *"resource endowments of the expert entrepreneurs in Sarasvathy's original study were immaterial to effectuation" (Alsos, 2019, p.9).* In fact, the following hypotheses has been created to test the proposed relationship between both concepts:

H2: Expert entrepreneurs are scoring statistically significantly different from novice entrepreneurs for effectual orientation.

In section 2.4.3 it has been outlined that the domain "passion for inventing" is about the passion for creating new products and services (Cardon, 2009). The development of such products and services is often connected with situations that can be characterised as highly uncertain. Although inventing new products and services might be really risky, the rewards of a successful implementation can be worth it. However, the effectuation approach puts emphasize on exactly these situations (Gregoire, 2020; Sarasvathy, 2001). Hence, an entrepreneur that is passionate for inventing might also follow the effectual approach rather than the causal. In fact, the following hypotheses has been created to test if there is a relationship between both concepts:

H3: The domain of entrepreneurial passion for inventing has a positive statistically significant influence on an entrepreneur's effectual orientation

In section 2.4.4 it has been outlined that the domain "passion for founding" is about the passion for creating a new venture (Cardon, 2009). Entrepreneurs who are passionate for founding are really focusing on setting up and creating new ventures. Once the venture arrives at a certain growth stage entrepreneurs most likely leave the company to find a new challenge. In fact, entrepreneurs who are passionate for founding can be characterized as risk-seeking and adventurous. Both attributes can also be found in the concept of effectuation as outlined by Sarasvathy (2001). To understand whether there is a relationship between passion for founding and effectuation the following hypotheses has been created:

H4: The domain of entrepreneurial passion for founding has a positive statistically significant influence on an entrepreneur's effectual orientation

In section 2.4.5 it has been outlined that the domain "passion for developing" is about the passion for developing an existing venture (Cardon, 2009). Here, the focus is on growing and expanding the existing company beyond the start-up level. This task is difficult and involves some kind of commitment, effort, and experience. All previously mentioned attributes can be more associated with an effectual orientation rather than a causal one. Thus, the following hypothesis has been developed to understand if there is a relationship between passion for developing and effectuation:

H5: The domain of entrepreneurial passion for developing has a positive statistically significant influence on an entrepreneur's effectual orientation

To understand whether all three concepts share a relationship with each other one last hypothesis has been created. As already outlined in the previous sub-sections the relationship between entrepreneurial expertise and effectuation has already been extensively discussed and confirmed by many different scholars (Sarasvathy, 2001; Dew, 2015). Still, it might be possible that there are other variables that influence this relationship. As this study is also looking at entrepreneurial passion, which has been proven to influence an entrepreneur's decisions, it will be investigated if this variable is influencing the previously mentioned relationship. To do so, the following hypothesis H6 has been created:

H6: The degree of entrepreneurial passion is moderating the relationship between entrepreneurial experience and effectuation

Expert and novice entrepreneurs differ in various aspects from one another (Sarasvathy, 2001; Farrington-Darby, 20; Dew, 2015). Thus, it has been decided that hypothesis H3 – H6 are tested for both groups, expert, and novice entrepreneurs.

4. Methodology

The goal of this Master Thesis is to study whether entrepreneurial expertise and the degree of entrepreneurial passion influence an entrepreneur in their choice of framing their decisions using an effectual or causal decision-making approach. To do so a quantitative study has been carried out and the following concepts have been measured: entrepreneurial passion, entrepreneurial expertise, effectuation. In this part of the paper, it will be described how the research has been conducted and which data has been used. It will be outlined which research method has been chosen and why. Furthermore, the sample and data analysis will be explained.

4.1 Research methods

To measure the underlying concepts of this paper different scales are used. In the following sub-sections, each scale and its particularities are explained.

4.1.1 Entrepreneurial passion scale

In previous research on entrepreneurial passion, different scales have been developed and validated by scholars to measure the concept. In this process there is one scale among others that has been proven to deliver adequate results.

Cardon et al. (2013) developed an instrument to measure the concept of entrepreneurial passion and its associated dimensions. This instrument or scale is developed under the assumption that entrepreneurial passion is a function of intense positive feelings and identity centrality and *"is conceptually and empirically distinct from other constructs"* (Cardon, 2013, p. 374). The scale involves thirteen items from which each one is related to one of the dimensions of entrepreneurial passion. Thus, the measurement tool can be characterized as multi-dimensional. As entrepreneurial passion can also occur in different domains those were taken into account as well. Each item is also related to one domain of entrepreneurial passion. From those thirteen items, five are related to the domain of "passion for inventing", four can be associated with the domain "passion for founding" and lastly four are related to the domain "passion for developing". The dimension of identity centrality in total accounts three items while the dimension of intense positive feelings has in total ten related items. Originally, the proposed scale was developed as a five-point Likert scale. However, it has been decided to make use of a seven-point Likert scale (1= totally disagree, 7 = totally agree). This is because issues of range restriction can be reduced which results in a more reliable measurement.

4.1.2 Effectual orientation scale

Effectuation is a concept that has risen attention in the past twenty years among entrepreneurship scholars. Thus, it is not surprising that different scales have been developed to measure the concept of effectuation. However, each scale has its particularities. Therefore, one has to carefully decide on which one to take.

For the purpose of this study the scale developed by Werhahn et al. (2015) has been used. In their work effectuation is described as *"a strategic direction reflecting a mindset that emphasizes the entrepreneurial behaviour of employees"* (Werhahn et al, 2015, p. 305). The scale only measures for effectuation and therefore items have been removed that involve elements of both effectuation and causation. Thus, it is only possible to measure for effectual

orientation and not for causation. The multidimensional scale developed is the first reliable tool to measure effectual orientation.

The model presented by Werhahn et al. (2015), also includes five subdimensions of effectuation which is in line with previous research by for instance Sarasvathy (2001), or Chandler and Perry (2012). All in all, the final scale by Werhahn et al (2015) includes 18 items which are related to one of the five subdimensions of effectuation. In total, three items are related to the means dimension, four are related to strategic alliances, three to the affordable loss dimension and respectively four are related to the control as well as to the contingency dimension. The scale is developed as a seven-point Likert scale where 1=strongly disagree and 7=strongly agree.

Lastly, one has to consider the multi-dimensionality of the measurement tool. Although this approach is common in effectuation research it should at least be mentioned once. Namely, the control dimension of effectuation can be seen as an antecedent of the other four sub-dimensions. The results of a structural equation model shows that control orientation indeed is positively related to the other four sub-dimensions of effectuation and thus has a special influence on the whole concept (Werhahn, 2015). The following figure shows Werhahn et al. (2015) structural equation model and the special role of the control dimension:

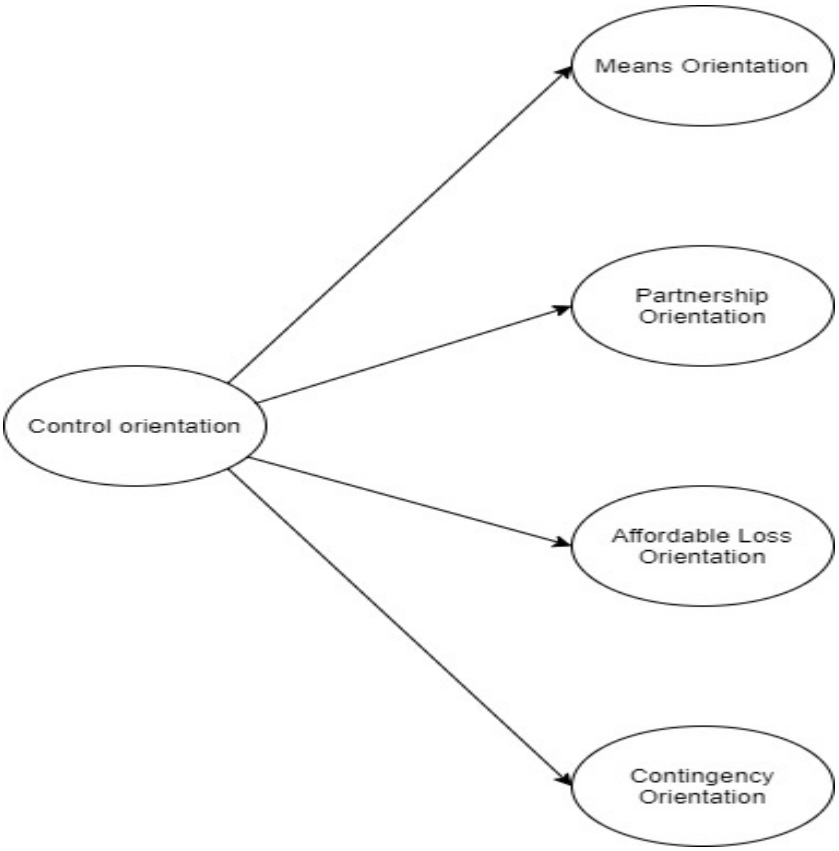

Figure 2: Multi-dimensionality of effectuation

4.1.3 Entrepreneurial expertise measurement

To measure the concept of entrepreneurial expertise it was not necessary to make use of a scale. The definition from section 2.3 implies that a differentiation between expert and novice entrepreneurs can be made by simply looking at the number of years of experience in a specific domain and the number of ventures founded (Dew, 2015). Although Dew (2015) came up with a threshold of ten years and at least two ventures founded it has been decided to use a different threshold. This is because previous literature on expertise suggest that one becomes an expert performer after working on average ten thousand hours in a specific domain (Ericsson, 1993). However, these ten thousand hours describe a state in which one is at a mastery level of a given skill. For the purpose of this research a mastery level is not needed to be an expert. This is because research has shown that *"individuals can reach the highest level in the world after less than a couple of years training"* (Ericcson, 2006, p.7). Therefore, an expert will already be defined after achieving five thousand working hours in a specific domain which can be translated into at least three years of experience as an entrepreneur. Thus, novice entrepreneurs are those with two years or less of entrepreneurial experience and only one venture founded. In contrast to that are expert entrepreneurs defined as entrepreneurs who have at least three years of experience and at least one venture founded.

To successfully use the proposed research methods, it was necessary to create a questionnaire and distribute it among interested entrepreneurs that meet the criteria. In the following sub-section, it is described how the sample criteria have been chosen and how entrepreneurs have been contacted.

4.2 Sample

To successfully answer the underlying research question of this Master Thesis it is necessary to gather quantifiable data. In fact, the needed data has been collected amongst entrepreneurs that are located in Germany. It has been decided to include both, expert, and novice entrepreneurs in the sample. This has been done to further confirm current assumptions in the literature on expertise and effectuation (Sarasvathy, 2001; Dew, 2015; Gregoire, 2020). In addition, there is still a lack of research on novice entrepreneurs (Perry & Chandler, 2012). By including both, expert, and novice entrepreneurs into the sample it might be possible to enlarge the ongoing literature and uncover new relationships between the given variables. For research purposes, expert and novice entrepreneurs were defined based on the definitions outlined in section 2.3.

The distributed online questionnaire has been designed with the platform Qualtrics. The survey was consisted of 31 items which have been chosen from the validated scales outlined in section 4.1.1 and 4.1.2. Furthermore, a few additional questions were included to gather personal information about the entrepreneur and his previous experiences. For approaching the target group of novice and expert entrepreneurs the same channels have been used. First, various internet groups in different social networks like Facebook, Instagram and LinkedIn have been used to attract participants. Everyday a letter with the link to the survey has been posted in these groups. Furthermore, start-up programs at regional universities have been contacted in person. All three university programs were not willing to share my link with their database due to privacy issues. However, it was possible to directly talk to founders in person who agreed to fill in the survey. In addition to that, e-mails have been sent out to

entrepreneurs found in a database for founders. Lastly, private contacts have been contacted as well and asked to fill in the survey. All in all, approximately 1000 entrepreneurs have been contacted from which 125 filled in the survey.

In the following part of this Thesis the gathered data will be analysed. To do so different approaches have been used which will be explained in the following section.

5. Analysis

In this section of the paper, the analysis of the data will be presented. First, the reliability of the underlying constructs will be tested which will be followed by a factor analysis to determine the number of underlying factors. To analyse the collected data, IBM SPSS Statistics 26 has been used. The variable entrepreneurial passion has been computed by summing up all items that are related to entrepreneurial passion and dividing that number by the total amount of items. By doing so a score has been calculated that represents an entrepreneur's degree of entrepreneurial passion. In the same manner a score has been calculated for the domains of entrepreneurial passion. To compute the variable of effectual orientation the same procedure has been followed.

5.1 Analysis of reliability

To test the reliability of the underlying constructs Cronbach's Alpha α is used. There are different reasons why this is necessary for the purpose of this research. First, the internal consistency has to be tested. This is because various aspects of personality are measured and therefore internal consistency among the items has to be given (Streiner, 2003). Secondly, it is considered as a measure of scale reliability and therefore supports the line of argumentation and its validity. It is widely discussed among scholars around the world which level of internal consistency has to be given to be acceptable. A widely used threshold has been discussed by Lance, Butts, & Michels (2006) which described 0.7 as an acceptable level for internal consistency. However, there are also other scholars who support lower values as 0.7 as acceptable. For instance, argues Taber (2018) that even a level of 0.58 can still be considered as satisfactory. In the following the Cronbach's α for each measurement scale is computed.

As outlined before Cronbach's Alpha α will be used to test the internal consistency. The first variable that will be tested on internal consistency is effectuation. In Appendix A the results of Cronbach's Alpha α can be found. As Werhahn et al. (2015) is following the structure introduced by Sarasvathy et al. (2001) each of the five sub-dimensions is tested for internal consistency. Following Lance, Butts & Michels (2006) interpretations of Cronbach's Alpha α it can be said the internal consistency for the effectuation scale is given. Cronbach's Alpha has a value of 0,919 and therefore it can be said that the internal consistency is given.

Lastly, the scale for entrepreneurial passion has to be analysed in terms of internal consistency. As outlined in Section 2, Cardon et al. (2012) described the concept of entrepreneurial passion between three domains. Thus, internal consistency has to be checked for each domain of entrepreneurial passion. The results of Cronbach's Alpha α for each domain can be found in Appendix A. The values of Cronbach's Alpha are for each domain higher than 0.7 (passion for developing α=0,83; passion for founding α=0,73; passion for inventing α=0,83) and thus It can be concluded that the internal consistency of the items is given.

5.2 Factor analysis

The statistical approach factor analysis is a method for condensing a large number of variables into a smaller number of factors. In other words, this tool aims for uncovering patterns in a set of variables (Fabrigar & Wegener, 2011). By doing so it is possible to understand the

underlying structure of variables and break them down into only a few interpretable underlying factors.

To determine whether factor analysis is a suitable tool one can use the Kaiser-Meyer-Olkin (KMO). This test measures whether the sampling for each variable is adequate or not. The literature suggests different values on how to interpret the results of the KMO. Kaiser (1974) suggests that values below 0.5 are considered as miserable, below 0.6 mediocre, below 0.7 middling, below 0.8 meritorious and higher than 0.9 as marvellous. Later, it has been agreed by Hair et al (2006) that values between 0.5 and 0.7 are considered as mediocre and values higher than 0.7 as good.

Lastly, Bartletts test of Sphericity will be used to determine whether the underlying variables are related or unrelated with one another (Knapp, 1967). This test is commonly used to determine whether data reduction techniques such as factor analysis are possible or not (Arsham, 2011). In case the underlying variables are unrelated, this would indicate that they are not suitable for structure detection.

5.2.1 Entrepreneurial passion scale

As outlined in the previous section different tests will be conducted to find out whether a factor analysis is possible or not. Thus, first the Kaiser-Meyer-Olkin (KMO) will be conducted. A value that is higher than 0.7 would be considered as good. Looking at the outcomes of the analysis in Appendix B it can be said that the analysis resulted in a value which is higher than 0.7 (KMO=0,862). Thus, the result would indicate that a factor can be conducted. However, Bartletts test of Sphericity has also be considered. Looking again at the outputs in Appendix B it can be concluded that this test also favours factor analysis. This is because the significance level of the test is smaller than 0.05 which indicates that factor analysis is useful for the underlying data.

The outcomes of the factor analysis can be found in Appendix B. All in all, thirteen items were factor analysed by using principal axis factoring with varimax (orthogonal) rotating. The results indicate that three factors/components have been identified which are explaining a total of 65,29% of the entire set of variables. This is in line with Cardon et al. (2013) work and therefore not surprising. However, it can be observed that there are several cross loadings. Since the concepts are conceptually really similar, cross loadings are not surprising as well. Especially the items 2,7,8 and 13 are affected. Nevertheless, it can still be concluded that the scale is measuring the concept reliably.

5.2.2 Effectuation scale

The effectuation scale will also be analysed using factor analysis. To find out whether factor analysis is possible or not the KMO and Bartletts test of Sphericity will be performed. As outlined in the previous section (section 5.2) there are different thresholds that can be used to interpret the results of these tests. In Appendix B the results of both Kaiser-Meyer-Olkin (KMO) and Bartletts test of Sphericity for the effectuation scale can be found. The results for the KMO show a value that is higher than 0.7 (KMO=0,859). According to Hair et al. (2006), this value would indicate a good result. Looking at the outcomes of Bartletts test of Sphericity it can be said that the results confirm the feasibility of factor analysis.

In Appendix B the factor analysis for the effectuation scale is displayed. It has also been decided to use principal axis factoring and varimax (orthogonal) rotating. The outcome of the factor analysis shows that four factors have been identified. This is not in line with previous findings which support a five-factor structure (Werhahn, 2015). One possible reason for this difference can be the low number of interviews. In addition to that, there can also be one cross loading identified for item five.

6. Results

In this section the results will be presented. First, the descriptive statistics of the collected data will be shown and discussed. Next, a correlation analysis will be performed in order to find patterns and relationships among the variables investigated. The last step will be the hypothesis testing which will give us the final answers to the research and sub-research questions.

6.1 Descriptive statistics

In this section the descriptive statistics of the underlying data will be shown. These statistics provide a first and simple summary of the data sample and potential observations.

As already shown in section 4.2 it was possible to get a total number of 125 respondents. However, not all questionnaires have been filled in correctly and in fact of that it was not possible to use all interviews. Nevertheless, in total 113 usable records have been recorded. In Table 4 the descriptive statistics for the distribution of gender are displayed. In total 29 females, 83 men and 1 person that identifies as "other" participated. This is a quite uneven distribution although it could have been expected because typically more men are working as entrepreneurs (Gorji, 2011). The entrepreneurs have been divided in two different groups according to their degree of entrepreneurial experience as described in section 4.1.3. In total 36 novice entrepreneurs and 77 expert entrepreneurs have been identified. This is because this study was explicitly focusing on expert entrepreneurs. Nevertheless, also novice entrepreneurs have been included into the sample to give an answer to the research questions of this paper. When looking at the descriptive statistics for the variable age it can be said that there is a wide range of different aged participants. The youngest participant of the sample is 19 years old, while the oldest participant is 61 years old. Lastly, the descriptive statistics for passion for inventing (mean=5,64; SD= 1,13), passion for founding (mean=5,48; SD= 1,14), passion for developing (mean=5,25; SD= 1,28) and effectuation (mean=5,59; SD= 0,89) are given in Table 5.

Table 2: Expert and Novice entrepreneurs

Experience

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Novice	36	31,9	31,9	31,9
	Expert	77	68,1	68,1	100,0
	Total	113	100,0	100,0	

Table 3: Age of participants

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Age	113	19	61	33,94	9,474
Valid N (listwise)	113				

Table 4: Gender of participants

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	83	73,5	73,5	73,5
	Female	29	25,7	25,7	99,1
	Other	1	,9	,9	100,0
	Total	113	100,0	100,0	

Table 5: Scores for different concepts (variables) investigated

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
PassInv	113	2,00	7,00	5,6460	1,13421
PassFo	113	2,00	7,00	5,4801	1,14327
PassDe	113	1,00	7,00	5,2588	1,28909
Effect	113	2,00	6,78	5,5993	,89246
Valid N (listwise)	113				

6.2 Normality

In this part, it will be analysed whether the data is well-modelled by a normal distribution or not. This is good to know as some statistical analysis assume a normal distribution. To assess whether the data is normal distributed or not different analysis can be undertaken. By looking at table 6 the outcomes of the Shapiro & Wilk test can be found. The outcome indicates that the data for both variables effectuation and entrepreneurial passion are non-normally distributed. This means that the data doesn't follow the typical symmetric and bell-shaped curve of a normal distribution (Ahsanullah, 2014). In fact, certain statistical analyses have been conducted by using non-parametric tests. Additional tests such as skewness test and kurtosis test can be found in Appendix C. Furthermore, Appendix C displays the plots for the standardized residuals of effectuation and entrepreneurial passion. Those indicate that the residuals are normally distributed and therefore it was possible to include certain parametric tests in the analysis too.

Table 6: Tests of Normality

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Effect	,094	113	,016	,912	113	,000
EntPa	,096	113	,013	,931	113	,000

a. Lilliefors Significance Correction

6.3 Correlation analysis

To further analyse the collected data a correlation analysis will be performed. This type of analysis is used to uncover relationships between different variables. Typically, in statistics correlation analysis is used to denote association between two quantifiable variables. In this process, it is assumed that the relationship between the underlying variables is linear. Thus, a change in one variable leads to a decrease or increase in the other one. To measure this degree of association a correlation coefficient is used. This coefficient is denoted by ρ and is often called after its originator Spearman's rank correlation coefficient. According to Zar (1972) *"The correlation of ranks introduced by Spearman [9] is one of the oldest and best known of nonparametric procedures"* (Zar, 1972, p.578). The analysis will be performed in SPSS and the given output will indicate whether there is a statistically significant correlation between the underlying variables or not.

There are some assumptions that have to be met in order to perform correlation analysis. Schober et al. (2018), points out that actually no assumptions have to be met to measure a linear relationship. However, there are some assumptions in the sample data that should be met in order to perform correlation analysis (Schober, 2018). This is first, that the data is drawn from a random sample that is representative for the population. Secondly, the variables are continuous and normally distributed. Thirdly, there should be no outliers in the sample and lastly, each pair of values is measured independently (Schober, 2018). For the underlying data of this sample, it can be said that nearly all assumptions are met and therefore a correlation analysis can be performed. The only assumption that is violated is the assumption of normality as can be seen in Appendix C. However, this does not affect the analysis as *"Parametric statistics can be used with Likert data, with small sample sizes, with unequal variances, and with nonnormal distributions, with no fear of 'coming to the wrong conclusion"* (Norman, 2010). Nevertheless, it has been decided to make use of the non-parametric analysis and therefore Spearman's correlation has been used.

In Appendix D the outcomes of the correlation analysis can be found. It has been decided to perform two correlation analysis. This is because the research is explicitly focusing on the difference between expert and novice entrepreneurs. Thus, one correlation output shows the results for novice entrepreneurs, and the other one shows the output for expert entrepreneurs. The following variables have been included: age, gender, years as entrepreneur, passion for inventing, passion for founding, passion for developing and effectuation. All values that are highlighted in Appendix D indicate that a correlation has been found at a threshold of $p<0,01$ or $p<0,05$. Now, these values will be interpreted.

First, the outcomes of the correlation analysis for novice entrepreneurs will be analysed. It can be observed that each domain of entrepreneurial passion is sharing a relationship with one another. Passion for developing shares a relationship with passion for founding (ρ=0,544; p<0,01) and passion for inventing (0,697; p<0,01) while also passion for founding and passion for inventing also correlate (ρ=0,788; p<0,01) with one another. Further it has been found that effectuation correlates with each of the three domains of entrepreneurial passion. Effectuation and passion for inventing (ρ=; p<0,01), passion for founding (ρ=; p<0,01) and passion for developing (ρ=; p<0,01) share a statistically significant relationship.

Looking at the outcomes of the correlation analysis for expert entrepreneurs it can be said that more correlations among the variables have been identified. Similar to the results of the novice entrepreneur correlation analysis, a correlation between all three domains of entrepreneurial passion has been identified. Passion for developing shares a relationship with passion for founding (ρ=0,588; p<0,01) and passion for inventing (0,560; p<0,01) while also passion for founding and passion for inventing also correlate (ρ=0,225; p<0,05) with one another. Furthermore, a correlation between gender and passion for inventing has been found (ρ=-0,271; p<0,05). In addition, effectuation is also correlating with different variable. For instance, it was possible to identify a correlation between an entrepreneurs age and passion for founding (0,225; p<0,05). Additionally, age also correlates with years as entrepreneur (0,689; p<0,01) and effectuation (0,247; p<0,05). As talking about effectuation more correlations have been found with passion for inventing (0,467; p<0,01), passion for founding (0,477; p<0,01), passion for developing (0,699; p<0,01) and years as entrepreneur (0,262; p<0,05).

6.4 Hypotheses testing

In this section of the paper the hypotheses will be tested. As outlined in section 3 there are six different hypotheses that will be tested. To do so different statistical analysis will be performed for each hypothesis. In this process, different parametric and non-parametric tests have been conducted. For the first two hypothesis it has been decided to make use of the non-parametric Mann-Whitney-U test. This is on the one hand because the data is not normally distributed and on the other hand because the Mann-Whitney-U test compares differences between two independent groups. Thus, the Mann-Whitney-U test is the most suitable tool of analysis. For hypothesis H3-H6 a linear regression will be conducted. This is the best analytical tool to test the hypothesis as it is possible to state whether one value can be used to predict the value of another variable. Lastly, to test H6 also a linear regression will be conducted in which the values of the independent variables are standardized. By doing so, a moderation effect can be detected. The variable moderator_2 is thereby the product of the standardized values of both independent variables. In the following sub-parts, the results will be interpreted. To do so, the statistical results will be displayed, and relevant numbers highlighted.

6.4.1 Hypotheses 1

H1: *Expert entrepreneurs show a significantly higher tendency for entrepreneurial passion than novice entrepreneurs.*

H1.1*: Expert entrepreneurs show a statistically significantly higher tendency for the entrepreneurial passion domain, passion for inventing from novice entrepreneurs.*

H1.2*: Expert entrepreneurs show a statistically significantly higher tendency for the entrepreneurial passion domain, passion for founding from novice entrepreneurs.*

H1.3*: Expert entrepreneurs show a statistically significantly higher tendency for the entrepreneurial passion domain, passion for developing from novice entrepreneurs.*

Table 7: Mann-Whitney Test for H1 – H1.3 Ranks table

Ranks

	Experience	N	Mean Rank	Sum of Ranks
EntPa	Novice	36	48,42	1743,00
	Expert	77	61,01	4698,00
	Total	113		
PassInv	Novice	36	53,81	1937,00
	Expert	77	58,49	4504,00
	Total	113		
PassFo	Novice	36	49,90	1796,50
	Expert	77	60,32	4644,50
	Total	113		
PassDe	Novice	36	45,00	1620,00
	Expert	77	62,61	4821,00
	Total	113		

Table 8: Mann-Whitney Test for H1 – H1.3 Test Statistics

Test Statistics[a]

	EntPa	PassInv	PassFo	PassDe
Mann-Whitney U	1077,000	1271,000	1130,500	954,000
Wilcoxon W	1743,000	1937,000	1796,500	1620,000
Z	-1,904	-,711	-1,579	-2,670
Asymp. Sig. (2-tailed)	,057	,477	,114	,008

a. Grouping Variable: Experience

In the previous tables (Table 7 & 8) the results of the Mann-Whitney Test for H1 – H1.3 can be found. The results indicate that the mean rank for expert entrepreneurs is in all three domains entrepreneurial passion for founding- (53,81; 61,01), inventing (49,90; 60,32), developing (45,00; 62,61) and the overall concept entrepreneurial passion (48,42; 61,01) higher than for novice entrepreneurs. Therefore, it can be said that there is indeed a difference in the score for entrepreneurial passion between expert and novice entrepreneurs. However, it can be

observed the results for entrepreneurial passion (U=1077; p=0,057), passion for inventing (U=1271; p=0,477) and passion for founding (U=1130; p=0,144) are not statistically significant. Only the results for passion for developing indicate a statistically significant result (U=954; p<0,05). Thus, it can be concluded that H1 H1.1 and H1.2 cannot be rejected. Only H1.3 can be rejected.

6.4.2 Hypothesis 2

H2: *Expert entrepreneurs are scoring statistically significantly different from novice entrepreneurs for effectual orientation.*

Table 9: Mann-Whitney Test for H2 Ranks

Ranks

	xperience	N	Mean Rank	Sum of Ranks
Effect	Novice	36	52,17	1878,00
	Expert	77	59,26	4563,00
	Total	113		

Table 10: Mann-Whitney Test for H2 Test Statistics

Test Statistics[a]

	Effect
Mann-Whitney U	1212,000
Wilcoxon W	1878,000
Z	-1,073
Asymp. Sig. (2-tailed)	,283

a. Grouping Variable: Experience

Tables 9 & 10 show the results of the Mann-Whitney-U test for H2. It can be concluded that the mean rank for expert entrepreneurs (59,26) is higher than the mean rank for novice entrepreneurs. However, the effectuation score in the expert group was not statistically significantly different than the novice score (U=1212, p=0,283). In fact, H2 cannot be rejected.

6.4.3 Hypotheses 3 – 6

Now the hypotheses 3 - 6 will be tested. As outlined in section 6.3 a regression analysis will be conducted that will provide the necessary output. First, a regression will be done for all entrepreneurs. After that, the sample will be split, and two additional regressions will be performed to see whether the results for expert and novice entrepreneurs differ.

Table 11: Entrepreneur Coefficients H3 – H6

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	4,989	,390		12,776	,000
	GENDER_	-,027	,176	-,014	-,154	,878
	AGE_	,021	,009	,227	2,451	,016
	Company_	-,008	,005	-,154	-1,668	,098
2	(Constant)	2,059	,400		5,140	,000
	GENDER_	,027	,125	,014	,215	,830
	AGE_	,005	,006	,054	,823	,412
	Company_	-,004	,003	-,079	-1,219	,226
	PassInv	,220	,073	,279	3,015	,003
	PassFo	,128	,069	,165	1,847	,068
	PassDe	,273	,062	,394	4,393	,000
3	(Constant)	2,089	,411		5,086	,000
	GENDER_	,014	,131	,007	,106	,915
	AGE_	,006	,007	,068	,892	,374
	Company_	-,004	,003	-,080	-1,220	,225
	PassInv	,210	,078	,267	2,706	,008
	PassFo	,127	,070	,164	1,826	,071
	PassDe	,275	,063	,397	4,389	,000
	Moderator_2	-,028	,078	-,029	-,362	,718

a. Dependent Variable: Effect

In Table Appendix E the model summary for H3 – H6 can be found. In total three different models have been calculated. The first model includes the so-called control variables. In the second model the independent variables have been added and the last model additionally tests for the moderation effect. To test for moderation the values of the independent variables are standardized. However, Appendix E shows that the first model can only account for 7,5% of the total variation while models 2 and 3 can explain a total variation of 57,4% or 57,4%. The ANOVA output in Appendix E shows that all three regression models predict the dependent variable significantly well at a level of $p<0,05$. Lastly, by looking at Table 11 the coefficients for each model are displayed. The model of interest here is model three. It can be identified that

the control variables gender, age, and company do not make a statistically significant contribution to the model as $p>0.05$. Looking at the predictor variables passion for inventing and passion for developing it can be said that those do make a positive statistically significant contribution to the overall model as $p<0.05$. Only passion for founding does not have a statistically significant influence. Thus, it can be concluded that H3 and H5 can be accepted and there is indeed a positive statistically significant influence on the effectual orientation of entrepreneurs. However, H4 can't be accepted. In addition to that it has been tested whether or not there is a moderation effect between the variables. The outcome indicates that no moderation can be detected as the moderation variable does not statistically significant contribute to the overall model as $p>0.05$. In this sense, H6 is not accepted, and no moderation detected.

6.4.4 Hypotheses H3 – H6 Novice Entrepreneurs

In this section hypothesis H3 – H6 will be tested but only novice entrepreneurs will be included into the sample. The following tables show the output of the regression analysis.

Table 12: Novice Entrepreneur Coefficients H3 – H6

Coefficients[a,b]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	5,949	,750		7,933	,000
	GENDER_	-,051	,289	-,030	-,175	,862
	AGE_	-,010	,023	-,074	-,427	,673
	Company_	-,009	,007	-,239	-1,380	,177
2	(Constant)	3,005	,652		4,609	,000
	GENDER_	-,149	,195	-,089	-,762	,452
	AGE_	-,008	,015	-,060	-,516	,610
	Company_	-,005	,004	-,138	-1,244	,223
	PassInv	,326	,144	,504	2,257	,032
	PassFo	,167	,135	,226	1,243	,224
	PassDe	,070	,112	,110	,629	,534
3	(Constant)	14,563	3,417		4,262	,000
	GENDER_	-,186	,167	-,111	-1,114	,275
	AGE_	-,020	,013	-,156	-1,515	,141
	Company_	-,008	,004	-,211	-2,168	,039
	PassInv	-,512	,274	-,792	-1,871	,072
	PassFo	-,407	,203	-,549	-2,003	,055
	PassDe	-,535	,201	-,836	-2,665	,013
	Moderator_2	-2,779	,811	-2,749	-3,428	,002

a. Experience = Novice

b. Dependent Variable: Effect

The Appendix E and table 12 the output of the regression analysis for H3 – H6 for novice entrepreneurs. The output only provides three regression models. Appendix E gives the ANOVA output which indicates that only models 2 and three were statistically significant. Therefore, only the output of models 2 and 3 will be analysed. In total model 2 accounts for 65,7% and model three for 75,9% of the total variation. Table 12 provides the coefficient table. The model of interest here, is model three. It can be identified that three variables have a statistically significant influence on the overall model, namely passion for developing, the company age and the moderation variable ($p<0,05$). The other two domains passion for founding and passion for inventing do not show a statistically significant influence on the

overall model as p>0,05. Thus, it can be concluded that when looking only at novice entrepreneurs H5 can be accepted and a positive influence of passion for developing on the degree of effectual orientation confirmed. On the other hand, H3 and H4 can't be accepted and no influence of passion for inventing and passion for founding on the effectual orientation of novice entrepreneurs identified. Furthermore, the moderation variable shows a statistically significant influence on the effectual orientation of novice entrepreneurs. Thus, a moderation can be identified and H6 be accepted.

6.4.5 Hypotheses H3 – H6 Expert Entrepreneurs

In this section hypothesis H3 – H6 will be tested but only expert entrepreneurs will be included into the sample. The following tables show the output of the regression analysis.

Table 13: Expert Entrepreneur Coefficients H3 – H6

Coefficients[a,b]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	4,628	,489		9,457	,000
	GENDER_	,040	,231	,019	,171	,864
	AGE_	,029	,010	,318	2,844	,006
	Company_	-,007	,007	-,124	-1,106	,272
2	(Constant)	1,146	,557		2,057	,043
	GENDER_	,225	,165	,108	1,362	,178
	AGE_	,010	,007	,108	1,364	,177
	Company_	-,002	,005	-,037	-,476	,636
	PassInv	,234	,089	,256	2,626	,011
	PassFo	,055	,080	,068	,686	,495
	PassDe	,408	,077	,535	5,329	,000
3	(Constant)	,983	,563		1,747	,085
	GENDER_	,157	,169	,076	,928	,357
	AGE_	,017	,008	,185	1,977	,052
	Company_	-,003	,005	-,043	-,550	,584
	PassInv	,219	,089	,240	2,470	,016
	PassFo	,052	,079	,065	,656	,514
	PassDe	,436	,078	,571	5,585	,000
	Moderator_2	-,142	,094	-,145	-1,515	,134

a. Experience = Expert

b. Dependent Variable: Effect

In Appendix E and table 13 the outcomes of the regression analysis for H3-H6 for expert entrepreneurs. Similar to the results of the previous sub-sections all three models have been provided. When looking at Appendix E it can be said that all included models are significant at a level of $p<0,05$. The model of interest here is model three which is accounting for 62,8% of the total variance as can be seen in Appendix E. As looking at table 13 it can be seen that within this model there are only two variables that have a statistically significant influence namely, passion for inventing ($p<0,05$) and passion for developing ($p<0,05$). Thus, the degree of passion for inventing and passion for developing positively influences the degree of effectual orientation of expert entrepreneurs. In contrast to that, passion for founding is not

statistically significantly influencing the degree of effectual orientation among expert entrepreneurs. Furthermore, no moderation effect can be identified as p>0,05. Thus, H4 and H6 can't be accepted while H3 and H5 can be confirmed.

7. Discussion & Conclusion

This research paper provides input to the research field of entrepreneurship. Thereby, the focus was to compare expert and novice entrepreneurs with one another and point out differences between those two groups. Specifically, the focus was to find out how different types of entrepreneurs frame their decisions. In contrast to previous findings in the academic literature, this research found opposite results. Especially in regard to different preferences between expert and novice entrepreneurs. It has been assumed that there are differences between the entrepreneurial orientation and degree of entrepreneurial passion, but this could not have been confirmed. Although these results might seem surprising, they are not. This is because the results indicate that entrepreneurs are different from one another, not in this study but compared to other studies. Because entrepreneurs are so different from one another, the results between this study and previous studies might vary and come to different conclusions. Furthermore, it has been found that entrepreneurs who are more passionate for certain domains of entrepreneurial passion tend to have a higher effectual orientation than others. By gathering data among German entrepreneurs and analysing this data using the scales provided by Cardon (2009) and Werhahn (2015) it was possible to test different hypotheses. In the following paragraphs, those hypotheses will be discussed and compared to previous findings.

7.1 Hypotheses

The results of hypothesis H1 are surprising as they indicate that there is no difference between the scores for entrepreneurial passion of expert and novice entrepreneurs. This could not have been expected as previous scholars already found that expert and novice entrepreneurs differ in various aspects (e.g., decision-making processes) from one another (Dew et al., 2015). Cardon (2009) highlights that entrepreneurial passion is perceived differently by each individual and that a higher degree of entrepreneurial passion will ultimately lead to a higher success rate (Cardon, 2009). In fact, it could have been expected that expert entrepreneurs, who have higher success rates than novices, do have statistically significant different scores (Güss, 2017). However, this is not the case, and it can be concluded that the results of H1 are not in line with previous findings and do not support recent scholarly arguments. By testing hypothesis H2 it has been found that there is no clear tendency that expert entrepreneurs are choosing the effectuation decision-making approach more frequently than novice entrepreneurs. These results are surprising as previous scholars already investigated this relationship and came to different results. As already mentioned in section 2.2 Sarasvathy (2009) describes the effectuation approach as the logic of expertise. In the same manner, Sarasvathy (2009) argues even further and states that expert entrepreneurs choose the effectual approach over the causal one. This has different reasons but is mainly related to the premise of the causal and effectual logic. As the causal approach focuses on predicting the future, the effectual logic aims for controlling the future. Thus, both approaches are fundamentally different from each other which might also explain the preference of entrepreneurs for choosing a specific approach. However, it can be concluded that the results of H2 are not in line with previous scholarly findings and clearly show that expert and novice entrepreneurs are not differing in their tendency towards choosing a specific decision-making approach. Potential reasons for these different results might be related to the sample and the

related uneven distribution of novice and expert entrepreneurs. Following on from this the definition of entrepreneurial expertise for this thesis might be one reason for the different results compared to other scholars. This might as well explain the surprising results of H1 which are also contrary to scholarly findings.

In the following, the results for the sample, including all entrepreneurs for H3-H6 will be discussed. The results of the third hypothesis H3 indicate that there is a positive influence of passion for inventing on an entrepreneur's effectual orientation. To my knowledge, this relationship has not been found by scholars yet. However, there are some indications from previous research that support these results. For instance, describes Cardon (2009) entrepreneurs who are passionate for founding as scientist or product-oriented entrepreneurs. In fact, those entrepreneurs are exploiting contingencies and aim for predicting the future which is a typical characteristic of the effectual decision-making approach and orientation. Hypothesis H4 shows that passion for founding is not statistically significant influencing an entrepreneur's effectual orientation. Read et al. (2005), explained that entrepreneurs start several different companies during their development of entrepreneurial expertise. In addition to that, Cardon (2009) highlights that those entrepreneurs often exit that venture after a certain point and start a new one. However, they do not always succeed and also experience failure. This can be interpreted as entrepreneurs only willing to invest their affordable loss (e.g., time, money) and creating as many new ventures as possible. Both are characteristics of the effectual decision-making approach and therefore the results are surprising and not in line with previous findings. Now, the results of the fifth hypothesis H5 are discussed. Here, the results indicate that entrepreneurs who can be characterized as passionate for developing also have a preference for a specific decision-making approach. The process of developing an existing company involves different entrepreneurial activities that range from attracting new customers to hiring new employees and building a company culture (Cardon, 2009). These attributes can most likely be matched with entrepreneurs who would follow the effectual decision-making approach and therefore the results are similar to the current scholarly opinion. Thus, the positive influence of passion for developing on an entrepreneur's effectual orientation is not surprising at all. Lastly, the results of H6 will be interpreted. Hypothesis H6 assumed a moderating effect of entrepreneurial passion on the relationship between entrepreneurial expertise and effectuation. This could not be confirmed, and no moderation was identified. Therefore, H6 cannot be accepted.

To understand whether the results are different for expert and novice entrepreneurs the dataset has been split into two samples and the same analyses have been conducted. By looking at the results of the expert entrepreneurs it can be said that there are no big differences in the outcomes compared to the whole dataset. Both regression analyses come to the same conclusions that passion for founding and passion for developing do positively influence an entrepreneur's effectual orientation while passion for inventing has no significant influence. Furthermore, both analyses show that there is no moderation effect of entrepreneurial passion on experience and effectual orientation. However, the results are different when only novice entrepreneurs are included in the sample. In that situation it was possible to find a moderation effect and the variables influencing effectual orientation also

changed. Only passion for developing and the companies age seem to influence effectual orientation. Differences between both analysis could have been expected as novice and expert entrepreneurs do differ in various aspects from one another. However, these results are surprising because to my knowledge no previous researcher found that for instance a company's age is influencing an entrepreneur in their actions.

All in all, it can be said that the results of all tested hypothesis are valid and provide reliable results. It can be concluded that some of the results meet the expectations and are in line with previous findings while others are not. However, there are also some outcomes that are quite surprising and are not in line with the recent literature. This is mainly related to the differences between experts and novices that have not been found.

7.2 Implications

The underlying findings of this paper suggest that an entrepreneur's effectual orientation can be influenced by different entrepreneurial characteristics. These results can have both practical and theoretical implications.

In practical terms, this study highlights how different types of entrepreneurs frame their decisions and which characteristics influence the entrepreneur's way of thinking. These results could for instance help recruitment agents to focus on specific traits and entrepreneurial characteristics (e.g., passion for founding). By doing so, it could be possible to find applicants with a higher effectual orientation than others. This has the advantage of effectively selecting candidates that follow a specific decision-making approach that suits the strategy of the company best.

In theoretical terms, these results have different implications. First, the results of the regression analysis do not show that expert and novice entrepreneurs differ for effectual orientation. Although previous studies found the opposite it would be beneficial to understand why the results from this study are so different from previous research. One reason could be the research area. It could be possible that German entrepreneurs are different from entrepreneurs of other parts of the world. Furthermore, an additional sample of German entrepreneurs should be taken to confirm the results. At the same time, it would be interesting to know if the results still be the same when another threshold for the differentiation between expert and novice entrepreneurs is used. Thus, the results of this study contribute to the ongoing academic discussion about entrepreneurial decision-making processes and show that there are certain topics that need further validation and confirmation.

7.3 Conclusion

In the previous parts, the data has been analysed and discussed. The results of this analysis and discussion provide enough evidence to give an answer to the main research question of this paper:

RQ: How is entrepreneurial passion and entrepreneurial expertise influencing an entrepreneur's effectual orientation?

The outcome of the research shows that an entrepreneur's effectual orientation is not influenced by the degree of entrepreneurial expertise. This is quite surprising as previous

research found a relationship between those variables and even characterized the effectual decision-making approach as the logic of expertise (Sarasvathy & Dew, 2009). Nevertheless, on average the expert entrepreneurs had a stronger effectual orientation than novice entrepreneurs which is line with the literature. Although that result was not statistically significant, it shows that the results are close to the academic opinion (Farrington-Darby,2006; Dew, 2009; Werhahn, 2015). On the other hand, it was possible to identify a statistically significant influence of certain entrepreneurial passion domains on effectual orientation and that this influence is different for expert and novice entrepreneurs. While for expert entrepreneurs the domains passion for inventing and passion for developing influence effectual orientation, for novice entrepreneurs only passion for developing does. These results do not surprise as entrepreneurs are more passionate for one domain than for the others (Cardon, 2009). In this sense it can be concluded that an entrepreneur's effectual orientation can be influenced by different entrepreneurial characteristics.

8. Limitations & Recommendations

In this section of the paper, limitations, and recommendations for future research will be elaborated.

Due to the ongoing situation of a global pandemic (COVID-19) this study was facing some limitations that have to be mentioned. These limitations are mainly concerning the size of the sample and the collection method. As the sample was specifically focusing on German entrepreneurs it was extremely difficult to collect the minimum number of participants needed. This is because the ongoing Covid-19 pandemic and the associated restrictions made it hardly possible to get in touch with the target group. Thus, data collection was mainly done via E-Mail, online platforms such as Facebook and Reddit or private contacts. Although, participants were carefully selected, and questionnaires carefully reviewed there might be some concerns of reliability. It was possible to collect in total 125 questionnaires. This is not a lot compared to the total population of entrepreneurs but still a significant amount. However, the sample size can still be seen as a limitation of this study. This is because the threshold for novice and expert entrepreneurs had to be changed to guarantee a proper analysis. Especially, the number novice entrepreneurs, which are only 39 respondents, has an influence on the reliability and validity of the analysis conducted in section 6.3.4. Thus, the results should be interpreted with care and might not fully reflect the actual situation. In fact, for future research it can be recommended to extent the data collection phase in order to collect a sufficient number of questionnaires. In this process, it should be the focus to use different channels to contact the target group. Although respondents were selected carefully, most participants have been contacted via internet platforms (e.g., Facebook, LinkedIn, or Reddit). This means that it is possible that some interviews have been filled in by people that do not meet the requirements for participating. To conclude it can be said that both, the method of data collection and the amount of data that has been collected can be seen as a limitation of this study and thus, the results have to be interpreted carefully. Content wise, it can be advised to use a different scale for measuring the concept of effectuation because the scale by Werhahn (2015) is not purely developed for entrepreneurs themselves but also for employees and how they perceive the strategic direction of the company (Werhahn, 2015). Nevertheless, the scale has been proven to be reliable as the outcomes of the analysis show.

9. References

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10. Appendix

Appendix A – Cronbachs Alpha

Reliability analysis passion for inventing

Reliability Statistics

Cronbach's Alpha	N of Items
,836	5

Reliability analysis passion for founding

Reliability Statistics

Cronbach's Alpha	N of Items
,739	4

Reliability analysis passion for developing

Reliability Statistics

Cronbach's Alpha	N of Items
,835	4

Reliability analysis effectuation

Reliability Statistics

Cronbach's Alpha	N of Items
,919	18

Appendix B – Factor analysis

KMO and Bartlett-Test for entrepreneurial passion scale

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,862
Bartlett's Test of Sphericity	Approx. Chi-Square	738,725
	df	78
	Sig.	,000

KMO and Bartlett-Test for effectuation

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,859
Bartlett's Test of Sphericity	Approx. Chi-Square	1279,733
	df	153
	Sig.	,000

Factor analysis for entrepreneurial passion

Rotated Component Matrix[a]

	Component		
	1	2	3
1		,787	
2	,434	,733	
3		,756	
4	,651		
5		,671	
6			,838
7			,516
8	,403	,617	
9			,743
10	,703		
11	,737		
12	,833		
13	,675		,412

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 6 iterations.

Factor analysis for effectuation

Rotated Component Matrix[a]

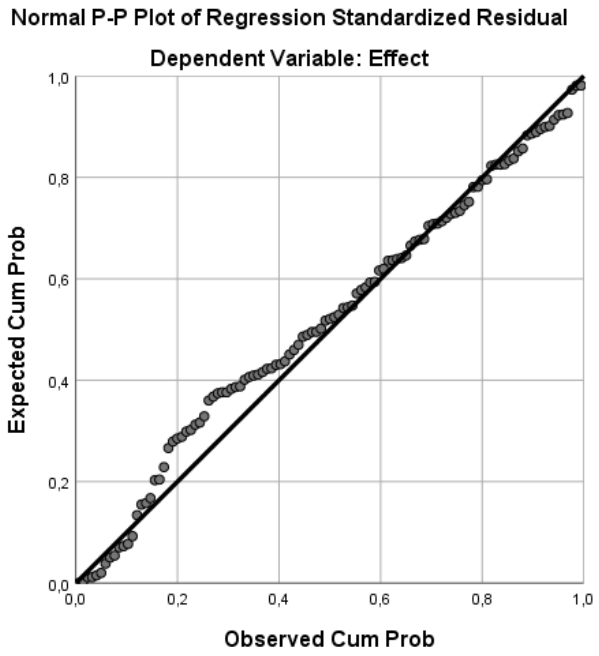
	Component			
	1	2	3	4
1	,787			
2	,803			
3	,703			
4			,539	
5	,404		,696	
6			,868	
7			,586	
8				,770
9				,794
10				,785
11	,610			
12	,772			
13	,754			
14	,625			
15		,668		
16		,793		
17		,715		
18		,863		

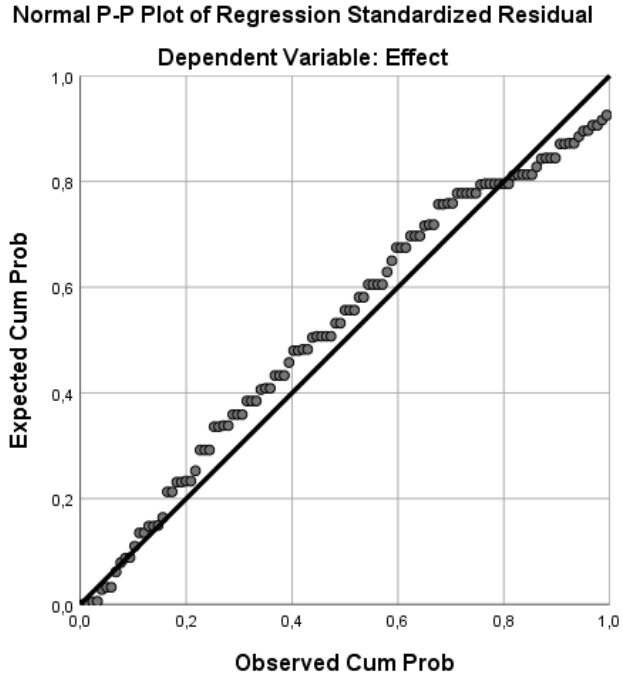
Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 5 iterations.

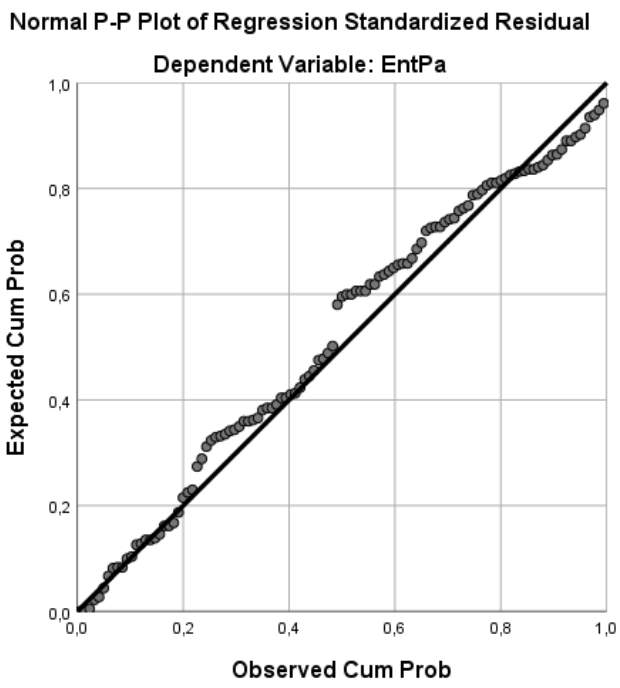
Appendix C – Normality

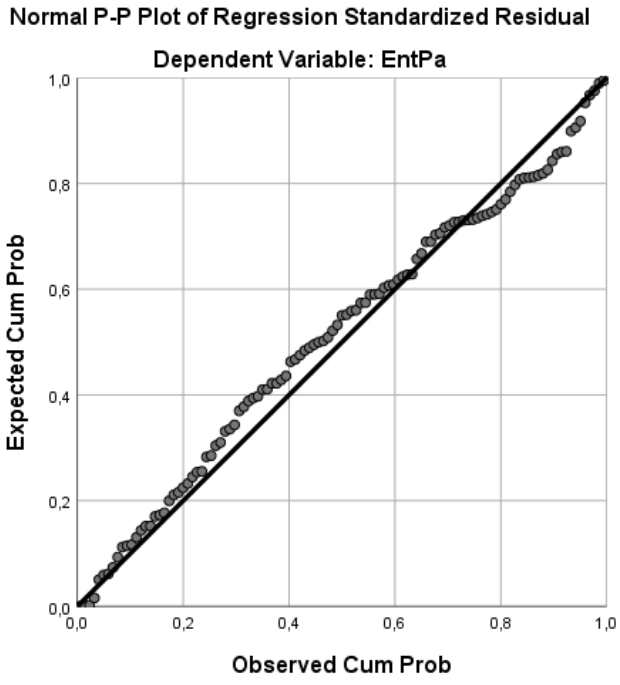
Descriptives

			Statistic	Std. Error
Effect	Mean		5,5993	,08396
	95% Confidence Interval for Mean	Lower Bound	5,4330	
		Upper Bound	5,7657	
	5% Trimmed Mean		5,6704	
	Median		5,7778	
	Variance		,796	
	Std. Deviation		,89246	
	Minimum		2,00	
	Maximum		6,78	
	Range		4,78	
	Interquartile Range		1,25	
	Skewness		-1,230	,227
	Kurtosis		2,082	,451
EntPa	Mean		5,4617	,09674
	95% Confidence Interval for Mean	Lower Bound	5,2700	
		Upper Bound	5,6533	
	5% Trimmed Mean		5,5363	
	Median		5,5500	
	Variance		1,058	
	Std. Deviation		1,02839	
	Minimum		1,93	
	Maximum		6,92	
	Range		4,98	
	Interquartile Range		1,43	
	Skewness		-1,021	,227
	Kurtosis		1,330	,451


Normal P-P Plot of Regression Standardized Residual
Dependent Variable: Effect
Expected Cum Prob
Observed Cum Prob
0,0
0,2
0,4
0,6
0,8
1,0


Normal P-P Plot of Regression Standardized Residual
Dependent Variable: Effect
Expected Cum Prob
Observed Cum Prob
0,0
0,2
0,4
0,6
0,8
1,0


Normal P-P Plot of Regression Standardized Residual
Dependent Variable: EntPa
Expected Cum Prob
Observed Cum Prob
0,0
0,2
0,4
0,6
0,8
1,0


Normal P-P Plot of Regression Standardized Residual
Dependent Variable: EntPa
Expected Cum Prob
Observed Cum Prob
0,0
0,2
0,4
0,6
0,8
1,0

Appendix D – Correlation analysis

Correlations[a]

			Welches Geschlecht haben Sie?	Wie alt sind Sie? (Bitte nur numerisch antworten)	PassInv	PassFo	PassDe	Wie viele Jahre sind Sie bereits Unternehmer/in? (Bitte nur numerisch antworten)	Effect
Spearman's rho	Gender	Correlation Coefficient	1,000						
		Sig. (2-tailed)	.						
		N	36	36	36	36	36	36	36
	Age	Correlation Coefficient	,057	1,000					
		Sig. (2-tailed)	,741	.					
		N	36	36	36	36	36	36	36
	PassInv	Correlation Coefficient	-,006	,093	1,000				
		Sig. (2-tailed)	,973	,588	.				
		N	36	36	36	36	36	36	36
	PassFo	Correlation Coefficient	,151	,105	,788**	1,000			
		Sig. (2-tailed)	,379	,541	,000	.			
		N	36	36	36	36	36	36	36
	PassDe	Correlation Coefficient	,184	-,087	,697**	,544**	1,000		
		Sig. (2-tailed)	,282	,614	,000	,001	.		
		N	36	36	36	36	36	36	36
	Years entrepreneur	Correlation Coefficient	-,319	,183	,118	,046	,041	1,000	
		Sig. (2-tailed)	,058	,285	,492	,791	,814	.	
		N	36	36	36	36	36	36	36
	Effect	Correlation Coefficient	-,078	,037	,788**	,702**	,658**	,216	1,000
		Sig. (2-tailed)	,651	,833	,000	,000	,000	,205	.
		N	36	36	36	36	36	36	36

**. Correlation is significant at the 0.01 level (2-tailed).

a. Experience = Novice

Correlations[a]

			Welches Geschlecht haben Sie?	Wie alt sind Sie? (Bitte nur numerisch antworten)	PassInv	PassFo	PassDe	Wie viele Jahre sind Sie bereits Unternehmer/in? (Bitte nur numerisch antworten)	Effect
Spearman's rho	Gender	Correlation Coefficient	1,000						
		Sig. (2-tailed)	.						
		N	77	77	77	77	77	77	77
	Age	Correlation Coefficient	-,064	1,000					
		Sig. (2-tailed)	,579	.					
		N	77	77	77	77	77	77	77
	PassInv	Correlation Coefficient	-,271*	,196	1,000				
		Sig. (2-tailed)	,017	,088	.				
		N	77	77	77	77	77	77	77
	PassFo	Correlation Coefficient	-,019	,225*	,439**	1,000			
		Sig. (2-tailed)	,867	,049	,000	.			
		N	77	77	77	77	77	77	77
	PassDe	Correlation Coefficient	-,069	,187	,560**	,588**	1,000		
		Sig. (2-tailed)	,553	,102	,000	,000	.		
		N	77	77	77	77	77	77	77
	Years entrepreneur	Correlation Coefficient	-,143	,689**	,107	,351**	,225*	1,000	
		Sig. (2-tailed)	,215	,000	,356	,002	,049	.	
		N	77	77	77	77	77	77	77
	Effect	Correlation Coefficient	,026	,247*	,467**	,477**	,699**	,262*	1,000
		Sig. (2-tailed)	,825	,031	,000	,000	,000	,021	.
		N	77	77	77	77	77	77	77

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

a. Experience = Expert

Appendix E – Regression analysis H3-H6

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,274[a]	,075	,049	,86949
2	,758[b]	,574	,550	,59855
3	,758[c]	,574	,546	,60105

a. Predictors: (Constant), Company_, AGE_, GENDER_
b. Predictors: (Constant), Company_, AGE_, GENDER_, PassDe, PassFo, PassInv
c. Predictors: (Constant), Company_, AGE_, GENDER_, PassDe, PassFo, PassInv, Moderator_2

Table 11: Entrepreneur Model Summary H3 – H6

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6,635	3	2,212	2,925	,037[b]
	Residual	81,649	108	,756		
	Total	88,284	111			
2	Regression	50,666	6	8,444	23,570	,000[c]
	Residual	37,618	105	,358		
	Total	88,284	111			
3	Regression	50,713	7	7,245	20,054	,000[d]
	Residual	37,571	104	,361		
	Total	88,284	111			

a. Dependent Variable: Effect
b. Predictors: (Constant), Company_, AGE_, GENDER_
c. Predictors: (Constant), Company_, AGE_, GENDER_, PassDe, PassFo, PassInv
d. Predictors: (Constant), Company_, AGE_, GENDER_, PassDe, PassFo, PassInv, Moderator_2

Table 12: Entrepreneur ANOVA H3 – H6

Model Summary[a]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,246[b]	,061	-,027	,91932
2	,811[c]	,657	,586	,58330
3	,871[d]	,759	,698	,49820

a. Experience = Novice
b. Predictors: (Constant), Company_, GENDER_, AGE_
c. Predictors: (Constant), Company_, GENDER_, AGE_, PassInv, PassDe, PassFo
d. Predictors: (Constant), Company_, GENDER_, AGE_, PassInv, PassDe, PassFo, Moderator_2

Table 14: Novice Entrepreneur Model Summary H3 – H6

ANOVA[a,b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1,744	3	,581	,688	,566[c]
	Residual	27,045	32	,845		
	Total	28,789	35			
2	Regression	18,922	6	3,154	9,269	,000[d]
	Residual	9,867	29	,340		
	Total	28,789	35			
3	Regression	21,839	7	3,120	12,570	,000[e]
	Residual	6,950	28	,248		
	Total	28,789	35			

a. Experience = Novice
b. Dependent Variable: Effect
c. Predictors: (Constant), Company_, GENDER_, AGE_
d. Predictors: (Constant), Company_, GENDER_, AGE_, PassInv, PassDe, PassFo
e. Predictors: (Constant), Company_, GENDER_, AGE_, PassInv, PassDe, PassFo, Moderator_2

Model Summary[a]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,331[b]	,109	,072	,85396
2	,784[c]	,615	,582	,57348
3	,792[d]	,628	,589	,56817

a. Experience = Expert
b. Predictors: (Constant), Company_, GENDER_, AGE_
c. Predictors: (Constant), Company_, GENDER_, AGE_, PassDe, PassInv, PassFo
d. Predictors: (Constant), Company_, GENDER_, AGE_, PassDe, PassInv, PassFo, Moderator_2

Table 17: Expert Entrepreneur Model Summary H3 – H6

ANOVA[a,b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6,442	3	2,147	2,945	,039[c]
	Residual	52,505	72	,729		
	Total	58,948	75			
2	Regression	36,255	6	6,042	18,373	,000[d]
	Residual	22,693	69	,329		
	Total	58,948	75			
3	Regression	36,996	7	5,285	16,372	,000[e]
	Residual	21,951	68	,323		
	Total	58,948	75			

a. Experience = Expert
b. Dependent Variable: Effect
c. Predictors: (Constant), Company_, GENDER_, AGE_
d. Predictors: (Constant), Company_, GENDER_, AGE_, PassDe, PassInv, PassFo
e. Predictors: (Constant), Company_, GENDER_, AGE_, PassDe, PassInv, PassFo, Moderator_2

Table 18: Expert Entrepreneur ANOVA H3 – H6

Appendix F – Interview Questions Effectual Orientation

Bitte geben Sie an, inwiefern Sie den **folgenden Aussagen** zustimmen:

Wir**, die Manager des Unternehmens**, legen Wert darauf, dass sowohl **wir persönlich als auch unsere Mitarbeiter…**

- persönliches Wissen nutzen, wenn dieses wertschaffend ins Unternehmen eingebracht werden kann. (1)
- versuchen die Initiativen im Unternehmen zu verfolgen, bei denen wir ein persönliches Interesse an der Mit-Gestaltung haben (1)
- die Initiativen im Unternehmen verfolgen, für die wir persönlich relevante Kompetenzen mitbringen. (1)
- in bestehenden Kooperationen anstreben, dass Gewinne und Risiken gerecht geteilt werden (2)
- frühzeitig das Gespräch mit potenziellen Partnern suchen, um mit diesen gemeinsam die Zukunft zu gestalten. (2)
- Geschäftsbeziehungen eingehen, bei denen die Partner bereits im Vorfeld bereit sind sich zu engagieren (bspw. Zeit investieren).(2)
- neue Akteure auf dem Markt als potenzielle Partner wahrnehmen. (2)
- nur in Maßnahmen investieren, wenn unser Unternehmen sich den Verlust der investierten Ressourcen leisten kann ohne handlungsunfähig zu werden (3)
- versuchen bei der Verfolgung neuer Initiativen den möglichen Verlust auf ein tragbares Maß zu begrenzen. (3)
- nur investieren, wenn ein Investitionsverlust das Unternehmen nicht ruinieren würde (3)
- unvorhergesehene Ereignisse als neue Chancen begreifen. (4)
- Überraschungen so vorteilhaft wie möglich zu nutzen (4)
- neue Informationen als potenzielle Ressourcenquellen nutzen. (4)
- versuchen aus externen Bedrohungen oder Rückschlagpotentialen neue Chancen zu entwickeln. (4)
- versuchen, uns nicht nur der Umwelt anzupassen, sondern sie auch selber mitzugestalten. (5)
- versuchen, zusammen mit anderen pro-aktiv die Umwelt mitzugestalten. (5)
- versuchen, zusammen mit Partnern Zukunftsmärkte zu schaffen. (5)
- versuchen, Trends zu beeinflussen. (5)

Appendix G – Interview Questions Entrepreneurial Passion

Bitte wählen Sie in den folgenden Abschnitten jeweils die Antwort aus, mit welcher Sie am ehesten Übereinstimmen.

- Es ist aufregend neue Lösungswege zu finden, um ungedeckte Marktnachfragen zu befriedigen, die kommerzialisiert werden können.
- Die Suche nach neuen Ideen für Produkte/Dienstleistungen, die angeboten werden können, erfreut mich.
- Ich bin motiviert herauszufinden, wie ich existierende Produkte/Dienstleistungen verbessern kann.
- Das Scannen des Umfeldes (Marktes) nach neuen Möglichkeiten reizt mich sehr.
- Das Erfinden neuer Lösungen für Probleme ist ein wichtiger Teil meiner Persönlichkeit.
- Die Gründung eines neuen Unternehmens reizt mich.
- Meine eigene Firma zu besitzen, treibt mich an.
- Es ist erfreulich, ein neues Unternehmen durch seinen entstehenden Erfolg zu fördern.
- Der Gründer eines Unternehmens zu sein, ist ein wichtiger Teil meiner Persönlichkeit.
- Ich mag es sehr, die richtigen Leute zu finden, an die ich mein Produkt/meine Dienstleistung vermarkten kann.
- Es ist aufregend, die richtigen Leute zusammenzustellen damit sie für mein Unternehmen arbeiten.
- Es motiviert mich, meine Mitarbeiter und mich selbst anzutreiben, um unser Unternehmen zu verbessern.
- Unternehmen zu fördern und aufzuziehen ist ein wichtiger Teil meiner Persönlichkeit.