MASTER THESIS

Does market orientation in the early startup phase pay off?

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Abstract

This paper explores the concept of market orientation in the context of startup companies. The link between market orientation and performance has been abundantly researched. However, the effect of market orientation within startups specifically, has not been researched. The goal of this research was to find out to what extent startups adopt market orientation, and how market orientation in conjunction with the lean startup method could be developed to increase startup performance in different phases.

To achieve this, 172 startups within the Netherlands and Belgium were surveyed about their market orientation, lean startup method application and growth performance.

The quantitative data analysis has shown that market orientation is more pronounced in startups than in two samples of established companies that were researched previously. The performance (or success) of startups was measured as "employee growth rate" and "revenue growth rate". Startup performance was found to be significantly positively influenced by market orientation and the phase of the startup. No significant relationship between the lean startup method and performance was found. Additionally the marketing function and the international ambitions of a startup had a positive effect on startup performance. Company age on the other hand, negatively influences the performance/growth of a startup.

The research concludes that market orientation from an early stage is beneficial for startups. To achieve success a startup is recommended to focus on moving on to the next phase while maintaining a market oriented approach. As apposed to setting continuity as a primary goal. The paper has found significant statistical evidence to support these claims in the combined Dutch and Belgian startup climates.

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Chapter 1. Introduction

1.1 Research motivation

A successful startup is an entrepreneur's holy grail. The quest to finding it however, is not an easy one. Estimates indicate only 1 in 10 start-ups actually becomes successful (Patel, 2015). This means roughly 90% of all startups will fail. More scientific and specific numbers are difficult to come by, but the bottom line is: any startup company is much more likely to fail than to succeed. If successful however, a startup could possibly reach "unicorn" status. 0,07% of all venture backed startups reach the magic \$1 billion valuation which classifies a company as a "unicorn". From European startups founded in the past decade 27 have reached the magic \$1 billion marker. (Trajkovska, 2019)

Even though the failure rate of startups is high, startups can be of significant importance to a country's economy. According to de Mol (2020) startups in the Netherlands have created over 100.000 jobs in the last 2 years alone. In addition, from 2013 to 2020 startups have provided the Netherlands with approximately 44 billion euros in economic value.

Research by CBINSIGHTS (2019) shows that the most common reason for the failure of startups is the lack of market need. One of the basic elements in business model design is the analysis of market need, if the most common reason for failure is insufficient- or no market need, then perhaps startups do not put enough thought or effort in market research and the demand of their product or service.

Hence, it seems that many start-up companies focus too much on the relative advantages of product or innovation without considering how their product reflects actual or latent customer needs. Considering the chances of success and failure, a well-known mantra of startups is: Fail fast, and fail often. This means entrepreneurs should not continue a concept which is destined to fail. Eventual success may be more likely to occur by cutting losses and attempting something radically new.

By increasing and expediting the process of market orientation, startups should be able to assess the viability of their business idea and either better address the market need or realize their idea is destined to fail, cut their losses and invest time and resources in a different idea, thus significantly increasing their chances of eventual success. Not only can startup success rates be increased, also the waste of resources and time that is unnecessarily invested in unsuccessful startups can be reduced. As "The biggest waste is creating a product or service that nobody needs" (Mueller & Thoring, 2012). In today's sustainability environment this should prove an interesting concept.

Startups generally operate in a relatively new and highly uncertain environment, inexperience of the entrepreneur(s) could explain a lack of understanding in the concept and importance of market orientation. (Bhuian, Menguc & Bell, 2005) Or perhaps a lack of resources in the early stages of a new venture forces startups to make concessions on market orientation. Acquiring additional data about the degree of market orientation in startups can perhaps provide more insights in these theories.

This research focusses on Dutch and Belgian startups, Both market orientation research has been performed in the Netherlands and Belgium, as well as research related to the Dutch and Belgian startup ecosystems. However, no research has been found linking market orientation to startups specifically. One Study in the Netherlands (Langerak, Hultink & Robben, 2004) has linked market orientation to new product development success. Their research focused more on the process of new product development in market oriented firms, but shows that market orientation can have a significant positive effect on startup related activities in the Dutch market. Langerak et al. (2004) found no direct relationship between market orientation and organizational performance. There is no existing literature about the specific effects of market orientation in startups. This research



attempts to bridge this gap, and find a relationship between market orientation and startup performance within the Netherlands, where the literature has not yet found one.

For many startups the Lean startup method or LSM (Ries, 2011), a method which is currently taught to business students on universities worldwide (Blank, 2020), is applied in startup market entry. The LSM focusses on the importance of discovering customer needs in order to increase the adoption rate of new products and services. Both market orientation- and LSM principles should prove useful in startup development.

1.2 Research objective

The goal of this research is to examine to what extent startups adopt market orientation in the development of their new venture and if this contributes to performance. A second goals is to provide insights on how market orientation (both as a logic and practice) can be developed in conjunction with the LSM for startups to increase their growth performance.

1.3 Research question

" To what extent does market orientation in conjunction with the lean startup method influence performance in startup phases?"

In order to answer the research question, this research aims to investigate several concepts. Which will be further discussed in the theoretical framework section of Chapter 2

1.4 Academic relevance

Sparse academic studies have been performed on the market and sales related aspects of startups. Goals of this research are: to confirm or reject that market orientation in startups is lacking, to gain insights into why market orientation in many startups receives no or insufficient attention and to explore the motives and drivers of startups concerning market orientation.

By means of this research a clear shortcoming of startups in terms of their ability to adopt market orientation may be uncovered, which may potentially provide a concept of low effort and high reward if improved and further researched. If the degree of market orientation within startups is researched this can provide new insights in the fields of entrepreneurship, strategy and innovation. Currently there is a research gap linking startups and market orientation. There is no clear understanding of when new companies should start their market orientation. This paper aims to link the research concept of marketing orientation to the research concepts of startup companies.

1.5 Practical relevance

The practical relevance is the prime antecedent for this research. STEM Industrial marketing and Salemate are innovation network organizations that host business development programs in industrial marketing, sales and innovation. Willem de Vries from STEM and Hugo Stijnen from Salemate noticed the problem of insufficient market orientation in startups and indicated scientific research could be of significant practical use. Collaborating with both startups and academic researchers STEM and Salemate suggested the research topic of this research. Especially for startups the information could prove useful. Perhaps the importance of market orientation will become evident, and startups can be advised to increasing their market orientation, or at least be made aware of the risks of insufficient market orientation. Improvements should be possible without too much effort for a startup. Both time and money could be saved both by entrepreneurs and investors.



Currently it may be unclear for startups when to start market orientation, if at all. A clear indication that market orientation could improve startup performance can provide useful practical information for new business ventures and entrepreneurs alike.



Chapter 2. Theoretical framework

2.1 Startups

In today's global economy startup firms are considered key players in economic development, because of job creation, economic growth stimulus and innovation. (Tripathi et al., 2019) the focus of this research is on technical startups and young organizations that are currently in the initial phases of starting a company. Scientific and exact numbers about startups are difficult to come by and differ for each year, each country, each industry and even for each different definition of success. There is no official registration which classifies a company as a startup, the study of startups is therefore, not always simple and convenient.

Blank (2012) defined a startup as: "a temporary organization in search of a scalable, repeatable, profitable business model,". On the other hand Erik Reis (2011) defined a startups as: "a human institution designed to create a new product or service under conditions of extreme uncertainty." Reis also states that startups should be focused on growth within a short period of time and should have the ambitions to grow on a global scale. This excludes for instance: small restaurants, a consultant or a small local shop from the classification of startup (Robehmed, 2013). Crowne (2002) described a startup as an organization with limited experience, working with inadequate resources, and influenced by several factors, such as investors, customers, competitors, and the use of dynamic product technologies. In this research the definition of Reis (2011) is leading.

The chances of success for a startup company are dependent on many different facets. The foundation is a business idea of high standard. However, according to Spinelli et al. (2014) a good business idea is not necessarily a good business opportunity, because for every one hundred business ideas presented to investors fewer than four receive funding. The success of a startup venture is dependent on many more factors, some of the main factors mentioned by Song et al. (2008) are: market & opportunity, entrepreneurial team, and resources. As discussed before, according to current research the most common reason for failure of startups is the lack of market need. (CBInsights, 2019) One of the basic elements in business model design is the analysis of market need.

According to Hills & Hiltman (2011), the process of marketing is relevant to entrepreneurship in capturing opportunities at an early stage. Additionally leveraging knowledge about customers, market and technologies creates a competitive advantage (Hills et al., 2008). A focus on customers and the market in general, could improve the performance of startups, or at the very least assist in the identification of business opportunities.

2.2 Market orientation

CBInsights (2019) mentioned the lack of customer need as the main reason startups fail. Market orientation is a subject that encompasses the analysis of market need. Considerable research has been done in the field of market orientation. Although many similar, but slightly different definitions of market orientation exist. Kohli & Jaworski (1994) define market orientation as: "the organization wide generation of market intelligence pertaining to customers, competitors, and forces affecting them, internal dissemination of the intelligence, and reactive as well as proactive responsiveness to the intelligence.". According to Slater & Narver (1994) market orientation consists of three major components: customer orientation, competitor focus and other significant market influencers such as regulators and suppliers. Market orientation is a process that identifies market need, and focusses on "creating value for buyers, value that is created through the core competences of a company" (Slater & Narver, 1994). Slater & Narver have conveniently illustrated in their model (Figure 1) that Market orientation should determine the core capabilities of a company, which will then lead to a sustainable competitive advantage and favorable business performance. This positive effect on



business performance is confirmed by other researchers. (Jaworski & Kohli, 1993; Perry & Shao, 2002 & Dwairi et al., 2007, Kirca et al., 2005)

Figure 1: Market orientation model by Slater & Narver (1994)



Even though the link between Market Orientation and business success has been investigated and proved extensively, the link between entrepreneurial ventures such as startups and market orientation is scarce. Migliori et al. (2017) performed a study of university spin-offs, and they found that firm performance and survival depended on the balance of market orientation and other strategic orientations. Concerning this research, market orientation should prove a useful concept in counteracting the lack of market need and increasing the performance of companies in general, but also startups.

A startup is designed to create new products and services under uncertain conditions (Ries, 2011). The dominant operating environments of startups include new product development. Significant amounts of research has been done in the field of new product development and innovation. The "classic approach" of new product development and innovation, is an approach which is led by the manufacturer or the new technology that has been developed. This entails that an organization develops a new product or service, and the main focus is to manufacture it and sell it to a customer without extensive research into what the customer/market needs. Since the late 80's and early '90's the consensus on new product development and innovation research, has shifted from manufacturer/technology led or customer-led to an interaction process between manufacturers and customers (Renko et al. 2009).

According to Blank (2020), many companies that bring new products to the market use some sort of "the product development model". This model starts with a concept product, followed by a development, testing and launch phase. Blank argues this approach is flawed, because the greatest risk of startups is not in their product, but in the development of customers and markets. If a product is finished and production starts, before there is a proper market, start-ups risk depleting one of their most important assets: their financial assets. Before a startup can scale up their production, and develop a marketing strategy for their products Blank recommends learning and discovering customer needs, before scaling up, as an iterative process of new product development. This means startups might need to reconsider their short term goals, when current focus is on increasing sales without observing market need. Other research confirms that new product development projects are more likely to achieve success when customer needs are considered than when they are strictly based on exploiting a technological opportunity. (Cooper, 1993, Rothwell, 1992, Holt et al., 1984). According to Pohl (2014) In a lot of cases the problematic part of a success invention is not the invention itself, but the market commercialization of the newly developed technology.

2.3 Lean startup method

The LSM (Lean Startup Method) by Ries (2011) evolved from the customer development method by Blank (2006). The common good of these methods is that apart from a product development process a startup should employ a customer development process. This coincides with what is believed to be the main reason for failure of startups: "No market need" (CBinsights, 2019). This view that startups should focus on customer development is confirmed by the market orientation research of Slater &



Narver (1994), who do not focus on startups specifically, but on businesses in general. Their concepts of market orientation determining the core capabilities of a company, which will then lead to a sustainable competitive advantage and favorable business performance.

The LSM has grown to become one of the best known methods for creating and managing new ventures. (Ries, 2011). According to Jimale (2014) the LSM is a method which employs a strong focus on mitigating the high failure rate of new ventures. At the heart of the LSM, a method which is currently taught to business students on universities worldwide (Blank, 2020), is the importance of discovering customer needs in order to increase the adoption rate of new products and services. These customer needs are discovered and learned through primary market research techniques. The LSM is about achieving the maximum amount of customer learning, with the least amount of effort.

According to Harms & Schwery (2019) Entrepreneurs use the LSM to develop their initial idea toward a validated and scalable business. Hence, the LSM is a method of opportunity exploration. The LSM may be preceded by and interwoven with design thinking that emphasizes that entrepreneurs gain a deep understanding of customer/user needs.

2.4 LSM & Market Orientation

In this research the market orientation as described by Slater & Narver and Kohli & Jaworski in conjunction with the LSM (Ries, 2011) was selected as the theoretical foundation. The focus of this research is exclusively upon startup ventures. Different rules apply for early stage startups with a conceptual technological idea compared to established companies. When small scale startups employ a market orientation strategy they are likely to follow a less formal approach to generate market intelligence (Sommer, 2018). Startups are characterized by a high degree of uncertainty (Ries, 2011) and typically before financing a scarcity of resources. Early-stage-startup-companies are likely to have insufficient resources for a full scale market orientation approach. Thus, market orientation is suspected to be an incompatible method for at least some startups. Depending on the type of startup, the stage the startup is in and the resources available to a startup, perhaps another method such as the LSM or an integration of both the LSM and market orientation should be applied.

A study from Australia found that market orientation and innovativeness in early stage small enterprises is related to firm performance. (Seet et al., 2020) Whether market orientation is a suitable concept to apply in startups is something to be confirmed by this research. Market orientation in the form of development of core capabilities to achieve sustainable competitive advantage, could add to the robustness of the lean startup method. Therefore, the aim of this research is to find out to what extent startups within the Netherlands adopt a market orientation strategy, and perhaps integration or diversion from MO to the LSM can increase market success rates of startups.

According to Harms & Schwery (2019) one of the main dimensions of the LSM is the generation of customer insight, which they describe as the capability to understand customers and users deeply. They state this approach is built on the market orientation strategy of Slater & Narver (2018). This suggests the two concepts (MO & LSM) are complimentary. While there is no specific scale to measure the application of the LSM, MO is a concept that can be measured.

2.5 Startup Phase

In this research it is expected that the phase of a startup will have an influence on the degree of market orientation and the performance of a startup. The age of a company in years, does not necessarily coincide with the phase of a company. Even though different phases for companies are described in the literature, there is no formal method for describing the phase of a startup



specifically. Most business life cycle models use the startup phase as one single element in their models. In general startup phases seem to have significant overlap with product development phases. Crowne (2002) outlined product development in four life cycle stages, which are startup, stabilization, growth, and evolution. Wang et al. (2016) used six product development stages (concept, in development, working prototype, functional product with limited users, functional product with high growth, and mature product) to analyze the distribution of software startups.

Van Gelderen et al. (2005) performed a study of startups and included the pre-startup phase. They mention four phases. The first phase concerns the development of an intention to start an enterprise. In the second phase an entrepreneurial opportunity is recognized and a business concept is developed. In the third phase resources are assembled and the organization is created. In the final phase the organization starts to exchange with the market. The first phase takes place before the startup actually exists. The concept development phase is where an idea may start to be classified as a startup. The third and final phase is were a startup becomes tangible.

Bass (2016) suggests a 5 stage startup model that consists of 1: Problem/Solution Fit 2: Minimum Viable Product (MVP) 3:Product/Market Fit 4: Scale 5: Maturity. This model is used as a starting point, but for this paper a new startup phase cycle is proposed to analyze the phase of the startup. This cycle is also based on product development cycles and the cycles mention by van Gelderen et al. (2005), but adapted to be generally used in startup stage identification. Figure 2 shows that the proposition of a 5 stage model. Stage 1 is the conceptualization stage in which the idea of the company is formed. Stage 2 is the face in which the fit between the product/service and the market is developed. In phase 3 the product/market fit is established. Phase 4 is the scaling phase, in which the company will attempt to grow into a full enterprise. Ergo, phase5 is defined as: full enterprise.

Figure 2: Startup phases



2.6 Startup performance

Business performance is a concept that is often researched. According to Venkatraman and Ramanujam (1986), the most common financial performance is measured on the basis of ROI, ROE, profit growth, and sales growth. These indicators are interesting for established companies, for startups however, these statistics are not readily available and do not indicate their performance per se. Some startups do not even sell a product or service yet, because they are still in the product development or conceptualization stage. These "hard numbers" do not suffice for startups.

Some authors measured firm performance using a Likert scale to ask respondents to rate the firm's performance compared to its competitors over the last three years from "1" ("very low") to "5" ("very high") on these items (Wei et al., 2014; Dess and Robinson, 1984; Li and Zhang, 2007). However, this is a highly subjective method which does not necessarily capture startup performance, but entrepreneurial optimism.

According to Stefanovic (2010) the easiest method to measure startup success is by assessing the survivability of a firm, this can be achieved by following the start-ups from an early phase. Measuring motivation, human capital and financial capital. Van gelderen et al. (2005) researched entrepreneurial success in the creation of new ventures. They also stressed that to measure the



success of startups, they should be measured from the pre-startup phase. To perform this research entrepreneurs should be surveyed multiple times over the course of multiple years. A comparable approach which includes tracking down and questioning failed startup is beyond the scope of this research.

According to Hmieleski & Ensley (2007) growth is often cited as the most important objective of new ventures. To measure this growth, they used revenue growth and employee growth. Hmielski & Ensley's method seems an adequate fit for this research.

2.7 Hypotheses

2.7.1 Hypothesis 1

The main goal of this research is to investigate the relationship between Market Orientation and startup performance. There has been significant research on the link between MO and performance, and although not conclusive in every paper, or applied to startups. In general most studies found a significant positive relationship between MO and performance. (Jaworski & Kohli, 1993; Perry & Shao, 2002 & Dwairi et al., 2007; Kirca et al., 2005 Migliori et al., 2017) It is expected that a higher degree of market orientation will lead to higher startup performance. Therefore the primary hypothesis is formulated as follows:

Hypothesis H1: The degree of market orientation is positively related to startup performance.

2.7.2 Hypotheses 2 & 3

The literature suggests that the LSM principles can help new ventures in becoming successful. (Ries, 2011; Jimale, 2014; Blank, 2020) Testing the market using a Minimum Viable Product is one of the core principles of the LSM. Application of the recommendations made by the LSM is therefore expected to positively influence startup performance as does MO. Releasing a Minimum Viable Product to test the market as the LSM suggests, should lead to companies scoring higher on market orientation questions. Market orientation and the LSM should be complementary concepts. Therefore, the following two hypotheses are proposed.

Hypothesis H2: The application of the LSM is positively related to startup performance

Hypothesis H3: The application of the LSM is positively related to the degree of market orientation.

2.7.3 Hypothesis 4

Moving a startup to the next phase as described in figure 2 (p.6), is expected to coincide with growth and increased performance, to test this, the third hypothesis is formed.

Hypothesis H4: The later the phase of a startup the higher startup performance.

2.7.4 Hypothesis 5

If there is a positive effect of the degree of market orientation and the application of the LSM on startup performance, then perhaps this effect will be stronger when applied in an earlier phase. This will be investigated by the following hypothesis.

Hypothesis H5: Starting MO & LSM principles at an early phase will have a stronger effect on performance than when adopted in subsequent phases.

2.7.5 Hypothesis 6

It is expected that the degree of market orientation in startups is lower than in established companies. CBInsights (2019) suggested that a lack of market need was the primary reason for startup failure. It is expected that market orientation will develop along with the company to achieve



the level of established companies somewhere along a startup's lifespan. This implies that the marketing orientation will be significantly lower in the average startup than in established companies The data from Kohli et al. (1993) and Ophof (2020) can be used to compare the degree of market orientation. This will be investigated in the final hypothesis.

Hypothesis H6: The degree of market orientation in startups is lower than in established companies.

2.8 Conceptual model

To visualize the hypotheses described in the previous subchapter, a conceptual model is formed (figure 3). The model consists of 4 variables. startup phase, degree of Market Orientation, Lean Startup Method application and startup performance. Startup performance is the dependent variable, the other variables are all independent variables. An interaction effect between phase and the degree of market orientation and LSM application is to be expected and will be investigated in chapter 4.

Figure 3. Conceptual model





Chapter 3. Methodology

3.1.1 Research approach

The aim of this research is to explore the degree of market orientation in startups within the Netherlands and Belgium. To achieve this a quantitative research was performed. Ultimately 171 startups filled in the survey. (n=171)

3.1.2 Geographical location

The Netherlands and Belgium were chosen for practical reasons. Primarily the research proposal was set up for the Dutch startup market. However, the first contact with startups was to take place in the area of Eindhoven in coordination with the companies STEM Industrial Marketing Centre and Salemate. Eindhoven is a city in the Netherlands close to the Belgian border, and some of their contacts were based in Belgium. A higher number of respondents was preferred over limiting the research to only the Netherlands. Affinity with the Dutch language and a better understanding of the local business culture also motivated the selection of geographical location.

3.1.3 Type of research

Quantitative research is the method used in this paper, Quantitative research was chosen over qualitative research, because it is better suited for larger samples, to test hypotheses, look at cause and effect & make predictions (Williams, 2007; Apuke, 2017,) A requirement of using this method was the acquisition of sufficient respondents.

The quantitative data collection method of the research consists of a questionnaire that can be found in appendix 1. The questionnaire was developed to measure 3 basic constructs, 1: market orientation 2: performance 3: LSM application. Additionally a fourth construct was added to uncover more about the basic characteristics of a startup, this construct included the international ambitions, marketing and sales functions of the startup. The surveys was published using survey software Qualtrics, a web-based survey tool. The majority of respondents were contacted via e-mail which contained a link to the survey, which they could fill in from their web browser. In the construction of the questionnaire, the layout and the content of the e-mail Gideon's (2016) methods were used. The e-mails were short, clear and concise, without pictures or other fancy design as he recommends in the Handbook of survey methodology.

To provide some incentive for participation, respondent could select a box at the end of the survey to win a free year membership to STEM Industrial marketing centre. Based on a meta-analysis, Göritz (2006) concluded that incentives increase response rates for Web-based surveys.

After the collection process, the data is exported and analyzed through SPSS, a statistical software platform to analyze data and extract insights. The focus of the research is on Marketing Orientation, therefore, MO questions shall be prioritized. The goal is to keep the survey short enough to be completed within 10 minutes to maintain respondents attention and enable a high amount of fully completed surveys. (Gideon, 2016)

3.1.4 Population and sample size

The population that will be researched includes all startups within the Netherlands and Belgium. The aim was to find a sample size of 40 respondents or more, but preferably a sample size above 100. If the sample size would be below 40 respondents a qualitative section would be necessary to make assumptions about hypotheses. If the respondents were between 40 and 100 interviews might still have been necessary, but if the sample size exceeded 100 respondents interviews would only be needed if the data had inexplainable outcomes that would be interesting to explore further. A



sample size of approximately 100 is enough to achieve a margin of error of 0,03 with P = 0,5 (Kotrlik & Higgins, 2001).

In total 172 responses have been collected, no qualitative interview methods have been performed.

Primarily two methods were used to collect respondents. The first method was through the network of Willem de Vries from STEM-Industrial marketing centre. Mr. de Vries contacted his business network both through LinkedIn and through personal connections with Hugo de Groot from SaleMate and GeenPac iLab. These methods resulted in approximately 30 full respondents. The exposure of these methods is classified as "large", but it is impossible to assess how many startups have been contacted exactly. The estimated number of companies contacted through this method is 500.

The second data collection method was dubbed the "cold approach", a labor intensive, but eventually fruitful approach, which mainly consisted of searching startup companies on the internet, acquiring their e-mail address and politely asking for participation in the research if the company identified as startup or early scaleup. Most of the companies were from lists of startups such as the online database CrunchBase (2020) and Techleap (2020), other companies were found manually. Usually the contact details were a customer service or general information e-mail address. Often times e-mail addresses were out of use, and not every company contacted qualified as a startup. Following this method, 2919 e-mail addresses were collected and contacted. Subtracting the undelivered e-mails and invalid companies, followed by adding the first approach. An estimate of the total startups contacted is around 3000. Which is a response rate of 5,73%. This is not a high response rate, but it can be explained by the impersonal approach of an e-mail to a customer service address. A bias in respondents must be noted, bankrupt or otherwise failed companies would probably not receive the e-mail. All respondents are still actively practicing companies. All valid respondents were collected between the 1st of July and the 4th of August.

As a third data collection method the snowballing effect was used. Respondents were asked to share the survey with other startups in their network. Some respondents took the effort to share the survey, but the assumption is that not many respondent were gathered by this third method. However, no measure to test this assumption is available.

3.2 Operationalization

3.2.1 Market Orientation

There are three main methods for measuring market orientation. Narver and Slater (1990) propose the MKTOR scale, a 15-item scale, which measures customer orientation, competitor orientation and inter-functional coordination. Their research has shown these items have a significant effect on a company's profit. Kohli et al. (1993) propose the MARKOR scale. This scale consists of twenty items and measures intelligence generation, intelligence dissemination and responsiveness.

Deshpandé et al. (1993) Proposed a nine-item scale based on a thirty-item list to measure customer orientation in Japanese companies. This scale also proved internationally generalizable in research they performed in the United States, Germany, France, England, India, Vietnam, Thailand, Hong Kong and China.

Deshpandé and Farley (1998) subsequently performed an international study in which they combined al 3 of the scales of Narver and Slater (1990), Kohli and Jaworski (1990) and Deshpandé et al. (1993). They validated the results and reliability of all three scales and judged them to be complementary, comparable and interchangeable. They proposed a summarized ten-item scale (MORTN) with a focus on customer orientation.



In this research the focus is on startup companies. Startup companies generally have a different structure and different proprieties then mature existing companies. Therefore the measurement scale should be adjusted accordingly. As startups are new companies with usually not too many employees Narver and Slater (1990)'s questions about inter-functional coordination are less important, while competitor orientation and customer orientation remain important.

Kohli et al. (1993)'s MARKOR method, seems most applicable to the startup market orientation situation. The questions regarding intelligence dissemination seem less important while intelligence generation and responsiveness remain important, some of the questions need to be altered to suit a startup situation. The startups that are targeted in this research are in the initial phases. They are not expected to have multiple departments. Therefore, the questions will be modified to be relevant for companies that operate on a smaller scale and have a shorter life-span. Ultimately 4 questions have been removed and 4 questions have been slightly altered, all survey questions can be found in appendix 1, questions 8 to 23 are the market orientation questions, totaling 16 questions. All Market Orientation questions were to be answered on a 5 point Likert scale, were 1: Strongly disagree 2: Somewhat disagree 3:Neither agree nor disagree 4:Somewhat agree 5:Strongly agree. As a benchmark Kohli et al. (1993)'s data was used. All questions that have been removed from this research, have been removed from the benchmark research. The MO questions are the most important part of this research. It is a tested and developed model that has been used and confirmed by many researchers. (Kara et al., 2005; Vaerla & del Rio, 2003; Morgan & Vorhies, 2018; Jaworski & Kohli, 1993). Although it has not been tested exclusively on startups. It is expected to provide a reliable measurement of the construct.

3.2.2 LSM Application

During the literature review, no specific scales were found on how to measure the degree of LSM application. Ries (2011)'s LSM has a focus on doing market research in the form of minimum viable products, to be tested without fully depleting a companies resources. To test if startups applied an approach similar to the LSM the following questions were formulated, all questions were answered on a 5 point Likert scale: "We release a product or service with minimal effort, in order to test the market, before we fully commit to product development.", "The product or service we offer can and will still be improved.", "The product or service we offer is still in its development phase." And "We offer a finished and final product that cannot be easily changed or modified.". The final question is reversed to test if a rephrased question would gather the same results. The first question is to determine if a MVP was used, while the second to last questions were formulated to test if the startup was flexible and viewed their product or service as a work in progress, one that could still be developed and tested as Ries (2011) describes in the Lean Startup Method.

3.2.3 Startup phase

Three measures were used to determine the phase of the startup in appendix 1 question 2, 4, 25 and 33. The first measure was the age of the company, the second was the phase of the company as per the conceptual model from figure 2 (p.6) that was previously discussed. Then there was a question about the first revenue of a company. First revenue should coincide with the phase in which the market is entered. The final question was about when the company wanted to fully dedicate itself to market research. Apart from company age, all tools to determine the phase of the startup are experimental, but should provide a reasonable measure to make statistical inferences.

3.2. Startup performance

For the sake of this research a performance measure of the companies in the surveys was required. Conventional performance measures such as return on assets do not provide accurate performance



indications for startups. To measure startup performance in this research, a method that is manageable within a relatively short time period is needed. Also a performance measure that collects numerical data is preferred over more subjective measures, but the data should also be measurable in all startups by means of a survey. According to Hmieleski & Ensley (2007) growth is often cited as the most important objective of new ventures. To measure this growth, they used revenue growth and employee growth. In this research revenue growth and employee growth over the past 12 months was used to assess startup performance. Question 32 and 34 in appendix 1 were used to collect the startup performance data. Care should be taken when making inferences about the performance of startups in this research, because if all companies within the sample are active companies the results maybe skewed toward the positive side.

3.2.5 General information

Some general information questions were added, which may assist in the data analysis at a later stage. If no significant relationships were to be found, perhaps one of these questions could segregate the data and/or provide additional insights. Firstly a question was asked about the business sector in which the company was active. The business sectors (or branche) were copied from the Dutch Chamber of Commerce (KvK, 2020). A question about the international ambitions was also added. According to Reis (2011) startups should have the ambitions to grow on a global scale, this could be checked using this question. In question design Gideon (2016) provides an excellent handbook whose theories have been used in many of the question constructed in this research.

3.2.6 Marketing & Sales functions

Before the questionnaire was released, one of the partner companies in the research reviewed the questionnaire and expressed a need for the measurement of the marketing and sales functions. Questions 6 and 7 and questions 35, 36, 37, 38 were added to test the marketing and sales functions. In a discussion between the researcher, STEM and SaleMate the variables were put together. SaleMate is a company that focusses on sales and marketing. The effect of sales and marketing on market orientation and startup performance could provide interesting concepts to SaleMate and could thus, contribute to the practical relevance of this study. 2 questions were about sales and marketing experience, 2 questions were about the number of sales and marketing employees and 2 questions were about the sales and marketing budgets. (See appendix 1) Conclusively this would add 2 new constructs to the research: Sales Function and Marketing Function.

3.2.7 Corona virus measures

During the research of this paper the covid19 virus broke out. Some respondents indicated that they have perceived adverse effects of the corona virus. It was therefore decided to add a question about the corona virus half way through the research. According to the Dutch bureau of statistics (CBS, 2020) the gross domestic product (GDP) declined by 1.5% in the first quarter of 2020 compared to the fourth quarter of 2019. In the first 28 weeks of 2020, there were altogether 2,033 bankruptcies among companies and institutions in the Netherlands. This is 4 fewer than in the same period in 2019. The CBS also polled the confidence of entrepreneurs, and although in May entrepreneurial confidence displayed a low because of the corona crisis, confidence has been returning gradually over the month of June.

The corona crisis may cause turbulence in the startup environment. However, the concept of market orientation should enable a competitive advantage regardless of the market turbulence, competitive intensity, or technological turbulence of the market eco-system of the organization (Kohli and Jaworski, 1993).



Halfway through the data collection process, a question about the corona virus was added. Some respondents entered comments that their startups experienced negative effects of the corona virus. To map this effect a Likert scale question was developed about the perceived severity of the Corona effects. The question was formulated as follows: Have you experienced negative effects of the corona virus on your business? This variable could then be compared to startup performance and perhaps other variables to see of the data was influenced by the Corona virus.



Chapter 4. Results

4.1 Statistical Analysis

First, the data was exported from Qualtrics to SPSS. Only completed questionnaires were included in the analysis. In total 171 responses were analyzed, comprised of only fully completed questionnaires. Before running the descriptive statistics of all data, a critical look at the data revealed some minor shortcomings in the dataset, and some of the questions needed to be recoded.

4.2 Recoding

Some of the questions in the survey were reversed in order to mitigate a possible halo effect. 6 of the market orientation questions were reversed. All 6 have been recoded into new variables for use in the statistical analysis so that 1 = negative and 5= positive.

Subsequently new variables were created. The mean of all marketing orientation questions (MeanMO) was computed into a new variable, the mean of the first six market orientation questions about information acquisition were computed as a new variable "MeanIA", the mean of the two questions about information dissemination was computed as "MeanID" and the mean of the questions about Coordination of Strategic Response was computed as "MeanCSR". all questions were answered on a 5 point Likert-scale so no further recoding was required.

The performance measures were both answered on a 9 point scale. The answered values had to be recoded for the statistical analysis. For Performance indicator increased revenue over the past year the scale was recoded as follows: 1: revenue has decreased, 2: 0%, 3: 0-10% increase, 4: 10-25% increase, 5: 25-50% increase, 6: 50-100% increase, 7 100-200% increase, 8: 200-500% increase and 9: >500% increase.

The second performance indicator was number of new employees hired in the past 12 months. This variable was recoded as follows 1= 0, 2= 1-2, 3= 3-4, 4= 5-6, 5=7-10, 6= 10-15, 7= 15-20, 8= 20-25 and 9= >25.

Some discrepancy is noted between the measurement scales of the performance indicators. There was no option to indicate if a decrease in employees was experienced in the past 12 months, while there was an option to indicate if there was a decrease in revenue over the past months. Nonetheless the performance measures are both rated on a scale of 1 to 9 and should be adequate to assess startup performance. Using a 9 point scale for these performance indicators allowed a new variable to be created, the "mean performance". Which is the mean of both the revenue increase over the past 12 months as the number of employees hired over the past 12 months.

There are 3 questions about marketing experience: "The person responsible for marketing (can be the owner/entrepreneur) has substantial marketing experience.", "How many of your employees are dedicated to marketing?" And "Which percentage of company costs has been spent on marketing related activities over the past 12 months (including strategic marketing advice, market research and/or marketing communications)?" These questions are standardized and the mean of these 3 questions is added as a new variable (MeanMarketingExp).

There are 3 questions about sales experience: "The person responsible for sales (can be the owner/entrepreneur) has substantial sales experience.", "How many of your employees are dedicated to sales?" And "Which percentage of company costs has been spent on sales related activities over the past 12 months?" These questions are also standardized and the mean of these 3 questions is added as a new variable (MeanSalesExp).



There are 4 questions concerning the phase of the company: "We are planning to commence market research in a later phase." (This question is reversed, and has been recoded to match the other 2 questions), "When did your company get its first revenue?", "How long does your company exist?" and "In which phase would you say your company is in?". These questions are also standardized and the mean of these 4 questions is added as a new variable (MeanPhase).

4 questions about the LSM are also grouped under a new variable (MeanLSM), it consists of "We release a product or service with minimal effort, in order to test the market, before we fully commit to product development.", "The product or service we offer can and will still be improved.", "The product or service we offer is still in its development phase." And "We offer a finished and final product that cannot be easily changed or modified." (This final question is reversed to match the direction of the other questions).

The variable "business sector" was not exported from Qualtrics to SPSS as a single variable, each sector is a separate variable, value 1 indicating the respondent's company was active in a sector, and no value indicating the respondent's business was not active in the particular sector. A question about the effects of the corona virus was added during the data collection period. Not all respondents were displayed this question. After this recoding process the descriptive statistics of all variables have been collected.

4.3 Descriptive statistics

The descriptive statistics table can be found in Appendix 4.

The mean age of the companies is between 3 and 4 years. Some companies were less than 2 months old, while 22 companies were more than 6 years old. Depending on the definition of a startup, companies older than 6 years may not qualify as a startup. However, the companies were specifically asked to only fill out the questionnaire if they identified as a startup or early scale-up. Several factors could lead to a startup being older than 6 years and still qualifying as a startup. An example is the internal startup. An existing company that starts a new department dedicated to developing a new technology. Or perhaps a company has radically changed their product or service after a couple of years, which could have completely reset the company. Considering that only 22 out of 170 are over 6 years, these companies will be included in the primary analysis as the definitions by Ries (2011) and Blank (2012) do not include a clear cut off value, suggesting that companies more than 6 years old may also qualify as a startup.

The mean number of employees of the company ranged from 0 to over 200, with a mean of 15,83. One value is missing, so in analysis this response may need to be deleted.

The table in appendix 3 shows the sectors of startups. Unfortunately only 145 responses were collected. Some companies were active in more than 1 sector and some respondents indicated they could not find a sector that applied to their business. Due to these shortcomings, this question will be removed from the primary data analysis.

23 of the respondents indicated that they did not have internationally growth as a company goal, depending on the definition of a startup, these companies may not qualify as a startup. For the primary analysis these companies will be left in.

The Likert scale questions show no anomalies, all market orientation questions have been answered. None of the respondents answered "strongly agree" to the question: "For one reason or another we tend to ignore changes in our customers' product or service needs.". Not all respondents answered



all questions on the last page. One question was only answered by 163 out of 172 respondents. Some of these missing respondents may be removed for further data analysis.

4.4 Reliability analysis

According to Taber (2018) Cronbach's alpha values of 0.7 or higher indicate acceptable internal consistency. To test this, firstly all market orientation questions were grouped the results are displayed in appendix 5. The Cronbach's alpha is 0,816, which is acceptable for internal consistency. There was only one item that if deleted would slightly increase the Cronbach's alpha with 0,001. This number was so low, it was decided to keep the question in the analysis. Subsequently all the means that were created as described in chapter 4.2 were tested. The results can be found in appendix 6. The standardized Cronbach's alpha is 0,765, which satisfies the internal consistency condition.

4.5 Correlations

In chapter 4.3 descriptive statistics, it was discovered that some questions of the survey were not answered by all respondents. For the regression analysis these cases will be removed. After removal, 158 respondents remain (n=158).

Before performing the analysis, the correlations between variables shall be observed. The correlation table can be found in appendix 7. A cursory glance at the correlation table reveals a significant correlation between market orientation and performance. While the application of the LSM has a significant negative relationship on firm performance. There seems to be a significant correlation between all included variables and firm performance, except for company age.

4.6 Hypotheses testing

4.6.1 Hypothesis 1

"There is a positive relationship between the degree of market orientation and startup performance."

In the correlations table in appendix 7 the correlation between MO and mean performance can be found. The correlation is ,308 with a P-value < 0,001

A regression between MO and Mean performance was also performed. The results are displayed in appendix 12 and 13. When Mean MO is regressed with Mean performance an adjusted R squared of 0,089 is found wit a P-value below ,001. If all separate MO questions are regressed with Mean performance the adjusted R squared value increases to 0,099 with a P-value of 0,013.

All results suggest a statistically significant positive relationship between startup MO and startup performance. **Hypothesis H1** is therefore, confirmed.

4.6.2 Hypothesis 2

" The application of the LSM is positively related to startup performance."

The LSM construct consists of several questions, "We release a product or service with minimal effort, in order to test the market, before we fully commit to product development.", "The product or service we offer can and will still be improved."(MVP), "The product or service we offer is still in its development phase." And "We offer a finished and final product that cannot be easily changed or modified." (This final question is reversed to match the direction of the other questions).

Firstly the correlation table in appendix 16 is observed. The correlation between mean LSM and mean performance is statistically significant. However, if the underlying questions and their correlations are observed, only the question "the product or service we offer is still in its



development phase is statistically related to performance with a Pearson correlation of -,262 and P <0,001. The other questions are not statistically significant.

When a regression analysis is performed with the variable mean LSM, no relationship is found. However, when the LSM variables are added separately as can be observed in the appendix 16 there is a relationship with an adjusted r squared of ,132 and a p-value below 0,001. However, 2 of the LSM variables have a positive influence on performance, while the other 2 have a negative influence on performance. There is more evidence for a negative relationship.

The construct of measuring the application of the LSM was incorrect. In hindsight, the variable with the highest statistical significance "the product or service we offer is still in its development phase" is perhaps more a question related to "phase" than to the LSM. The main question that is truly tests the application of LSM is: "We release a product or service with minimal effort, in order to test the market, before we fully commit to product development." Which tests whether or not a company uses a minimum viable product or MVP. This question is not statistically related to performance.

There is no relationship found between the application of LSM and firm performance. **Hypothesis H2:** There is a positive effect between the application of the Lean Startup Method and startup performance. Is therefore rejected.

4.6.3 Hypothesis 3

"The application of the LSM is positively related to the degree of market orientation."

As can be observed in appendix 16, the variable MeanLSM does not correlate with the market orientation variables. Again, the question "the product or service we offer is still in it's development phase." does correlate with mean market orientation score. as was concluded in the previous hypothesis, this question does not capture the essence of the LSM, but it captures the phase of a company, logically **when a company is still in the product development phase, MO and performance are lower.** This is what the statistically significant correlation confirms, it does not confirm a statistical significant relation between the LSM, MO and performance. When a regression model is made (see appendix 17) there is statistical significance, the p value is 0,005. The adjusted R square is 0,068. Again, this relationship is only statistically significant because of the question "the product or service we offer is still in it's development phase." and not because of the LSM.

Hypothesis H3: "The application of the LSM is positively related to the degree of market orientation." Is therefore rejected

4.6.4 Hypothesis 4

" The later the phase of a startup the higher startup performance."

The phase of the startup is questioned directly as: "in which phase would you say your company is in?" However there are more questions related to the phase of a company. As was described during the recoding process, the questions: "We are planning to commence market research in a later phase.", "When did your company get its first revenue?" and "How long does your company exist?" also capture the phase of the company. A new variable was made summarizing these 4 questions as Mean Phase. The correlation between mean phase and performance is ,374 with a P-value < 0,001 (See appendix 7). The separate questions in mean phase do not all correlate with performance. The question "in which phase would you say your company is in?" has a correlation of ,489 with P<0,001. And "When did your company get its first revenue?" has a correlation of ,339 with P<0,001. The other 2 questions are not significantly correlated to performance.



When a regression analysis is run, a better result is achieved, when all 4 phase variables are separately added to the regression as opposed to the variable Mean Phase. In appendix 14 an adjusted R squared value of ,237 can be observed with a p value below ,001. Therefore, the earlier the phase of a startup is positively related to startup performance. When the question "We are planning to commence market research in a later phase." Is removed the adjusted R squared value increases even further to ,242. The model explains 24,5% of the variance in the dependent variable. For these variables it was checked to see if there was a moderator effect present between phase and degree of market orientation with performance as the dependent variable. No significant moderator effect was found as can be observed in appendix 15.

Hypothesis H4 is confirmed.

4.6.5 Hypothesis 5

"Starting MO & LSM principles at an early phase will have a stronger effect on performance than when adopted in subsequent phases."

To make inferences about when startups should start market orientation, the SPSS file was split based on the phase of the company. Then another regression was run with mean performance as the dependent variable and Mean MO as the independent variable. Subsequently the same was done, but then with the age of the company. The results can be found in appendix 21. Concerning phase, unfortunately, there weren't enough respondents that were in the first or last startup phases. Phase 3 does not show a significant relationship either. However, it does seem that phase 2 shows a stronger relationship between MO and performance than phase 4, and even though phase 1 and phase 2 have insignificant results, phase 1 seems to lean more towards a positive relationship than phase 5. This may imply that the earlier the phase, the greater the effect of MO on performance. When the regression is observed when the data is split for age, there are 2 significant age groups, 1-2 years and 3-4 years have a P-value <0,05. The former group has a higher B value than the latter. Although they are close and the results could be just in this sample, it implies that the earlier the phase, the greater the effect of MO on performance. When the dataset is split in two, where group 1 is the first two phases of a startup and group 2 is the last three phases of a startup. The regression between MO, LSM and performance is displayed in appendix 21B. The results indicate that increasing market orientation at the early phases has a statistically significant effect on performance while market orientation does not have a statistically significant effect on performance in the later 3 phases.

The LSM variable again isn't significant, which leads to the rejection of **H5**, but MO seems to have a stronger effect on startup performance in earlier phases.

4.6.6 Hypothesis 6

"The degree of market orientation in startups is lower than in established companies."

To test hypothesis 6 the mean scores of Kohli & Jaworski (1993) will be compared to the mean scores of the sample in this research. Appendix 2 shows the means to each question of Kohli et al. (1993) and the means for each question in the current dataset. Only the same questions were used from both researches. An independent samples T-test to compare the means cannot be used, since the full original dataset by Kohli & Jaworski (1993) is unavailable. However, an approximation can be made. The data from the startup dataset has a market orientation mean and standard deviation of 3,9192 and ,54146 respectively. With a 95% confidence interval between 3,8375 and 4,0010. The research by Kohli & Jaworski (1993) subdivided their researched group in Marketing and non-Marketing related companies. The non-marketing companies scored 3,7381 and the non-marketing companies



scored: 3,6375 (both score is after reversing the applicable questions to match the dataset). Both numbers fall outside of the 95% CI that was found in this research and strongly suggests the Market Orientation in startups is higher than in established companies. However, it is not yet conclusive. To make more conclusive inferences other, and preferably more recent statistics need to be compared. The questions and their individual scores can be found in Appendix 2.

Recent research by Ophof (2020) also in a collaboration with STEM industrial marketing centre and a University of Twente student has shown that in a sample of 96 B2B organizations the mean score of Market Orientation as per Kohli and Jaworski's (1993) MARKOR scale was 3,502 with a standard deviation of 0,604 When the means between Ophof's research and this (Beltman's) research are compared by independent t-test, the two-tailed P value is less than 0.0001. By conventional criteria, this difference is considered to be extremely statistically significant. The mean of Ophof minus Beltman equals -0.4173000. The 95% confidence interval of this difference: From -0.5591200 to -0.2754800. Intermediate values used in calculations: t = 5.793, df = 265, standard error of difference = 0.072. Only considering mean responsiveness the two-tailed P value equals 0.0007. By conventional criteria, this difference is considered to be extremely statistically significant. The mean of Ophof minus Beltman equals -0.2718000. The 95% confidence interval of this difference: From -0.4284642 to -0.1151358. Finally the Marketing Orientation information generation will also be compared between Ophof and this research. The two-tailed P value equals 0.0182. By conventional criteria, this difference is considered to be statistically significant. The mean of Ophof minus Beltman equals -0.1897000. The 95% confidence interval of this difference: From -0.3469025 to -0.0324975. t = 2.3760, df = 265, standard error of difference = 0.080.

The previous comparisons lead to the rejection of **Hypothesis H6**. Additionally it can be assumed that the opposite holds true. It is proposed that the degree of Market Orientation is higher in startups than in the established companies of the other 2 researchers.

4.6.7 Conceptual model

The conceptual model in Figure 3 (p.9) is not fully confirmed. The construct of LSM could not be proved. All other variables and relationship in the conceptual model seem to be statistically confirmed.



4.6.7 Additional concepts

4.6.7.1 Marketing and sales function on performance

The marketing and sales functions were measured by means of several questions. "The person responsible for marketing (can be the owner/entrepreneur) has substantial marketing experience.", "How many of your employees are dedicated to marketing?" And "Which percentage of company costs has been spent on marketing related activities over the past 12 months (including strategic marketing advice, market research and/or marketing communications)?" These questions are standardized and the mean of these 3 questions is added as a new variable (MeanMarketingExp).

"The person responsible for sales (can be the owner/entrepreneur) has substantial sales experience.", "How many of your employees are dedicated to sales?" And "Which percentage of company costs has been spent on sales related activities over the past 12 months?" These questions are also standardized and the mean of these 3 questions is added as a new variable (MeanSalesExp).

When a regression analysis is performed between marketing- and sales function and performance. The highest R square was found when the variables "how many of your employees are dedicated to marketing & sales?" And "which percentage of company costs has been spent on sales related activities over the past 12 months?" are regressed with "mean performance". As can be observed in appendix 18. With an adjusted R squared value of ,146 and a p value below 0,001 there is a significant positive relationship between the marketing and sales functions and startup performance. It must be noted however, that employees dedicated to marketing and employees dedicated to sales explain the main positive effect on firm performance. Firm performance consists of increase in employees and increase in revenue. Both the dependent and independent variables have an element of number of employees. Therefore, another regression will be performed to see if the effect is also significant when only considering the increase in revenue as a performance measure. This drastically decreases the adjusted R squared to ,056. However, the relationship is still statistically significant with a p value of 0,008.

4.6.7.2 Corona effects

Midway through the research, a question about the coronavirus was added. The respondents whom did not answer the question about the severity of the coronavirus were removed. Ultimately 57 cases have been removed, resulting in n=101. Subsequently another regression analysis is performed to test the perceived effects of the corona virus on startup performance. As can be observed in appendix 19, there is no statistically significant relationship between the perceived effects of the corona virus and startup performance. There is a low adjusted R squared value of ,024 and the p value is above 0,05. To further test the influence of the corona virus a correlation matrix is shown in the appendix. This matrix does not show any correlations between the perceived effects of the corona virus and any of the variables in this research.

4.6.2 Regression model

Before a regression analysis can be performed, firstly the assumptions of normality, homoscedasticity, linearity and multicollinearity must be tested. (Osborne & Waters, 2002)

The assumption of normality is met, the pp plot in Appendix 8 shows that the dots follow the line. All variables were checked and meet the normality assumption.

To check the homoscedasticity assumption a residual plot is made between the predicted residuals and the standardized residuals. As can be seen in appendix 9, the homoscedasticity assumption is met. The scatterplot shows no "funnel" shape which would indicate heteroscedasticity. The residuals



plot resembles a "football" shape, which is an indication of homoscedasticity. The linearity assumption is also met, as can be observed in the scatterplot with fitted line in appendix 10.

To check the assumption of multicollinearity, the Variance Important Factors (VIF) values are calculated in SPSS. The literature suggests the maximum VIF value is "5" (Ringle et al., 2015). Some authors argue values below "10" can still be used (Hair et al, 1995). In ideal circumstances all VIF values are below 3, suggesting low correlation among variables. In appendix 11, the VIF values can be observed. All variables score below 3 on VIF, so the multicollinearity assumption is also met.

All assumptions are satisfied, and regression can be commenced. The independent variable is mean performance, consisting of the scaled revenue increase over the past 12 months and the amount of new employees hired over the last 12 months. A top-down approach was used in assessing which independent variables would be added to the regression equation. In appendix 12 there are several examples of model summaries that have been used in finding the best regression coefficients. The variables with the highest p-values were removed first, the primary focus was to achieve a high adjusted R square value. The trial and error approach yielded the final model displayed appendix 11.

The model displayed in appendix 23 shows an adjusted R squared value of ,395 this suggests that 39,5% of the variance in the dependent variable is explained by the independent variables. The ANOVA table shows that there is a statistically significant finding, with a P-value below 0,001. The coefficients table indicates that there is a significant statistical relationship between the mean market orientation score and startup performance. For every point that the marketing orientation score increases, it is expected that startup performance increases with 0,512 on the scale. The results suggest there is a significant positive relationship between the degree of market orientation and startup performance. Some of the variables that are included in the model have a P-value above 0,05. These include all the LSM variables and the sales experience variable. Even though the adjusted R squared is higher with these variables in, for the construction of the final research model it should be considered to remove these variables from the equation. Sales experience even seems to have a negative influence on firm performance, this variable will also be removed.

In the previous hypothesis testing and discussion the conclusion was drawn that the LSM application variable was invalid and not every concept was significant enough to put in the model. Therefore, another regression model is made in SPSS. (Appendix 24) Including the variables of the final model that is proposed in this research. All variables with a P-value > 0,05 have been removed. The new model has an adjusted R squared of ,378, which means the variance in the dependent variable is explained by the model for 37,8%. The model is highly significant with a P-value < 0,001. The unstandardized B values in the coefficients table in appendix 24 indicate the expected strength of each variables, since the independent variables have been standardized to Z-scores. All variables have a significant positive effect on firm performance, except for the age of a company, which has a significantly negative effect on the performance of startups.



Chapter 5. Discussion

5.1 Discussion of the results

From the offset of this research, the goal was to answer the main research question:

" To what extent does market orientation in conjunction with the lean startup method influence performance in startup phases "

To answer this question 172 startup companies were investigated within the Netherlands and Belgium. Among other concepts the startups were polled to discover the degree of market orientation, in conjunction with the LSM, their performance and their marketing and sales functions. The results section revealed that startups within the Netherlands and Belgium adopt market orientation to a large extent. Even more so than the average of existing companies as was investigated by Kohli et al (1993) and Ophof (2020). This is a surprising result, since the hypothesis was that the extent to which MO was applied would be low compared to other companies. A reason for these findings could be that startups are mainly focused on bringing a new product or service to the market. To enter a market entrepreneurs must focus on the market to assess the viability and future of their company, hence market orientation is higher. An established company may have returning customers and is focused on the other business processes of their company. Maybe there is a stronger focus on efficiency and cost-reduction, because they already have solidified their position within the market and the market is not expected to be as volatile on the short term, thus, market orientation is lower. Additionally, the surveyed startups included only companies that were still actively practicing, maybe companies that apply little market orientation fail sooner and are therefore not considered in this research. This possibility will be further discussed in the limitations section.

Another notable statistic was that there was a positive relationship between the degree of market orientation and firm performance, this could imply that a marketing orientation focus increases the market success rate. It has been proved that market orientation can lead to better performance in several studies. This has also been proven to be the case for the startups in this sample.

The results imply that even though there is a statistically significant relationship between "LSM application and performance" and "LSM and market orientation". This was the result of a highly correlating question within the construct that does not measure LSM. Some of the variables measuring LSM application correlated positively to the independent variables while others correlated negatively to the independent variables. Although the LSM-variables are related to both MO and performance, the construct of LSM seems invalid, this will also be further discussed in the limitations section. It is decided to leave the LSM out of the new conceptual model. Since the main concept of releasing a MVP was neither related to MO or performance, and the only relationship was found in a question that is more related to phase, this research does not indicate a relationship between LSM and MO and/or performance.

The results show that the age of a startup does not influence the performance of a startup. It is interesting to see that the phase of a startup does influence the performance of a startup. This suggests that continuity does not lead to more performance, but startups need to grow into a different phase to experience an increase in performance.

The company phases were subdivided into 5 phases. The middle phases included the establishing of product market fit, entering the market and scaling up. These stages focus on finding a place in the market, it seems a logical result that market orientation is increased during these phases. However, this logic implies that once a company is a full enterprise and moves on to being an established



company, market orientation should decrease. When the mean scores of mean market orientation are calculated for each phase, there seems to be a slight decrease when reaching the full enterprise phase (see appendix 21).

The research shows that phase 2 shows a stronger relationship between MO and performance than phase 4, and even though phase 1 and phase 5 have statistically insignificant results, phase 1 seems to lean more towards a positive relationship than phase 5. This may imply that the earlier the phase, the greater the effect of MO on performance. When the regression is observed after the dataset is split for age, there are 2 significant age groups, 1-2 years and 3-4 years have a P-value <0,05. The former group has a higher B value than the latter. Although they are close and the results could be just in this sample, it implies that the earlier the phase, the greater the effect of MO on performance. The results in appendix 21B indicate that when the data is split into 2 phase groups, increasing market orientation at the first phase group has a statistically significant effect on performance while market orientation does not have a statistically significant effect on performance in the later phase group. However, the p value is 0,058 it is close to significant and the B and adjusted R squared values are considerably lower for the second group than the first group.

Another interesting result is that an increase in the marketing and sales functions are related to an increase in firm performance. Something to consider in this research is that firm performance is measured by growth. Growth can lead to an increase in marketing and sales functions. There may be an interaction effect between the dependent and independent variables and reversed causality may be a factor in this analysis, to make more substantial claims about the interactions of these variables, a more extensive literature review is needed.

The question about the corona virus was the only question that had no correlation with any of the variables. Even though 22 out of 110 respondents indicated they experienced severe negative effects and 24 out of 100 respondents indicated they experienced moderate negative effects of the corona virus. It remains a simple and subjective question, without any backing from the literature. It is still striking that it is the only variable without any correlation. Perhaps the effects will only be perceived after a certain timespan, but perhaps it is comforting to see the corona virus has not impacted the startups in this research significantly.

5.2 Research model

To visualize all the variables that were tested in the survey a final regression model was made (See appendix 12). In the final regression model, a few other significant variables have been found, even though the theoretical foundation is not discussed further in this research. (It was beyond the scope of this research) an example of this model can be found in appendix 22. It is interesting to see that international ambitions and marketing function have a positive effect on firm performance. Sales function does not have an effect on this performance.

5.3 Practical Implications

The aim of this research was to find the degree of market orientation in startups and to explore opportunities for startups to increase market orientation. Market orientation in startups is higher than in the companies studied by Kohli et al. (1992) and Ophof (2020).

The degree of market orientation is related to startup performance. This indicates that a high market orientation stimulates the growth of startups.

Further implications of this research are that market orientation can help startups with increasing performance. Startups market orientation is especially important in the early phases of a company.



This research implies that for startups it may proof fruitful to start MO as soon as possible. there is an implication that the earlier startups start MO, the greater the effect of MO on performance. The phase of the company has a positive effect on the performance of startups. Therefore, another implication is that startups should try to move on to the next phase sooner rather than later to foster organizational growth, it can be of practical use to set moving on to the next phase as figure 2 (p.6) describes as an organizational goal. The age variable suggest that the longer a startup exists the lower the growth/performance of a startup. In practical uses this implies that entrepreneurs should not aim just for continued existence, but to grow into a new phase.

A marketing function can support performance/growth in startups, since an increase in marketing function has a positive effect on startup performance/growth, hiring new marketing employees or increasing the marketing budget is implied to have a positive effect on growth and market orientation.

Another implication of this research is that startups with international ambitions realize more performance/growth than startups that focus on a local market. More and greater ambitions lead to more growth/performance, organizational and entrepreneurial ambition may be positively related to organizational success.

The research has also shown that increasing sales function does not have a positive effect on startup growth. This implies that if a company wishes to achieve growth, hiring extra employees for sales or increasing the sales budget does not achieve significant results.

The research suggests that entrepreneurs should not fear the extent of the coronavirus excessively. In moments of uncertainty competitive advantage and growth can be achieved. (Not all business sector were represented equally in this research, for more information about which sectors were tested in this research appendix 3 can be observed.)

The research constructs suggest that to increase performance/growth entrepreneurs that 4 practical things a startup can do:

- 1. Moving on to the next phase, this has the most impact on performance/growth.
- 2. Increasing market orientation, this also seems to have a significant effect on achieving more performance/growth.
- 3. Increasing marketing function, this is also related to increased growth.
- 4. Starting MO as early as possible.

5.4 Theoretical implications

This research has focused on the influence of market orientation in startups. Although market orientation is a well researched topic, it has not been tested on startups specifically. The results of this research suggest market orientation is an essential part of startups. Market orientation was found to be a highly applied concept in startups. The use of market orientation in startups was found to be significantly higher than in existing companies.

Considering the special circumstances of startups and the scope of this research a different performance measure was needed. Performance was linked to growth, a concept that may be new to the application of market orientation is that market orientation fosters growth. Perhaps market orientation also has an impact on growth within startups. Although growth was already shown to be an effect of market orientation and has been linked to performance (Slater & Narver, 1994). It may be interesting that if a company wishes to grow, market orientation may be a useful tool to achieve this.



In the theoretical section a research gap was found in the identification of the stage of a startup. Although many models exists about the stages of a company, the startup phase has been subdivided into 5 different phases as is shown in figure 2 (p.6). This model has been created specifically for this research and had a strong correlation to the variables in this research. This model picks up were van Gelderen's (2005) model focusses on the pre-start up phase and is an adaptation of product development phases of Crowne (2002) and Wang et al. (2016). It may prove to be a useful tool in further research concerning startups. A gap in the theory has been filled, suggesting that startups should start MO as early as possible.

This research has shown that Kohli et al.'s (1993) MARKOR scale can be used to measure market orientation in startups. To use the MARKOR method for startups specifically, some of the questions were altered and some questions were removed. Although difficult to prove, it seems that in this research the questionnaire adequately measured market orientation. This research increases the generalizability of the MARKOR method, and even though the method is almost 30 years old, it still seems to be relevant in today's digitalized startup environment.

At the last moment, before the commencing of data analysis, the constructs of marketing function and sales function were added. Although these constructs do not find their source in the literature, they have been identified by companies that work with startups and are active in the marketing and sales sectors. A significant impact of marketing function was observed in the model, it is an approach that is easily applicable in practice. The theory behind adding to the marketing function, and the effect on both performance and market orientation can be interesting for researches and practitioners alike.

Kohli and Jaworski (1993) believed that the concept of market orientation should enable a competitive advantage regardless of the market turbulence, competitive intensity, or technological turbulence of the market eco-system of the organization. The question about the corona virus confirms this theory. The coronavirus caused a global crisis with large expected consequences and entrepreneurial turbulence. However, no negative effects have been found in this research.

Chapter 6. Limitations & future research

6.1 Limitations

Although this research has found significant relationships between variables and measured the marketing orientation of startups, as was the primary goal of this research. There are also limitations to this research.

The LSM was supposed to play a key role in this research. The construct of LSM application was not correctly measured. No grounded statements about the effect of applying the LSM to market orientation or firm performance could be made. The reason for this limitation is that no scale was found for determining the degree of the LSM. It would have been better to use a more structured literature review to find measures for the LSM, like was done in finding measures of market orientation and performance. In hindsight there was additional information about measuring the LSM available, which may have fitted this research perfectly. Recent research by Harms & Schwery (2019) for instance provides an excellent summary of what the LSM entails and how it can be measured. They described that the LSM consisted of: customer insight, hypothesis testing, iterative experimentation, validation and learning. If their findings and framework were used in this research there would probably have been more usable data and the LSM variable would not have to be removed from the final model.



Another limiting factor of this research is the performance measure. According to Stefanovic (2010) the simplest way to define success is by determining whether the business is able to survive, by following the start-ups in the early years, where the motivation, human capital and financial capital are measured (Van gelderen et al. 2005) and by mailing a questionnaire to the private home addresses of the one of the (previous) Co-founders. This type of research provides perspective on the motivation, finance and human capital factors. Also, it allows comparing surviving companies with failed companies, enabling the researchers to distinguish critical success factors (Watson et al. 1994). A time based series was beyond the scope of this research, and so was contacting previous owners on their home address. This research uses growth as a performance measure, which is a relevant dependent variable, but it is not ideal in measuring performance.

In hindsight, perhaps a more structured literature review may have prevented the previously discussed limitations. A more structured literature review could also have added to the theoretical strength of this thesis.

Lastly, the author of this thesis is not an expert of statistical analysis. Perhaps a more profound statistical analysis could contribute more to the concepts investigated in this research.

6.2 Recommendations for future research

Considering the limitations of this research particular recommendations can be made for future research.

The influence of the LSM on the degree of market orientation and performance of startups should be researched further. It is recommended that the future research employs a measure of the LSM that is explicitly backed by the literature, such as the research by Harms & Schwery (2019). Unfortunately, the author of this paper stumbled upon this research after the data analysis.

If possible, a better performance measure should be included in the research. Growth may still be used, but a different variable could add to the robustness of the construct. Perhaps a measure such as profitability can be found which can be measured in startups. Also it is recommended that in future research another Likert scale question about success or performance is added. Although it may be a subjective question, it could still add to the robustness of the theories used.

For future research a method of finding startups that also includes failed startups can be very useful. The main question of this research about the degree of market orientation may not hold true for all startups, since failed startups have not filled in the survey. Perhaps a time series research could help in finding out more about the startups that fail.



Chapter 7. Conclusion

To conclude this research the research question will be answered:

'To what extent does market orientation in conjunction with the lean startup method influence performance in startup phases?"

The sample of startups from the Netherlands and Belgium seems to adopt market orientation to a great extent. In fact, these startups score higher on the MARKOR (market orientation) scale than established companies in 2 other comparative researches (Kohli et al., 1992, Ophof, 2020).

This research's quantitative method of analysis has found that market orientation in startups has a statistically significant positive relationship with startup performance, when performance is measured as growth.

Additionally, the phase of the startup has been proven to be positively related to startup performance. The higher the phase, the higher the performance of a startup. This suggests that moving on to the next phase (as in figure 2, p.6) goes hand in hand with growth performance.

The effect of MO on startup performance has been found to be higher in the earlier stages of a startup. Even in later phases MO has a significant positive effect on performance, but the effect is stronger in the early phases of a startup. If startups have ambitions to grow, it is advised to start MO as soon as possible.

No significant relationship between the application of the LSM and MO or performance has been found in this research.

MO can be developed by starting as early as possible with MO. It is recommended that entrepreneurs who run a startup take proper note of which phase they are in and how they can grow into the next stage. Just continuity is not sufficient, startups need growth to become successful. Increasing the marketing function by hiring more marketing employees or increasing the marketing budget can potentially help in achieving more growth.

Startup companies with international ambitions are by nature focused on growth, this research has shown that internationally oriented companies achieve more growth than companies with merely local ambitions.

The goal of this research was to provide new insights in the fields of entrepreneurship, strategy and innovation, and to fill the research gap linking startups and market orientation. This goal has been achieved, new significant relationships have been found. Hopefully entrepreneurs and future researchers can use the concepts of this research in their continued quest for success in the turbulent eco-system of startups.



Appendix

Appendix 1: Survey Questions

- 1. How many employees currently work for your company? A:0-200
- How long does your company exist? A: 0-2 months, 3-4 months, 5-6 months, 6-12 months, 1-2 years, 3-4 years, 5-6 year, >6 years
- 3. In which industry does your company operate? A: Advice & consultancy; Hotel, restaurants and bars; Agriculture; IT, media and communications; Construction, installation and infrastructure; Industrial; Culture and sports; Education and training; Minerals; Real estate; Energy; Personal services and non-profit; Financial services; Transportation, postal services and storage; Health care and social services; Water and garbage disposal; Wholesale & retail; Business services
- 4. In which phase would you say your company is in? A:Figure 2
- 5. The goal of our company is to grow internationally.
- 6. The person responsible for marketing (can be the owner/entrepreneur) has substantial marketing experience.
- 7. The person responsible for sales (can be the owner/entrepreneur) has substantial sales experience.
- 8. In this startup, we meet with customers to find out what products or services they will need in the future.
- 9. In this startup, we do a lot of in-house market research.
- 10. We are slow to detect changes in our customers' product preferences.
- 11. We ask end users to assess the quality of our products and services.
- 12. We are slow to detect fundamental shifts in our industry (e.g., competition, technology, regulation).
- 13. We periodically review the likely effect of changes in our business environment (e.g., regulation) on customers.
- 14. We frequently discuss market trends and developments internally and/or with advisors.
- 15. Data on customer satisfaction is discussed internally and/or with advisors on a regular basis.
- 16. It takes us forever to decide how to respond to our competitors' price changes.
- 17. For one reason or another we tend to ignore changes in our customers' product or service needs.
- 18. We periodically review our product development efforts to align the product with customer needs.
- 19. We periodically have meetings to plan a response to changes taking place in our business environment.
- 20. If a major competitor were to launch an intensive campaign targeted at our customers, we would implement a response immediately.
- 21. Customer complaints fall on deaf ears.
- 22. Even if we came up with a great marketing plan, we probably would not be able to implement it in a timely fashion.
- 23. When we find that customers would like us to modify a product or service, the people involved (including our business partners) make concerted efforts to do so.
- 24. At this moment we do not have the resources for thorough market analysis.
- 25. We are planning to commence market research in a later phase.
- 26. Market orientation currently has a low priority for us.
- 27. We release a product or service with minimal effort, in order to test the market, before we fully commit to product development.



- 28. The product or service we offer can and will still be improved.
- 29. The product or service we offer is still in its development phase.
- 30. We offer a finished and final product that cannot be easily changed or modified.
- 31. Have you experienced negative effects of the corona virus on your business?
- 32. In the past 12 months your company's revenue has grown with the following percentage: A:0%, 0-10%, 10-25%, 25-50%, 50-100%, 100-200%, 200-500%, >500%
- 33. When did your company get its first revenue?A: No revenue yet, 1-2 months ago, 2-5 months ago, 6-12 months ago, 1-2 years ago, 3-4 years ago, > 4 years ago
- 34. How many new employees have been hired in the past 12 months?A: 0, 1-2, 3-4, 5-6, 7-10, 10-15, 15-20, 20-25, >25
- 35. How many of your employees are dedicated to marketing? A: 0, 1, 2, 3, 4, 5,>5
- 36. How many of your employees are dedicated to sales? A: 0, 1, 2, 3, 4, 5,>5
- 37. Which percentage of company costs has been spent on sales related activities over the past 12 months? A:0%, 1-2%, 3-5%, 6-8%, 9-11%, 12-15%, 16-20%, 21-30%, >30%
- 38. Which percentage of company costs has been spent on marketing related activities over the past 12 months (including strategic marketing advice, market research and/or marketing communications)? A: 0%, 1-2%, 3-5%, 6-8%, 9-11%, 12-15%, 16-20%, 21-30%, >30%

	K&J Marketing	K&J non-marketing	NL + BE Startups
Q1	4,41	3,91	4,26
Q2	3,39	3,19	3,57
Q3 (R)	3,55	3,6	3,8363
Q4	3,94	3,38	4,32
Q5 (R)	3,71	3,78	3,8129
Q6	3,73	3,9	3,64
Q7	3,63	3,63	4,06
Q8	3,49	3,17	3,84
Q9 (R)	3,93	3,61	4,0468
Q10 (R)	3,78	3,77	4,1404
Q11	3,71	3,81	4,31
Q12	3,41	3,55	3,6
Q13	3,84	3,61	2,95
Q14 (R)	4,24	4,07	4,4854
Q15 (R)	3,54	3,61	3,8129
Q16	3,51	3,61	4,05
Average	3,738125	3,6375	3,92091875

Appendix 2 Market orientation questions means


Appendix 3: Business sector

Answer	%	Count
Advice & consultancy	17.24%	25
Agriculture	5.52%	8
Construction, installation and infrastructure	0.00%	0
Culture and sports	2.76%	4
Minerals	0.69%	1
Energy	4.14%	6
Financial services	4.14%	6
Health care and social services	12.41%	18
Wholesale & retail	5.52%	8
Hotel, restaurants and bars	0.00%	0
IT, media and communications	0.00%	0
Industrial	12.41%	18
Education and training	6.90%	10
Real estate	4.83%	7
Personal services and non-profit	1.38%	2
Transportation, postal services and storage	0.00%	0
Water and garbage disposal	2.76%	4
Business services	19.31%	28
Total	100%	145



Appendix 4: Descriptive Statistics

	Ν	Minimum	Maximum	Mean	Std. Deviation
How long does your	171	2	9	6,76	1,304
company exist?					
How many employees	170	,00	200,00	15,8294	33,17232
currently work					
for your company? - Number					
of employees					
In which phase would you	170	1	5	3,08	1,043
say your company is in?					
The goal of our company is	171	1	5	4,15	1,283
to grow					
internationally.					
The person responsible for	171	1	5	3,43	1,337
marketing (can be the					
owner/entrepreneur) has					
substantial marketing					
experience.					
The person responsible for	171	1	5	3,63	1,283
sales (can be the					
owner/entrepreneur) has					
substantial sales experience.					
In this startup, we meet with	171	1	5	4,26	1,070
customers to find out what					
products					
or services they will need in					
the future.					
In this startup, we do a lot of	171	1	5	3,57	1,122
in-house market research.					
We	171	1	5	2,16	1,033
are slow to detect changes in					
our customers' product					
preferences.					
We ask end users to assess	171	1	5	4,32	,879
the quality of our products					
and services.					
We	171	1	5	2,19	1,178
are slow to detect					
fundamental shifts in our					
industry (e.g., competition,					
technology, regulation).					



			1	1	
We periodically review the likely effect of changes in our	171	1	5	3,64	1,089
business					
environment (e.g.,					
regulation) on customers.					
We frequently discuss	171	1	5	4,06	,959
market trends and					
developments internally					
and/or					
with advisors.					
Data on customer	171	1	5	3,84	1,099
satisfaction is discussed					
internally and/or with					
advisors on a regular basis.					
It	171	1	5	1,95	1,022
takes us forever to decide					
how to respond to our					
competitors' price changes.					
For	171	1	4	1,86	,948
one reason or another we					
tend to ignore changes in our					
customers' product or					
service needs.					
We periodically review our	171	1	5	4,31	,806
product development efforts					
to align the					
product with customer					
needs.					
We periodically have	171	1	5	3,60	1,249
meetings to plan a response					
to changes taking place					
in our business environment.					
If a major competitor were to	171	1	5	2,95	1,271
launch an intensive					
campaign targeted at					
our customers, we would					
implement a response					
immediately.					
Customer complaints fall on	171	1	5	1,51	,792
deaf ears.					



Even if we came up with a great marketing plan, we probably would not be able to implement it in a timely fashion.	171	1	5	2,20	1,198
When we find that customers would like us to modify a product or service, the people involved (including our business partners) make concerted efforts to do so.	171	1	5	4,05	,947
At this moment we do not have the resources for thorough market analysis.	171	1	5	3,16	1,250
We are planning to commence market research in a later phase.	171	1	5	2,63	1,270
Market orientation currently has a low priority for us.	171	1	5	1,82	,992
We release a product or service with minimal effort, in order to test the market, before we fully commit to product development.	171	1	5	3,18	1,323
The product or service we offer can and will still be improved.	171	1	5	4,66	,652
The product or service we offer is still in its development phase.	171	1	5	3,34	1,293
We offer a finished and final product that cannot be easily changed or modified.	171	1	5	1,91	1,187



In the past 12 months your	165	1	9	4,35	2,456
company's revenue has					
grown with the following					
percentage:					
When did your company get	168	1	7	4,48	2,000
its first revenue?					
How many new employees	171	1	10	2,92	1,841
have been hired in the past					
12 months?					
How many of your	169	1	7	2,09	1,174
employees are dedicated to					
marketing?					
How many of your	170	1	7	2,32	1,429
employees are dedicated to					
sales?					
Which percentage of	163	1	9	4,33	2,349
company costs has been					
spent on sales related					
activities over the past 12					
months?					
Which percentage of	164	1	9	3,98	2,302
company costs has been					
spent on marketing related					
activities over the past 12					
months (including strategic					
marketing advice, market					
research and/or marketing					
communications)?					
Have you experienced	110	1	4	2,36	1,073
negative effects of the					
corona virus on your					
business?					
IA3R	171	1,00	5,00	3,8363	1,03303
CSR1R	171	1,00	5,00	4,0468	1,02218
CSR2R	171	2,00	5,00	4,1404	,94754
CSR6R	171	1,00	5,00	4,4854	,79229
CSR7R	171	1,00	5,00	3,7953	1,19764
IA5R	171	1,00	5,00	3,8129	1,17826
Mean Market Orientation	171	1,81	4,94	3,9192	,54146
Score					
MeanPerformance	171	1,00	8,00	3,6579	1,63012
MeanLSM	171	1,00	5,00	3,7271	,71829



MeanIA	171	1,00	5,00	3,9055	,60472
MeanID	171	1,00	5,00	3,9503	,86544
MeanCSR	171	1,75	5,00	3,9218	,59779
MeanPhase	171	-1,99	1,53	,0010	,66241
MeanMarketingExp	171	-1,35	1,95	,0087	,70581
MeanSalesExp	171	-1,46	2,17	,0122	,72577
Valid N (listwise)	100				

Appendix 5 Cronbach's alpha MO questions

Relia	ability Statistic	S
	Cronbach's	
	Alpha Based on	
Cronbach's	Standardized	
Alpha	Items	N of Items
,816	,825	16

					Cronbach's
	Scale Mean if	Scale Variance if	Corrected Item-	Squared Multiple	Alpha if Item
	Item Deleted	Item Deleted	Total Correlation	Correlation	Deleted
In this startup, we meet with	58,4503	68,061	,331	,174	,811
customers to find out what					
products					
or services they will need in					
the future.					
In this startup, we do a lot of	59,1404	69,204	,246	,177	,817
in-house market research.					
We ask end users to assess	58,3860	67,662	,458	,343	,804
the quality of our products					
and services.					
We periodically review the	59,0702	65,995	,445	,345	,804
likely effect of changes in our					
business					
environment (e.g., regulation)					
on customers.					
IA5R	58,8947	68,154	,283	,223	,815
IA3R	58,8713	65,301	,520	,426	,799

Item-Total Statistics



We frequently discuss market	58,6433	66,454	,491	,348	,801
trends and developments					
internally and/or					
with advisors.					
Data on customer	58,8713	63,313	,602	,493	,793
satisfaction is discussed					
internally and/or with					
advisors on a regular basis.					
We periodically review our	58,3977	67,312	,536	,413	,800
product development efforts					
to align the					
product with customer needs.					
We periodically have	59,1111	65,123	,415	,326	,806
meetings to plan a response					
to changes taking place					
in our business environment.					
If a major competitor were to	59,7602	66,842	,318	,208	,814
launch an intensive					
campaign targeted at					
our customers, we would					
implement a response					
immediately.					
When we find that customers	58,6550	67,368	,437	,318	,805
would like us to modify a					
product or					
service, the people involved					
(including our business					
partners) make concerted					
efforts to do so.					
CSR7R	58,9123	66,128	,385	,240	,808,
CSR6R	58,2222	68,233	,473	,330	,804
CSR1R	58,6608	67,390	,394	,358	,807
CSR2R	58,5673	65,906	,536	,481	,799



Appendix 6: Cronbach's alpha all means

Reliability Statistics				
	Cronbach's			
	Alpha Based on			
Cronbach's	Standardized			
Alpha	Items	N of Items		
,706	,765	9		

Appendix 7: Correlations

	Corre	elations			
		Mean Market			
		Orientation			
		Score	MeanIG	MeanID	MeanCSR
Mean Market Orientation	Pearson Correlation	1	,839**	,749**	,904**
Score	Sig. (2-tailed)		,000	,000	,000
	Ν	171	171	171	171
MeanIG	Pearson Correlation	,839**	1	,549**	,563**
	Sig. (2-tailed)	,000		,000	,000
	N	171	171	171	171
MeanID	Pearson Correlation	,749**	,549**	1	,579**
	Sig. (2-tailed)	,000	,000,		,000
	N	171	171	171	171
MeanCSR	Pearson Correlation	,904**	,563**	,579**	1
	Sig. (2-tailed)	,000	,000,	,000,	
	N	171	171	171	171

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

*. Correlation is significant at the 0.05 level (2-tailed).	***. Correlation is significant at the 0.01 level (2-tailed).
---	---

				Correlat	tions							
		Mean Market Orientation Score	MeanIG	MeanID	MeanCSR	How long does your company exist?	How many employees currently work for your company? - Number of employees	MEANPERFO	MeanSalesEx p	MeanMarketin gExp	MeanPhase	MeanLSM
Mean Market Orientation Score	Pearson Correlation Sid. (2-tailed)	-	.000	,753**	.000	,067	-,025	.000	,338**	.000	,168 [*]	-,005
	z	158	158	158	158	158	158	158	158	158	158	158
MeanIG	Pearson Correlation	,841**	-	,559**	,564**	,058	-,037	,236**	,225**	,343**	690'	,052
	Sig. (2-tailed)	,000		,000	,000	,468	,647	,003	,004	,000	,386	,515
	Z	158	158	158	158	158	158	158	158	158	158	158
MeanID	Pearson Correlation	,753	,559	-	,578"	,147	,078	,285	,312	,313	,273	-,067
	Sig. (2-tailed)	,000	,000		,000	,066	,331	,000	,000	,000	,001	,404
	z	158	158	158	158	158	158	158	158	158	158	158
MeanCSR	Pearson Correlation	,903	,564	,578	_	,024	-,046	,276	,329	,276	,152	-,025
	Z	158	158	158	158	158	158	158	158	158	158	158
How long does your	Pearson Correlation	,067	,058	,147	,024	-	,407**	,148	,186	,174	,731‴	-,197
company exist?	Sig. (2-tailed)	,402	,468	,066	,764		,000	,064	,019	,029	,000	,013
	z	158	158	158	158	158	158	158	158	158	158	158
How many employees	Pearson Correlation	-,025	-,037	,078	-,046	,407	_	,301‴	,188	,184	,398."	-,216
for your company? -	Sig. (2-tailed)	,755	,647	,331	,566	,000		,000	,018	,021	,000	,006
Number of employees	z	158	158	158	158	158	158	158	158	158	158	158
MEANPERFORMANCE	Pearson Correlation	,308,	,236	,285	,276	,148	,301""	-	,320	,276	,374	-,218
	Sig. (2-tailed)	,000	,003	,000	,000	,064	,000		,000	,000	,000	,006
	z	158	158	158	158	158	158	158	158	158	158	158
MeanSalesExp	Pearson Correlation	,338**	,225	,312	,329	,186 [°]	,188	,320	-	,583	,338	-,297**
	Sig. (2-tailed)	,000	,004	,000	,000	,019	,018	,000		,000	,000	,000
	z	158	158	158	158	158	158	158	158	158	158	158
MeanMarketingExp	Pearson Correlation	,359	,343	,313	,276	,174	,184	,276	,583	1	,191	-,029
	Sig. (2-tailed)	,000	,000	,000	,000	,029	,021	,000	,000		,016	,718
	z	158	158	158	158	158	158	158	158	158	158	158
MeanPhase	Pearson Correlation	,168	,069	,273	,152	,731‴	,398."	,374***	,338	,191	_	-,331 [™]
	Sig. (2-tailed)	,035	,386	,001	,056	,000	,000	,000	,000	,016		,000
	z	158	158	158	158	158	158	158	158	158	158	158
MeanLSM	Pearson Correlation	-,005	,052	-,067	-,025	-,197	-,216	-,218	-,297**	-,029	-,331"	-
	Sig. (2-tailed)	,946	,515	,404	,754	,013	,006	,006	,000	,718	,000	
	Z	158	158	158	158	158	158	158	158	158	158	158
# >												



Appendix 8: PP plot







Regression Standardized Predicted Value





Appendix 10: Linearity plot

Mean Market Orientation Score

Appendix 11: VIF

				Coeffic	ients						
		Unstandardize	d Coefficients	Standardized Coefficients			c	Correlations		Collinearity	Statistics
Model		В	Std. Error	Beta	t	Sig.	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	4,114	1,359		3,028	,003					
	MeanPhase	,976	,262	,407	3,719	,000	,374	,291	,254	,390	2,566
	Mean Market Orientation Score	,627	,223	,213	2,815	,006	,308	,224	,192	,816	1,226
	MeanSalesExp	,084	,210	,037	,398	,691	,320	,032	,027	,537	1,861
	MeanMarketingExp	,244	,199	,109	1,227	,222	,276	,100	,084	,592	1,689
	How long does your company exist?	-,353	,124	-,295	-2,850	,005	,148	-,227	-,195	,436	2,292
	How many employees currently work for your company? - Number of employees	,011	,004	,220	2,839	,005	,301	,226	,194	,778	1,286
	MeanLSM	-,178	,172	-,079	-1,031	,304	-,218	-,084	-,070	,805	1,242

Coefficients^a



Appendix 12: Total model iterations to find the best model to determine firm performance

			Model S	ummary"				
					Cha	ange Statistio	s	
R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
,547 ^a	,300	,267	1,37484	,300	9,166	7	150	,000
	R ,547ª	R R Square ,547 ^a ,300	Adjusted R R R Square Square ,547 ^a ,300 ,267	Model S R R Square ,547 ^a ,300 ,267 1,37484	Model Summary Adjusted R Std. Error of the Estimate R Square ,547 ^a ,300 ,267 1,37484 ,300	Model Summary" Model Summary Adjusted R Std. Error of the Estimate R Square R R Square Square F Change ,547 ^a ,300 ,267 1,37484 ,300 9,166	Model Summary" Model Summary Model Summary Change Statistic Adjusted R Std. Error of the Estimate R Square Change F Change dfl ,547 ^a ,300 ,267 1,37484 ,300 9,166 7	Model Summary" Model Summary Model Summary Model Summary R Adjusted R Std. Error of the Estimate R Square Change F Change df1 df2 ,547 ^a ,300 ,267 1,37484 ,300 9,166 7 150

a. Predictors: (Constant), MeanLSM, Mean Market Orientation Score, How long does your company exist?, MeanMarketingExp, How many employees currently work

for your company? - Number of employees, MeanSalesExp, MeanPhase

b. Dependent Variable: MEANPERFORMANCE

Model Summary^b

						Cha	ange Statisti	s	
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	,543 ^a	,295	,267	1,37512	,295	10,512	6	151	,000,

a. Predictors: (Constant), How many employees currently work

for your company? - Number of employees, Mean Market Orientation Score, MeanSalesExp, How long does your company exist?, MeanMarketingExp, MeanPhase

b. Dependent Variable: MEANPERFORMANCE

Model Summary^b

						Cha	ange Statisti	s	
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	,528 ^a	,279	,260	1,38087	,279	14,824	4	153	,000,

a. Predictors: (Constant), How many employees currently work

for your company? - Number of employees, Mean Market Orientation Score, How long does your company exist?, MeanPhase

b. Dependent Variable: MEANPERFORMANCE

Model Summary^b

						Cha	ange Statistio	s	
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	,646 ^a	,418	,386	1,25744	,418	13,281	8	148	,000

a. Predictors: (Constant), Mean Market Orientation Score, The goal of our company is to grow internationally., How long does your company exist?, Zscore: The person responsible for sales (can be the owner/entrepreneur) has substantial sales experience., In which phase would you say your company is in?, How many employees currently work for your company? - Number of employees, MeanMarketingExp, When did your company get its first revenue?

b. Dependent Variable: MEANPERFORMANCE

Model Summary^b

						Cha	ange Statisti	s	
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	,646 ^a	,418	,386	1,25744	,418	13,281	8	148	,000,

a. Predictors: (Constant), Mean Market Orientation Score, The goal of our company is to grow

internationally., How long does your company exist?, Zscore: The person responsible for sales (can be the owner/entrepreneur) has substantial sales experience., In which phase would you say your company is in?, How many employees currently work for your company? - Number of employees, MeanMarketingExp, When did your company get its first revenue?



ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	167,996	8	21,000	13,281	,000 ^b
	Residual	234,010	148	1,581		
	Total	402,006	156			

a. Dependent Variable: MEANPERFORMANCE

b. Predictors: (Constant), Mean Market Orientation Score, The goal of our company is to grow

internationally., How long does your company exist?, Zscore: The person responsible for sales (can be the owner/entrepreneur) has substantial sales experience., In which phase would you say your company is in?, How many employees currently work

for your company? - Number of employees, MeanMarketingExp, When did your company get its first revenue?

		Unstandardize	d Coefficients	Standardized Coefficients			c	orrelations		Collinearity	Statistics
Model		В	Std. Error	Beta	t	Sig.	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	-,615	1,015		-,606	,546					
	How many employees currently work for your company? - Number of employees	,008	,004	,161	2,200	,029	,299	,178	,138	,735	1,361
	How long does your company exist?	-,306	,098	-,256	-3,108	,002	,145	-,248	-,195	,579	1,727
	The goal of our company is to grow internationally.	,312	,084	,250	3,701	,000	,154	,291	,232	,859	1,164
	In which phase would you say your company is in?	,504	,120	,328	4,203	,000,	,489	,327	,264	,647	1,546
	When did your company get its first revenue?	,236	,071	,299	3,339	,001	,342	,265	,209	,491	2,035
	MeanMarketingExp	,489	,177	,217	2,755	,007	,268	,221	,173	,634	1,577
	Zscore: The person responsible for sales (can be the owner/entrepreneur) has substantial sales experience.	-,208	,120	-,130	-1,737	,084	,082	-,141	-,109	,701	1,427
	Mean Market Orientation Score	,600	,210	,195	2,852	,005	,298	,228	,179	,845	1,184

Coefficients^a

a. Dependent Variable: MEANPERFORMANCE

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	167,996	8	21,000	13,281	,000 ^b
	Residual	234,010	148	1,581		
	Total	402,006	156			

a. Dependent Variable: MEANPERFORMANCE

 b. Predictors: (Constant), Mean Market Orientation Score, The goal of our company is to grow

internationally., How long does your company exist?, Zscore: The person responsible for sales (can be the owner/entrepreneur) has substantial sales experience., In which phase would you say your company is in?, How many employees currently work

for your company? - Number of employees, MeanMarketingExp, When did your company get its first revenue?



Coefficients^a

		Unstandardize	d Coefficients	Standardized Coefficients			c	orrelations		Collinearity	Statistics
Model		В	Std. Error	Beta	t	Sig.	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	-,615	1,015		-,606	,546					
	How many employees currently work for your company? - Number of employees	,008	,004	,161	2,200	,029	,299	,178	,138	,735	1,361
	How long does your company exist?	-,306	,098	-,256	-3,108	,002	,145	-,248	-,195	,579	1,727
	The goal of our company is to grow internationally.	,312	,084	,250	3,701	,000	,154	,291	,232	,859	1,164
	In which phase would you say your company is in?	,504	,120	,328	4,203	,000,	,489	,327	,264	,647	1,546
	When did your company get its first revenue?	,236	,071	,299	3,339	,001	,342	,265	,209	,491	2,035
	MeanMarketingExp	,489	,177	,217	2,755	,007	,268	,221	,173	,634	1,577
	Zscore: The person responsible for sales (can be the owner/entrepreneur) has substantial sales experience.	-,208	,120	-,130	-1,737	,084	,082	-,141	-,109	,701	1,427
	Mean Market Orientation Score	,600	,210	,195	2,852	,005	,298	,228	,179	,845	1,184

a. Dependent Variable: MEANPERFORMANCE

	Coefficients ^a											
		Unstandardize	d Coefficients	Standardized Coefficients			c	orrelations		Collinearity	Statistics	
Model		В	Std. Error	Beta	t	Sig.	Zero-order	Partial	Part	Tolerance	VIF	
1	(Constant)	-,615	1,015		-,606	,546						
	How many employees currently work for your company? - Number of employees	,008	,004	,161	2,200	,029	,299	,178	,138	,735	1,361	
	How long does your company exist?	-,306	,098	-,256	-3,108	,002	,145	-,248	-,195	,579	1,727	
	The goal of our company is to grow internationally.	,312	,084	,250	3,701	,000	,154	,291	,232	,859	1,164	
	In which phase would you say your company is in?	,504	,120	,328	4,203	,000	,489	,327	,264	,647	1,546	
	When did your company get its first revenue?	,236	,071	,299	3,339	,001	,342	,265	,209	,491	2,035	
	MeanMarketingExp	,489	,177	,217	2,755	,007	,268	,221	,173	,634	1,577	
	Zscore: The person responsible for sales (can be the owner/entrepreneur) has substantial sales experience.	-,208	,120	-,130	-1,737	,084	,082	-,141	-,109	,701	1,427	
	Mean Market Orientation Score	,600	,210	,195	2,852	,005	,298	,228	,179	,845	1,184	



Appendix 12: Regression mean MO on mean performance

Model Summary								
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate				
1	,308ª	,095	,089	1,53253				
a Predictore: (Constant) Mean Market Orientation Score								

a. Predictors: (Constant), Mean Market Orientation Score

ANOVA ^a								
Model		Sum of Squares	df	Mean Square	F	Sig.		
1	Regression	38,417	1	38,417	16,357	,000 ^b		
	Residual	366,388	156	2,349				
	Total	404,805	157					

a. Dependent Variable: MEANPERFORMANCE

b. Predictors: (Constant), Mean Market Orientation Score

		Coeff	icients ^a				
		Unstandardize	Unstandardized Coefficients				
Model		В	Std. Error	Beta	t	Sig.	
1	(Constant)	,119	,886		,135	,893	
	Mean Market Orientation Score	,907	,224	,308	4,044	,000	

a. Dependent Variable: MEANPERFORMANCE

Appendix 13: Regression MO separate questions on mean performance

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,436 ^a	,190	,099	1,52455

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	77,087	16	4,818	2,073	,013 ^b
	Residual	327,718	141	2,324		
	Total	404,805	157			



Correlations We release a We release a product or service with minimal effort, in order to test the market, before we fully commit to product development. We offer a finished and The product The product or service we final product offer is still in or service we that cannot be Mean Market Orientation Score offer can and will still be improved. its development phase. easily changed or modified. MeanLSM MeanCSR MeanID MeanIG MeanLSM Pearson Correlation 1 -.005 .683 .535 .677 -.373 -.025 -.067 .052 Sig. (2-tailed) ,946 ,000, ,000 ,000, ,000, ,754 ,404 ,515 158 158 158 158 158 158 158 158 158 Ν Mean Market Orientation ,753 Pearson Correlation -,005 ,118 ,153 -,206 -,055 ,903 ,841 1 Score Sig. (2-tailed) .946 ,138 ,055 ,009 .489 .000 .000 ,000 Ν 158 158 158 158 158 158 158 158 158 We release a product or service with minimal effort, in order to test the market, before we fully Pearson Correlation ,683 ,118 ,181 ,016 -,202 ,149 ,096 1 -,019 Sig. (2-tailed) ,000 ,138 ,023 ,846 ,011 ,062 ,814 ,229 commit to product development. N 158 158 158 158 158 158 158 158 158 The product or service we offer can and will still be ,535 -,285 ,164 • Pearson Correlation ,153 ,181 1 ,187 .109 .123 Sig. (2-tailed) .000 .055 ,023 ,018 .000 ,174 ,124 ,039 improved. N 158 158 158 158 158 158 158 158 158 The product or service we offer is still in its development phase. Pearson Correlation ,677 -,206 ,187 -,262 -,247 ,016 -,153 -,095 1 Sig. (2-tailed) .000 .009 .846 ,018 001 .002 055 235 N 158 158 158 158 158 158 158 158 158 We offer a finished and final product that cannot be easily changed or modified. Pearson Correlation -,373 -,055 ,202 ,285 -,262 1 -,031 ,069 ,059 Sig. (2-tailed) .489 .464 .000 .011 .000 .001 .700 .387 N 158 158 158 158 158 158 158 158 158 MeanCSR Pearson Correlation -,025 ,903 ,149 ,109 -,247** -,031 578 ,564 1 Sig. (2-tailed) .754 .000 .062 ,174 .002 .700 .000 .000 N 158 158 158 158 158 158 158 158 158 MeanID Pearson Correlation -,067 ,753 ,019 ,123 ,153 -,069 ,578 1 ,559 Sig. (2-tailed) ,124 ,055 ,387 .814 .000 .404 .000 .000 Ν 158 158 158 158 158 158 158 158 158 ,559 MeanIG Pearson Correlation .052 .841 ,096 .164 -,095 -.059 .564 1 ,515 ,000, ,229 ,039 ,235 ,464 ,000, ,000, Sig. (2-tailed) Ν 158 158 158 158 158 158 158 158 158

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

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



Appendix 14: Regression Phase on performance Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,506ª	,256	,237	1,40255

a. Predictors: (Constant), We are planning to commence market research in

a later phase., In which phase would you say your company is in?, How long does your company exist?,

When did your company get its first revenue?

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	103,000	4	25,750	13,090	,000 ^b
	Residual	299,006	152	1,967		
	Total	402,006	156			

a. Dependent Variable: MEANPERFORMANCE

b. Predictors: (Constant), We are planning to commence market research in a later phase., In which phase would you say your company is in?, How long does your company exist?, When did your company get its first revenue?

Coefficients^a

		Unstandardized Coefficients		Standardized Coefficients		
Model		В	Std. Error	Beta	t	Sig.
1	(Constant)	1,817	,662		2,746	,007
	In which phase would you say your company is in?	,665	,126	,433	5,271	,000
	How long does your company exist?	-,111	,101	-,093	-1,104	,271
	When did your company get its first revenue?	,133	,074	,169	1,813	,072
	We are planning to commence market research in a later phase.	-,008	,089	-,006	-,089	,929



Model Summary								
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate				
1	,506 ^a	,256	,242	1,39800				

a. Predictors: (Constant), When did your company get its first revenue?, In which phase would you say your company is in?, How long does your company exist?

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	102,985	3	34,328	17,565	,000 ^b
	Residual	299,022	153	1,954		
	Total	402,006	156			

a. Dependent Variable: MEANPERFORMANCE

b. Predictors: (Constant), When did your company get its first revenue?, In which phase would you say your company is in?, How long does your company exist?

Coefficients^a

		Unstandardize	d Coefficients	Standardized Coefficients		
Model		В	Std. Error	Beta	t	Sig.
1	(Constant)	1,796	,613		2,928	,004
	In which phase would you say your company is in?	,664	,126	,432	5,288	,000
	How long does your company exist?	-,111	,100	-,093	-1,108	,270
	When did your company get its first revenue?	,134	,073	,170	1,829	,069

a. Dependent Variable: MEANPERFORMANCE

Appendix 15: Moderator effect Phase and MO

Model Summary

					Change Statistics				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	,539 ^a	,291	,282	1,36043	,291	31,605	2	154	,000,
2	,545 ^b	,297	,283	1,35887	,006	1,354	1	153	,246

a. Predictors: (Constant), In which phase would you say your company is in?, Mean Market Orientation Score

b. Predictors: (Constant), In which phase would you say your company is in?, Mean Market Orientation Score, moderator



Appendix 16: LSM on performance

			Co	orrelations					
		Mean Market Orientation Score	We release a product or service with minimal effort, in order to test the market, before we fully commit to product development.	MeanLSM	The product or service we offer can and will still be improved.	The product or service we offer is still in its development phase.	We offer a finished and final product that cannot be easily changed or modified.	MEANPERFO RMANCE	In which phase would you say your company is in?
Mean Market Orientation	Pearson Correlation	1	,118	-,005	,153	-,206	-,055	,308**	,151
Score	Sig. (2-tailed)		,138	,946	,055	,009	,489	,000	,060
	Ν	158	158	158	158	158	158	158	157
We release a product or service with minimal	Pearson Correlation	,118	1	,683**	,181 [*]	,016	-,202	-,077	-,154
effort, in order to test the market, before we fully	Sig. (2-tailed)	,138		,000,	,023	,846	,011	,336	,054
commit to product development.	Ν	158	158	158	158	158	158	158	157
MeanLSM	Pearson Correlation	-,005	,683**	1	,535**	,677**	-,373**	-,218**	-,447**
	Sig. (2-tailed)	,946	,000,		,000	,000	,000	,006	,000
	N	158	158	158	158	158	158	158	157
The product or service we	Pearson Correlation	,153	,181	,535	1	,187	-,285**	,086	-,114
offer can and will still be improved.	Sig. (2-tailed)	,055	,023	,000		,018	,000	,284	,155
	N	158	158	158	158	158	158	158	157
The product or service we	Pearson Correlation	-,206	,016	,677**	,187	1	-,262**	-,323**	-,523
development phase.	Sig. (2-tailed)	,009	,846	,000	,018		,001	,000,	,000
	Ν	158	158	158	158	158	158	158	157
We offer a finished and	Pearson Correlation	-,055	-,202	-,373	-,285**	-,262	1	-,058	,157
tinal product that cannot be easily changed or	Sig. (2-tailed)	,489	,011	,000	,000	,001		,470	,049
modified.	N	158	158	158	158	158	158	158	157
MEANPERFORMANCE	Pearson Correlation	,308	-,077	-,218**	,086	-,323	-,058	1	,489
	Sig. (2-tailed)	,000	,336	,006	,284	,000	,470		,000
	N	158	158	158	158	158	158	158	157
In which phase would you	Pearson Correlation	,151	-,154	-,447**	-,114	-,523	,157	,489	1
say your company is in?	Sig. (2-tailed)	,060	,054	,000	,155	,000	,049	,000	
	N	157	157	157	157	157	157	157	157
**. Correlation is signific	ant at the 0.01 level (2-ta	iled).							
*. Correlation is significa	nt at the 0.05 level (2-tai	led).							



Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,393 ^a	,154	,132	1,49582
a. Pro sti se be pro Le	edictors: (Co II in its devel- rvice with mi fore we fully oduct or serv an startup m	nstant), The j opment phas nimal effort, i commit to pro ice we offer c ethod 4 rever	product or service e., We release a p n order to test the oduct developmen an and will still be sed	we offer is product or market, t., The improved.,

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	62,470	4	15,617	6,980	,000 ^b
	Residual	342,335	153	2,237		
	Total	404,805	157			

a. Dependent Variable: MEANPERFORMANCE

b. Predictors: (Constant), The product or service we offer is still in its development phase., We release a product or service with minimal effort, in order to test the market, before we fully commit to product development., The product or service we offer can and will still be improved., Lean startup method 4 reversed

Coefficients^a

		Unstandardized Coefficients		Standardized Coefficients		
Model		В	Std. Error	Beta	t	Sig.
1	(Constant)	3,375	,887		3,805	,000,
	Lean startup method 4 reversed	,194	,108	,145	1,793	,075
	We release a product or service with minimal effort, in order to test the market, before we fully commit to product development.	-,153	,094	-,126	-1,638	,104
	The product or service we offer can and will still be improved.	,341	,193	,139	1,768	,079
	The product or service we offer is still in its development phase.	-,476	,096	-,385	-4,952	,000



Appendix 17: Regression LSM on MO

			ANOVA ^a			
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4,262	4	1,066	3,843	,005 ^b
	Residual	42,419	153	,277		
	Total	46,681	157			

a. Dependent Variable: Mean Market Orientation Score

b. Predictors: (Constant), We offer a finished and final product that cannot be easily changed or modified., We release a product or service with minimal effort, in order to test the market, before we fully commit to product development., The product or service we offer is still in its development phase., The product or service we offer can and will still be improved.

Model Summary							
			Adjusted R	Std. Error of the			
Model	R	R Square	Square	Estimate			
1	,302ª	,091	,068	,52655			

a. Predictors: (Constant), We offer a finished and final product that cannot be easily changed or modified., We release a product or service with minimal effort, in order to test the market, before we fully commit to product development., The product or service we offer is still in its development phase., The product or service we offer can and will still be improved.



Appendix 18: Marketing & sales function regression on performance

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,402 ^a	,162	,146	1,48431
	t 1 2 month	e2 ⊔ow man	of your employed	e aro
pas ded ded	icated to m icated to sa	arketing?, Ho ales?	w many of your er	nployees are

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	65,517	3	21,839	9,913	,000 ^b
	Residual	339,288	154	2,203		
	Total	404,805	157			

a. Dependent Variable: MEANPERFORMANCE

b. Predictors: (Constant), Which percentage of company costs has been spent on sales related activities over the past 12 months?, How many of your employees are dedicated to marketing?, How many of your employees are dedicated to sales?

Coefficients^a

		Unstandardized Coefficients		Standardized Coefficients		
Model		В	Std. Error	Beta	t	Sig.
1	(Constant)	2,227	,300		7,412	,000
	How many of your employees are dedicated to marketing?	,249	,116	,185	2,152	,033
	How many of your employees are dedicated to sales?	,232	,104	,202	2,227	,027
	Which percentage of company costs has been spent on sales related activities over the past 12 months?	,092	,055	,134	1,675	,096



Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,272 ^a	,074	,056	2,18636

a. Predictors: (Constant), Which percentage of company costs has been spent on sales related activities over the past 12 months?, How many of your employees are dedicated to marketing?, How many of your employees are dedicated to sales?

ANOVA^a

	Model		Sum of Squares	df	Mean Square	F	Sig.
	1	Regression	58,947	3	19,649	4,111	,008 ^b
۲		Residual	736,148	154	4,780		
		Total	795,095	157			

a. Dependent Variable: Performance Revenue Rescaled

b. Predictors: (Constant), Which percentage of company costs has been spent on sales related activities over the past 12 months?, How many of your employees are dedicated to marketing?, How many of your employees are dedicated to sales?

Coefficients^a

		Unstandardized Coefficients		Standardized Coefficients		
Model		В	Std. Error	Beta	t	Sig.
1	(Constant)	3,159	,443		7,139	,000
	How many of your employees are dedicated to sales?	,034	,153	,021	,219	,827
	How many of your employees are dedicated to marketing?	,095	,170	,050	,555	,579
	Which percentage of company costs has been spent on sales related activities over the past 12 months?	,238	,081	,247	2,944	,004

a. Dependent Variable: Performance Revenue Rescaled



Appendix 19: corona virus regression on performance

mouer outlinary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate					
1	,182 ^a	,033	,024	1,45751					

Model Summary

a. Predictors: (Constant), Have you experienced negative effects of the corona virus on your business?

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	7,245	1	7,245	3,411	,068 ^b
	Residual	210,309	99	2,124		
	Total	217,554	100			

a. Dependent Variable: MEANPERFORMANCE

b. Predictors: (Constant), Have you experienced negative effects of the corona virus on your business?

Coefficients^a

		Unstandardize	d Coefficients	Standardized Coefficients		
Model		В	Std. Error	Beta	t	Sig.
1	(Constant)	4,236	,342		12,372	,000
	Have you experienced negative effects of the corona virus on your business?	-,245	,133	-,182	-1,847	,068





Appendix 20 mean LSM and mean MO on phase



Score

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	9,675	2	4,838	12,332	,000 ^b
	Residual	60,802	155	,392		
	Total	70,477	157			

a. Dependent Variable: MeanPhase

b. Predictors: (Constant), MeanLSM, Mean Market Orientation Score

Coefficients^a

		Unstandardize	d Coefficients	Standardized Coefficients		
Model		В	Std. Error	Beta	t	Sig.
1	(Constant)	,350	,449		,780	,436
	Mean Market Orientation Score	,204	,092	,166	2,225	,028
	MeanLSM	-,312	,070	-,330	-4,428	,000

a. Dependent Variable: MeanPhase

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,469 ^a	,220	,210	,928
a. Pr Sc	edictors: (Co ore	nstant), Mear	nLSM, Mean Marke	t Orientation

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.			
1	Regression	37,481	2	18,741	21,741	,000 ^b			
	Residual	132,748	154	,862					
	Total	170,229	156						
a. D	a. Dependent Variable: In which phase would you say your company is in?								

b. Predictors: (Constant), MeanLSM, Mean Market Orientation Score

Coefficients^a

		Unstandardize	d Coefficients	Standardized Coefficients		
Model		В	Std. Error	Beta	t	Sig.
1	(Constant)	4,402	,694		6,339	,000
	Mean Market Orientation Score	,284	,143	,141	1,985	,049
	MeanLSM	-,653	,105	-,445	-6,246	,000

a. Dependent Variable: In which phase would you say your company is in?



Appendix 21: Mean Mean Market Orientation per phase and age

Model Summary									
In which phase would you say your company is in?	Model	R	R Square	Adjusted R Square	Std. Error of the Estimate				
Phase 1: Product/service conceptualization	1	,403 ^a	,162	-,047	,38512				
Phase 2: Product/service market development	1	,470 ^a	,221	,207	1,25285				
Phase 3: Product/Market Fit is establishe	1	,133ª	,018	-,011	1,29712				
Phase 4: Scalin	1	,246 ^a	,060	,044	1,38866				
Phase 5: Full enterpris	1	,127ª	,016	-,093	1,91748				

a. Predictors: (Constant), Mean Market Orientation Score

In which phase would you say your company is in?	Model		Sum of Squares	df	Mean Square	F	Sig.
Phase 1:	1	Regression	,115	1	,115	,776	,428 ^b
Product/service conceptualization		Residual	,593	4	,148		
		Total	,708	5			
Phase 2: Product/service market development	1	Regression	24,486	1	24,486	15,600	,000 ^b
		Residual	86,330	55	1,570		
		Total	110,816	56			
Phase 3:	1	Regression	1,037	1	1,037	,617	,438 ^b
establishe		Residual	57,206	34	1,683		
		Total	58,243	35			
Phase 4:	1	Regression	7,200	1	7,200	3,734	,058 ^b
Scalin		Residual	111,846	58	1,928		
		Total	119,046	59			
Phase 5:	1	Regression	,546	1	,546	,148	,709 ^b
Fuil enterpris		Residual	33,091	9	3,677		
		Total	33,636	10			

ANOVA^a

a. Dependent Variable: MeanPerformance

b. Predictors: (Constant), Mean Market Orientation Score

Coefficients^a

In which phase would you			Unstandardize	d Coefficients	Standardized Coefficients			95,0% Confiden	ce Interval for B
say your company is in?	Model		В	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound
Phase 1: Product/service conceptualization	1	(Constant)	1,231	,981		1,255	,278	-1,492	3,953
		Mean Market Orientation Score	,251	,285	,403	,881	,428	-,540	1,042
Phase 2: Product/service market development	1	(Constant)	-2,644	1,359		-1,945	,057	-5,368	,080,
		Mean Market Orientation Score	1,367	,346	,470	3,950	,000,	,673	2,060
Phase 3: Product/Market Fit is	1	(Constant)	2,563	1,544		1,660	,106	-,575	5,701
establishe		Mean Market Orientation Score	,310	,395	,133	,785	,438	-,492	1,113
Phase 4:	1	(Constant)	1,496	1,620		,923	,360	-1,747	4,740
scain		Mean Market Orientation Score	,767	,397	,246	1,932	,058	-,028	1,562
Phase 5:	1	(Constant)	5,534	3,558		1,556	,154	-2,514	13,582
Fuirenterpris		Mean Market Orientation Score	-,345	,897	-,127	-,385	,709	-2,374	1,683

a. Dependent Variable: MeanPerformance



Model Summary

How long does your company exist?	Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
5-6 months	1	1,000ª	1,000		
6-12 months	1	,319 ^a	,102	,027	1,49494
1-2 years	1	,321 ^a	,103	,086	1,59669
3-4 years	1	,335 ^a	,112	,096	1,42520
5-6 years	1	,387ª	,150	,093	1,66619
>6 years	1	,081 ^a	,007	-,043	1,87130

a. Predictors: (Constant), Mean Market Orientation Score

How long does your company exist?	Model		Sum of Squares	df	Mean Square	F	Sig.
5-6 months	1	Regression	1,125	1	1,125		.b
		Residual	,000,	0			
		Total	1,125	1			
6-12 months	1	Regression	3,039	1	3,039	1,360	,266 ^b
		Residual	26,818	12	2,235		
		Total	29,857	13			
1-2 years	1	Regression	15,245	1	15,245	5,980	,018 ^b
		Residual	132,570	52	2,549		
		Total	147,815	53			
3-4 years	1	Regression	14,612	1	14,612	7,194	,010 ^b
		Residual	115,778	57	2,031		
		Total	130,390	58			
5-6 years	1	Regression	7,328	1	7,328	2,640	,125 ^b
		Residual	41,643	15	2,776		
		Total	48,971	16			
>6 years	1	Regression	,465	1	,465	,133	,719 ^b
		Residual	70,035	20	3,502		
		Total	70,500	21			

ANOVA^a

a. Dependent Variable: MeanPerformance

b. Predictors: (Constant), Mean Market Orientation Score

Coefficients^a

How long does your			Unstandardize	d Coefficients	Standardized Coefficients			95,0% Confider	ice Interval for B
company exist?	Model		В	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound
5-6 months	1	(Constant)	-3,885	,000				-3,885	-3,885
		Mean Market Orientation Score	1,846	,000	1,000			1,846	1,846
6-12 months	1	(Constant)	,124	3,165		,039	,969	-6,772	7,021
		Mean Market Orientation Score	,911	,781	,319	1,166	,266	-,791	2,614
1-2 years	1	(Constant)	-,800	1,712		-,467	,642	-4,234	2,635
		Mean Market Orientation Score	1,071	,438	,321	2,445	,018	,192	1,949
3-4 years	1	(Constant)	,368	1,329		,277	,783	-2,294	3,030
		Mean Market Orientation Score	,891	,332	,335	2,682	,010,	,226	1,557
5-6 years	1	(Constant)	-1,370	3,132		-,437	,668	-8,047	5,306
		Mean Market Orientation Score	1,305	,803	,387	1,625	,125	-,407	3,017
>6 years	1	(Constant)	3,063	2,602		1,177	,253	-2,365	8,491
		Mean Market Orientation Score	,236	,648	,081	,364	,719	-1,116	1,588

a. Dependent Variable: MeanPerformance



Appendix 21 B

Coefficients^a

				Unstandardize	d Coefficients	Standardized Coefficients		
	Phase123	Model		В	Std. Error	Beta	t	Sig.
	1,00	1	(Constant)	-2,005	1,213		-1,654	,104
			Mean Market Orientation Score	1,175	,307	,460	3,823	,000
•			We release a product or service with minimal effort, in order to test the market, before we fully commit to product development.	,038	,123	,037	,310	,758
	2,00	1	(Constant)	2,522	1,146		2,201	,030
			Mean Market Orientation Score	,535	,279	,192	1,917	,058
			We release a product or service with minimal effort, in order to test the market, before we fully commit to product development.	-,118	,112	-,106	-1,058	,293



Appendix 22a, full regression model





Appendix 22b: Phase on MO

			Correla	tions				
		Mean Market Orientation Score	MEANPERFO RMANCE	In which phase would you say your company is in?	MeanPhase	When did your company get its first revenue?	We are planning to commence market research in a later phase.	How long does your company exist?
Mean Market Orientation	Pearson Correlation	1	,308	,151	,168	,078	-,155	,067
Score	Sig. (2-tailed)		,000	,060	,035	,331	,052	,402
	N	158	158	157	158	158	158	158
MEANPERFORMANCE	Pearson Correlation	,308**	1	,489**	,374**	,339**	-,019	,148
	Sig. (2-tailed)	,000,		,000	,000	,000	,816	,064
	N	158	158	157	158	158	158	158
In which phase would you	Pearson Correlation	,151	,489**	1	,699**	,519**	-,006	,332**
say your company is in?	Sig. (2-tailed)	,060	,000		,000	,000	,941	,000
	N	157	157	157	157	157	157	157
MeanPhase	Pearson Correlation	,168*	,374**	,699	1	,809**	-,412**	,731**
	Sig. (2-tailed)	,035	,000	,000,		,000,	,000,	,000,
	Ν	158	158	157	158	158	158	158
When did your company	Pearson Correlation	,078	,339**	,519**	,809**	1	-,067	,554**
get its first revenue?	Sig. (2-tailed)	,331	,000	,000,	,000		,406	,000
	Ν	158	158	157	158	158	158	158
We are planning to	Pearson Correlation	-,155	-,019	-,006	-,412**	-,067	1	-,035
commence market research in	Sig. (2-tailed)	,052	,816	,941	,000	,406		,661
a later phase.	N	158	158	157	158	158	158	158
How long does your	Pearson Correlation	,067	,148	,332**	,731**	,554**	-,035	1
company exist?	Sig. (2-tailed)	,402	,064	,000	,000	,000	,661	
	N	158	158	157	158	158	158	158
**. Correlation is signific *. Correlation is significa	ant at the 0.01 level (2-ta int at the 0.05 level (2-tail	iled). Ied).						

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,151 ^a	,023	,016	,51613

a. Predictors: (Constant), In which phase would you say your company is in?

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	,957	1	,957	3,593	,060 ^b
	Residual	41,291	155	,266		
	Total	42,248	156			

a. Dependent Variable: Mean Market Orientation Score

b. Predictors: (Constant), In which phase would you say your company is in?

Coefficients^a

		Unstandardize	d Coefficients	Standardized Coefficients		
Model		В	Std. Error	Beta	t	Sig.
1	(Constant)	3,695	,128		28,809	,000,
	In which phase would you say your company is in?	,075	,040	,151	1,896	,060

a. Dependent Variable: Mean Market Orientation Score



Appendix 23. Highest adjusted R squared model



ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	177,615	12	14,801	9,498	,000 ^b
	Residual	224,392	144	1,558		
	Total	402,006	156			
a. D	ependent Varial	ble: MEANPERFOR	RMANCE			

b. Predictors: (Constant), Mean Market Orientation Score, The goal of our company is to

Predictors: (Constant), Mean Market Orientation Score, The goal of our company is to grow internationally., How long does your company exist?, Lean startup method 4 reversed, We release a product or service with minimal effort, in order to test the market, before we fully commit to product development, Zscore: The person responsible for sales (can be the owner/entrepreneur) has substantial sales experience. The product or service we offer can and will still be improved, in which phase would you say your company is in?, How many employees currently work for your company? - Number of employees, The product or service we offer is still in its development phase., MeanMarketingExp, When did your company get its first revenue?

Coefficients^a

		Unstandardize	d Coefficients	Standardized Coefficients			95,0% Confider	nce Interval for B
Model		В	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound
1	(Constant)	-,769	1,299		-,592	,555	-3,337	1,799
	We release a product or service with minimal effort, in order to test the market, before we fully commit to product development.	-,117	,083	-,095	-1,411	,160	-,281	,047
	The product or service we offer can and will still be improved.	,251	,166	,103	1,512	,133	-,077	,578
	The product or service we offer is still in its development phase.	-,116	,097	-,094	-1,206	,230	-,307	,074
	Lean startup method 4 reversed	,121	,095	,090	1,274	,205	-,067	,308
	How many employees currently work for your company? - Number of employees	,008	,004	,157	2,125	,035	,001	,015
	How long does your company exist?	-,330	,100	-,276	-3,311	,001	-,526	-,133
	The goal of our company is to grow internationally.	,287	,084	,231	3,408	,001	,121	,453
	In which phase would you say your company is in?	,456	,132	,297	3,464	,001	,196	,716
	When did your company get its first revenue?	,241	,072	,306	3,339	,001	,098	,384
	MeanMarketingExp	,473	,177	,210	2,669	,008	,123	,824
	Zscore: The person responsible for sales (can be the owner/entrepreneur) has substantial sales experience.	-,169	,123	-,106	-1,378	,170	-,412	,074
	Mean Market Orientation Score	,512	,216	,166	2,368	,019	,085	,939

a. Dependent Variable: MEANPERFORMANCE



Appendix 24. Final regression model

		Model Su	ımmary			
Model	₽	R Square	Adjusted R Square	Std. Error of the Estimate		
<u> </u>	,637ª	,406	,378	1,26593		
a. Pre inte you for cor	dictors: (Co arnationally., as your comp ployees curr your company mpany get its	nstant), The g Mean Market (pany exist?, In s in?, MeanMa s in?, MeanMa rently work rently work rently revenue? s first revenue?	oal of our comp Orientation Sco which phase w irketingExp, Ho of employees, V ?	any is to grow re, How long rould you say w many When did your		
			ANOVA			
Model		Sum of Square:	df	Mean Square	т	Sig.
-	Regression	163,	223	7 23,318	14,550	,000,
	Residual	238,	783 14	9 1,603		
	Total	402,	006 15	6		
a. De	pendent Var	iable: MEANPE	ERFORMANCE			
b. Pre inte In v for rev	dictors: (Co ernationally., which phase ployees curn your compan enue?	nstant), The go Mean Market (would you sa) rently work ny? - Number (oal of our comp Orientation Sco y your company of employees, V	any is to grow re, How long does y r is in?, MeanMarketi When did your comp	our company ngExp, How r any get its firs	exist?, nany st

			Coeffici	ents ^a					
	Unstandardize	d Coefficients	Standardized Coefficients			95,0% Confider	ce Interval for B	Collinearity	Statistics
	B	Std. Error	Beta	+	Sig.	Lower Bound	Upper Bound	Tolerance	VIF
(Constant)	3,667	,101		36,286	,000	3,468	3,867		
Zscore (MeanMarketingExp)	,241	,111	,149	2,166	,032	,021	,460	,841	1,189
Zscore(MeanMO) Mean Market Orientation Score	,315	,115	,187	2,731	,007	,087	,543	,848	1,179
Zscore(Phase) In which phase would you say your company is in?	,514	,126	,320	4,082	,000	,265	,762	,649	1,541
Zscore(FirstRevenue) When did your company get its first revenue?	,482	,144	,301	3,343	,001	,197	,767	,491	2,035
Zscore: The goal of our company is to grow internationally.	,387	,109	,241	3,551	,001	,172	,602	,864	1,157
Zscore(Age) How long does your company exist?	-,388	,132	-,242	-2,932	,004	-,649	- ,126	,585	1,710
Zscore: How many employees currently work for your company? - Number of employees	,259	,118	,162	2,195	,030	,026	,492	,735	1,361
Dependent Variable: MEANPER	RFORMANCE								



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