



Norwegian University of
Science and Technology

Contextual Market Research Challenges for Startups

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Master of Science in Entrepreneurship

Submission date: December 2017

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Problem Description

This thesis investigates what are the challenges of market research for startups developing an incremental new product to an existing market.

This will be done by performing a literature review, and a longitudinal single-case study.

Preface

This master thesis is written at the NTNU School of Entrepreneurship at the Department of Industrial Economics and Technology Management at Norwegian University of Science and Technology. The thesis is written based on research data collected between November 2016 and May 2017.

Throughout the study, I have worked as a marketing officer in the company being researched, namely the American startup One Earth Designs. Hence, I have had full access to the market research (MR) conducted for their new portable solar cooker. Through One Earth Designs' support, I have collected research data through interviews, internal documents and personal observations as a participant-observer.

I want to thank One Earth Designs for remaining supportive throughout the case study, and for allowing me to combine daily work responsibilities and the writing of my thesis. In addition, I want to thank my supervisors Øystein Widding and Dag Håkon Haneberg at the School of Entrepreneurship for their guidance and supportive attitude. Furthermore, I want to thank my parents Kristian Helland and Kari Folkvord for their continuous support and willingness to provide feedback. Finally, I want to thank Ina Åsnes Skjelbred for her encouragement and for making me a little happier every day.

I hope and believe that this thesis will help future startups deal with the challenges they face when conducting MR.

Stathelle, December 13, 2017

A handwritten signature in black ink that reads "Jonas Helland". The signature is written in a cursive, slightly slanted style. Below the signature is a horizontal dashed line.

Jonas Helland

Executive Summary

Even though the field of market research (MR) has evolved in sophistication, scope and importance over the years, previous research has mostly focused on large, resource-abundant corporate organizations and has ignored startups. Consequently, startups are assessed in the context of existing models based on large firm practices, something that fails to consider the resource constraints and capability limits of small, entrepreneurial firms. Current research within the field of entrepreneurship has identified that the applicability of current MR theories to a startups' decision making is limited, and that the MR literature fails to relate to the unique context of the entrepreneur. This contextual gap in the MR field is unfortunate, as the greatest risk for startups in order to survive and grow lies not in the development of new products, but in the development of customers and markets.

This study starts by reviewing MR literature, in order to define the contextual MR challenges for startups and define propositions for how to deal with these challenges. Based on an abductive approach of combining theoretical findings and empirical data, the author presents a detailed, actionable and coherent framework for startups to use when conducting MR. This framework addresses specific challenges that startups are likely to encounter when conducting MR, and suggests appropriate strategies for handling these challenges.

The identified challenges in the framework are related to both the research design, data collection and sampling stage of the design phase and of the execution phase of the MR process. Here, the use of simple, inexpensive methods, small sample sizes and the need to use non-probability sampling are identified as the main MR challenges for startups in the design phase. Subsequently, asking the right questions, the lack of continuous work and how everything takes longer are critical challenges that needs to be handled in the execution phase. To deal with these challenges, the author presents the following four strategies for a startup context: Be pragmatic in research design, combine methods, harness online resources and harness relationships.

The initial framework is illustrated through a single-case longitudinal study, which explores the nuances and details of a startup conducting MR, and describes MR challenges and strategies in-depth. The selected case is the MR conducted by the American startup One Earth Designs between November 2016 and March 2017. The goal of this MR was to inform the marketing and

product development of a new, incremental product innovation for the American outdoor market, namely a portable solar cooker. Due to the author's role as Marketing Officer in the startup throughout the study, data was collected through participant-observation, interviews and documentation. Throughout the analysis, the author identifies how the approach used by One Earth Designs is distinctly different to the large-firm processes described in the MR literature, even though the methods and techniques in themselves are similar. The case study is presented through a comprehensive and detailed analysis.

The author contributes to theory by suggesting a new pragmatic approach to MR for startups, in which combining methods, being systematic and making choices are key principles. This pragmatic approach provides an important step in filling the contextual gap identified in the MR literature, by recognizing the unique context in which startups that are developing new incremental product conduct their MR. Furthermore, by identifying appropriate strategies for handling the lack of statistical power and resource constraints, the suggested approach will help increase the relevancy and applicability of current MR literature to startups.

Further research should focus on four topics identified in this study. First, the distinction between challenges arising for startups in quantitative and qualitative research needs to be clarified. Secondly, the impact of startups' non-MR-related daily responsibilities on the MR work needs to be investigated. Thirdly, to what extent MR experience or expertise is present in startups and how this impacts the ability to ask the right questions in MR needs more research. Fourthly, further research should consider how online resources best can be harnessed by startups as a key strategy in obtaining high-quality MR data. In addition, more quantitative research is needed to test both the elements present in the theoretical framework, and the relationships *between* these elements. Finally, substantial work is needed to develop the pragmatic approach to MR, which makes MR more applicable and less resource intensive for startups.

Sammendrag

Til tross for at det akademiske feltet innen markedsundersøkelser (MU) har utviklet seg i betydning og omfang de seneste årene, har forskningen for det meste fokusert på store, ressurssterke bedrifter og ignorert oppstartsbedrifter. Som en konsekvens av dette har oppstartsbedrifter blitt vurdert gjennom eksisterende modeller basert på praksisen til store bedrifter, noe som ikke tar hensyn til ressursbegrensningene til mindre, entreprenørielle oppstartsbedrifter. Nåværende forskning innen entreprenørskap har identifisert det faktum at aktuelle teorier innen MU i liten grad er anvendbare for oppstartsbedrifter når de skal ta beslutninger, og at litteraturen på MU ikke anerkjenner den unike konteksten som entreprenøren befinner seg i. Dette kontekstuelle gapet innen forskning på MU er uheldig, da den største utfordringen for oppstartsbedrifter for at de skal overleve og vokse ikke ligger i utviklingen av nye produkter, men i utviklingen av kunder og markeder.

Denne oppgaven går først gjennom aktuell litteratur på MU, for å definere utfordringene når oppstartsbedrifter gjennomfører MU samt presenterer forslag til hvordan disse utfordringene kan håndteres. Basert på en abduktiv tilnærming der teoretiske funn og empirisk data kombineres, presenterer forfatteren et detaljert og handlingsrettet rammeverk til bruk for oppstartsbedrifter når de skal gjennomføre MU. Dette rammeverket peker på spesifikke utfordringer som oppstartsbedrifter sannsynligvis vil møte når de gjennomfører MU, og foreslår strategier for å håndtere disse utfordringene.

De identifiserte utfordringene i rammeverket omfatter både stegene på forskningsdesign, datainnsamling og utvalg i designfasen samt gjennomføringsfasen av MU-prosessen. De største utfordringene innen MU for oppstartsbedrifter i designfasen er bruken av enkle, billige metoder, små utvalg og nødvendigheten av å bruke ikke-sannsynlig utvalg. Deretter er spørsmålsstilling, begrensede analyser og mangel på kontinuerlig fokus kritiske utfordringer i gjennomføringsfasen. For å håndtere disse utfordringene, presenterer forfatteren følgende fire strategier for oppstartsbedrifter: Vær pragmatisk i forskningsdesignet, kombiner metoder, utnytt nettbaserte ressurser og utnytt relasjoner.

Hovedelementene i rammeverket er illustrert gjennom en longitudinell casestudie, som utforsker nyansene og detaljene ved en oppstartsbedrift som gjennomfører MU og går i dybden på å

beskrive deres utfordringer og strategier ved MU. Den valgte casestudien er MU som ble gjennomført av den amerikanske oppstartsbedriften One Earth Designs mellom november 2016 og mars 2017. Målet for denne MU var å bidra til markedsføringen og produktutviklingen av en ny, inkrementell produktinnovasjon for det amerikanske utendørsmarkedet, nemlig en bærbar solgrill. Som en følge av at forfatteren var ansatt som markedsfører i oppstartsbedriften gjennom hele casestudiet, ble deltaker-observasjon, intern dokumentasjon og intervjuer med sentrale personer brukt som datagrunnlag. Gjennom analysen, viser forfatteren hvordan tilnærmingen som ble brukt av One Earth Designs er svært ulik prosessene som i MU-litteraturen beskrives brukt av store bedrifter, selv om metodene og teknikkene i seg selv i stor grad er like. Casestudiet er presentert gjennom en omfattende og detaljert analyse.

Forfatterens viktigste teoretiske bidrag er å foreslå en ny pragmatisk tilnærming til MU for oppstartsbedrifter, der kombinasjon av metoder, det å være systematisk samt det å gjøre valg er sentrale prinsipper. Denne pragmatiske tilnærmingen gir et viktig bidrag til å fylle de kontekstuelle manglende innenfor MU-litteraturen, gjennom å anerkjenne den unike konteksten som oppstartsbedrifter som gjennomfører MU for å utvikle nye, inkrementelle produkter befinner seg i. I tillegg, gjennom å identifisere strategier for å håndtere ressursbegrensningene og den manglende statistiske styrken, bidrar den foreslåtte tilnærmingen til å øke relevansen og anvendbarheten av nåværende MU-litteratur for oppstartsbedrifter.

Videre forskning bør fokusere på fire hovedtema som er blitt identifisert i denne studien. For det første bør skillet mellom utfordringer som oppstår for oppstartsbedrifter i kvantitative og kvalitative undersøkelser klargjøres. For det andre bør det undersøkes hvordan oppstartsbedrifters daglige ikke-MU-relaterte ansvarsområder påvirker arbeidet med MU. For det tredje bør forskere undersøke i hvilken grad oppstartsbedrifter innehar erfaring og ekspertise på MU og hvordan dette påvirker evnen til å stille de riktige spørsmålene ved MU. For det fjerde bør videre forskning undersøke hvordan nettressurser i best mulig grad kan bli utnyttet av oppstartsbedrifter som en sentral strategi for å skaffe data fra MU av høy kvalitet. I tillegg trengs det mer kvantitativ forskning for å teste både de individuelle elementene i det teoretiske rammeverket samt forholdet *mellom* disse elementene. Til slutt foreslås det omfattende forskning for å videreutvikle den pragmatiske tilnærmingen til MU, noe som vil gjøre MU mer anvendbar og mindre ressurskrevende for oppstartsbedrifter.

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1. Introduction

1.1 The need for startups to conduct market research (MR)

As the development of new products is vital for new venture creation (Merkaš et al., 2016), startups need to decrease risk and uncertainty to enhance the probability of success for a new product (Knight, 2012; Ries, 2011). On a strategic level, there are in particular three fields in which startups have a high risk rate (Merkaš et al., 2016): a) technical/product risk, b) market risk, c) business model risk. Here, Merkaš et al. (2016) argue that customer risk, as a part of market risk, is the dominant risk factor for startups in most cases. A common misconception among many startups, the authors claim, is the belief that potential customers will be interested in their product, before market research (MR) has been conducted to confirm this claim (Merkaš et al., 2016; Ries, 2011). Accordingly, Blank (2013a) states that startups need to start with an understanding of the customer when developing new products, and that the gravest risk for startups is not in the development of the new product but in the development of customers and markets (Blank 2013a; 2013b; Ries 2011).

MR is defined by the Market Research Society as “*the systematic collection, analysis and interpretation of information relevant to marketing decisions*”, and helps reduce business risk by supporting decision making with robust and reliable data (Churchill and Iacobucci, 2006; Harrison et al., 2016). One of the underlying assumptions of MR is that while “gut feel” and intuition is necessary, it is not sufficient (Malhotra, 2008; Sheth and Malhotra, 2009; Wilson et al., 2009). This critical assumption is shared by many scholars in the startup literature, namely that in addition to intuition, decision making on new products needs to be based on solid and rigorous data to a) *enhance their understanding of customers’ needs*, and b) *understand the requirements of a superior product* (Aulet, 2013; Kahn, 2012; Kim et al., 2013; Van Kleef et al., 2005; Solomon, 2009).

1.2 New opportunities within MR

MR scholars agree that the execution of thorough MR is resource intensive (Sheth and Malhotra, 2009). However, the rapid adoption of Internet and web-based communication has had a

profound impact on MR, influencing the cost aspect and providing new opportunities (Babin et al., Crane, 2009; Cooke, 2008; Feinberg et al., 2012; Harrison, 2016). Carl and Gates (2005) claim that the Internet present five specific advantages to MR, that all might increase the applicability of MR for startups:

- Dramatically reduced costs: Data is more freely available; the challenge is now to process and make sense of the data.
- Rapid development and collection: Online platforms like SurveyMonkey allowss for quick data collection from respondents across geographical borders.
- Higher response rates: Online respondents are free to complete questionnaires at their convenience, which increases the likelihood of participation.
- The ability to contact those hard-to-reach: People that previously would be too costly or too challenging to reach can now respond quickly and easily.
- Personalization: Data collection methods can be tailored to individuals or groups of individuals.

The outcome, according to Carl and Gates, is that the Internet thus allows for better, cheaper and faster MR. These factors might provide new opportunities for startups with limited resources and capabilities that aim to conduct formal research to inform the development of new products.

1.3 The lack of research on MR in a startup context

The field of MR has evolved in sophistication, scope, and importance over the years (Malhotra, 2009). However, research in the field has mostly focused on large, resource-abundant corporate organizations and has ignored small, entrepreneurial organizations (Franco, 2014; Gilmore, 2001; Hills, 2008; Mc Cartan-Quinn, 2003). This resource-abundant perspective on MR fails to consider the resource constraints, capability limits and contexts of entrepreneurial firms (Hills, 2008). As such, most research on MR ignores the unique opportunities, strategies, processes and practices that firms operating in an entrepreneurial context might consider when competing in the marketplace (Hills, 2008; Phua, 2009). Instead, small, entrepreneurial firms are assessed in the context of existing models based on large firm practices (Bocconcelli, 2016; Coviello, 2000;

Phua, 2009; Zontanos, 2004). In his research, Hills (2008) concludes that firms operating in an entrepreneurial context are not well served by the strategies, processes and tools of “mainstream” marketing theories. Hence, the applicability of traditional MR theories to a startup’s decision making is limited (Lee, 1999), and they are unlikely to relate closely enough to the requirements of the entrepreneur’s situation (Mc Cartan-Quinn, 2003).

1.4 Understanding the unique characteristics of startups

There are several unique characteristics that distinguish startups from large firms, which have implications for MR (Gilmore, 2001). The author uses the marketing literature on SME to help define these characteristics, as the MR literature has failed to acknowledge these contextual differences. Firstly, in a startup, each decision regarding human, social, financial, physical, technological and organizational resources has significant implications for survival and growth (Brush et al, 2001). In fact, startups need to quickly learn what customers want, and develop products accordingly only to survive, before they run out of resources (Blank, 2013a). This is in steep contrast to the more extensive resources of large firms. A basic premise of the MR literature is that these extensive resources to conduct the whole MR process already exist. However, this is not necessarily applicable for startups (Brush et al, 2001).

Secondly, marketing decision-making tends to be more formal and structured in large companies, whereas processes in startups tend to be simple, informal and instinctive (Izvercian et al., 2016; Keskin 2006). Compared to larger firms, startups spend less attention on plans, strategies and analyses (Franco, 2014). Marketing strategy in startups tend to be driven by the intuition of the entrepreneur and is not necessarily a result of a systematic search for opportunities or a structured analysis of the relevant market (Izvercian et al., 2016). Traditional marketing is conceived of as a deliberately planned process that carefully identifies new offerings in the market place through formal research (Blankson et al.,2006). Marketing processes in startups, on the other hand, tend to involve informal, less planned activities, that rely on intuition and energy of the entrepreneur to make things happen (ibid).

Most startups do not conduct MR (Keskin, 2006). This is in line with previous studies showing how startups tend to rely on their relationships to partners and customers, and underestimate the

strategic importance of formal MR (Bocconcelli, 2016). However, as observed by Brooksbank et al. (2003), this lack of prioritization of MR might be explained by entrepreneurs being overwhelmed by the financial and human resources in addition to the time required for formal research, as they are clearly aware of the importance of MR.

Distinction	Large firm	Startup
Decision making	Formal and well-planned	Simpler and informal
Strategy formulation	Research-driven	Entrepreneur-driven
Resource availability	Extensive	Severely limited
Formal market research (MR)	Yes	Tend not to
View on MR	Essential	Too resource intensive

Table 1: Key distinctions between startups and large firms. *Source: Brooksbank et al., 2003; Brush et al. 2001; Franco, 2014; Gilmore, 2001; Izvercian et al., 2016.*

1.5 Incremental new products to an existing market

As MR for developing new products has tended to be too resource intensive for startups (Maura, 2012; Ries, 2011), startups have needed to find other solutions. Consequently, research on how startups can understand how to make a successful product that meets the needs of their customers has mostly focused on lean methodologies and similar iterative processes. However, these methodologies are not suited for all startups. Firstly, they are applicable for startups developing new products to a new or re-segmented market, but not for startups entering an *existing* market with a new product (Blank, 2013a; Blank & Dorf, 2012). Secondly, the relevance of lean methodologies and similar processes depend on the *type* of innovation that the new product offers. Schliesser (2015) found that while more than 50% of startups engaging in radical innovation use a lean methodology in gaining market insights (Ries, 2011; Blank and Dorf, 2012; Blank, 2013b; Maurya, 2012), none of the companies in the study used such methodologies for incremental innovation. When developing incremental new products into an

established, well-defined market, startups are recommended to use more traditional product development methodologies, where detailed MR is an essential ingredient (Blank, 2013).

How startups can learn about customers and markets for their new product		Type of innovation	
		Radical	Incremental
Market type	New or re-segmented	Lean methodologies	Lean methodologies
	Existing	Lean methodologies / MR	Detailed MR

Table 2: How startups can learn about customers and markets for their new product. *Source: Blank & Dorf, 2012.*

1.6 Purpose of the study

Despite startups’ strong emphasis on customer care and awareness of the environment, the MR processes and frameworks do not suit the size, the available resources and the environment of startups (Blankson and Omar, 2002; Blankson and Stokes, 2002; Stokes, 2002; Verhees and Meulenber, 2004). As the MR literature has been tailored to larger firms with extensive resources to spend, the MR literature has failed to incorporate important perspectives on key limitations, challenges and strategies for startups during the development of new products. Accordingly, one might argue that the current MR literature provides a “one-size-fits-all”-solution for MR, which fails to recognize the unique characteristics of firms that do not have extensive resources. This is unfortunate, as startups are essential to new job creation, creating an average of 3 million new jobs annually in the United States only (Kane, 2010).

To fill the contextual gap identified in the MR literature, the marketing field needs focused research that investigates how startups differ to larger firms in terms of marketing approaches and practices (Bocconcelli, 2016). Moreover, there is a need to reshape the sole large firm focus to take account of the nature of startups (Venkatesan, 2001). To get there, detailed research on specific challenges and contextually appropriate strategies for startups is needed. In turn, the author seeks to understand which challenges arise for startups during MR for new products, and what are the appropriate strategies to handle these challenges.

The following purpose has been outlined for this thesis:

“To investigate what the challenges of MR are for startups developing an incremental new product to an existing market.”

1.7 Research Scope

MR scholars such as Carl (2005) and Harrison et al. (2016) clearly states that MR can be used for other purposes than new product development (NPD), such as brand development or the effectiveness of advertising. However, MR for the purpose of NPD is the sole focus of this master thesis, even though important concepts and processes in MR that are not contextual to NPD have been included, if the author has considered it valuable for research purposes. Furthermore, scholars state that the distinction between radically and incrementally new products influences how MR should be conducted (Hoyer, 2010; Song and Montoya-Weiss, 1998). In this master thesis, incremental new products provide the context, while MR literature related to radically new products is not included. In addition, the author has chosen to focus on new hardware products, as development of both new software and service offerings provide its own set of challenges and subsequent strategies that differ from hardware products (Harrison, 2016). The author will apply a market-oriented view of the startup (Day and Moorman, 2010), treating design and manufacturing of the product as a black box in the research. Finally, as MR is discussed in a consumer context, MR will entail both market research and consumer research.

Figure 1 presents an overview of the research scope. The green boxes illustrate choices made by the author to ensure focus of the master thesis, whereas the grey boxes show topics that have not been considered relevant to the research.

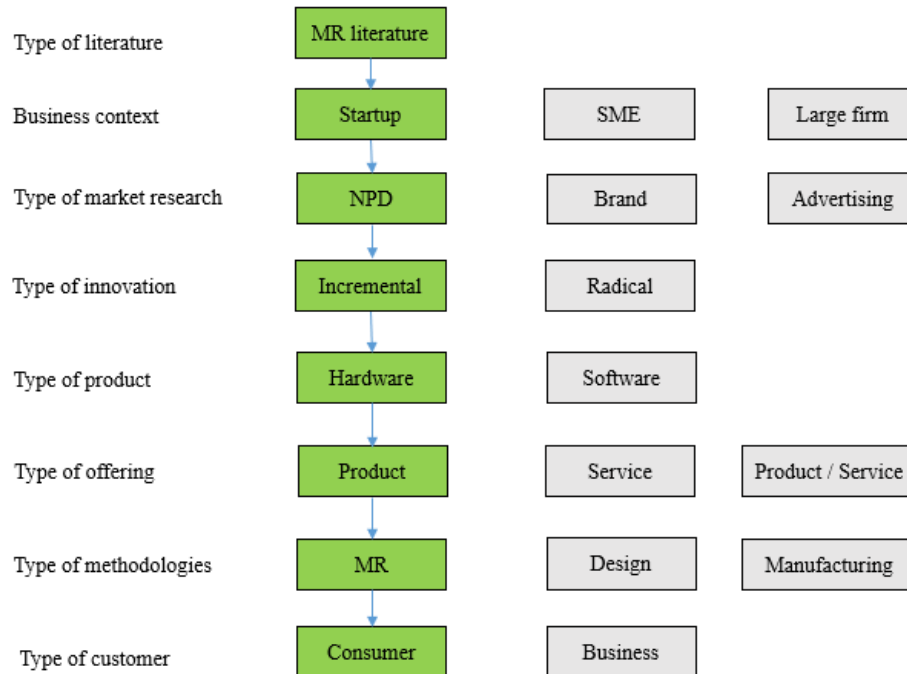


Figure 1: Overview of the research scope. *Source: Author.*

1.8 Thesis Outline

To reach the purpose that has been outlined for this thesis, the following research questions (RQs) have been outlined:

RQ1: What are the challenges in the MR process that are contextually specific to startups?

RQ2: How do startups handle these contextually specific challenges?

By using the MR process as described in the MR literature as the basis, RQ1 focuses on significant challenges for startups specific to their unique context. Subsequently, RQ2 provides suggestions on how startups handle the challenges identified in RQ1. As these research questions have tended to be ignored in the MR literature, focused research that provides a deep understanding of MR challenges and contextually appropriate MR strategies is necessary. Based on an abductive approach of combining theoretical findings and empirical data, the author presents a detailed, actionable and coherent framework for startups to use when conducting MR. This framework addresses specific challenges that startups are likely to encounter when conducting MR, and suggests appropriate strategies for handling the challenges. The framework

is illustrated through a single-case longitudinal study, which explores the nuances and details of a startup conducting MR, and describes MR challenges and strategies in-depth.

The author contributes to theory by suggesting a new pragmatic approach for startups conducting MR, in which combining methods, being systematic and making choices are presented as key principles. This pragmatic approach provides an important step in filling the contextual gap identified in the MR literature, by recognizing the unique context in which startups that are developing new incremental product conduct their MR. Furthermore, by identifying appropriate strategies to handle the lack of statistical power and resource constraints, the suggested approach helps increase the relevancy and applicability of the current MR literature to startups.

1.9 Thesis Structure

Initially, a review of relevant literature is presented to define the context in which startups operate, contextual MR challenges and propositions for how to handle these challenges. Subsequently, a coherent theoretical construct based on the theoretical findings is presented. This framework addresses specific challenges that startups are likely to encounter when conducting MR, what type of bias they should try to avoid in order to obtain high-quality MR data, and appropriate strategies for handling the challenges in their context.

After providing a methodological discussion on the case research, the author presents a longitudinal single-case study of the MR conducted by the American startup One Earth Designs between November 2016 and March 2017. The goal of the MR was to inform the marketing and product development of a new, incremental product innovation for the American outdoor market, namely a portable solar cooker. This case study is presented through a comprehensive and detailed analysis, where the aim is to help illustrate the theoretical construct. At the end of the analysis, the main findings are summarized. Subsequently, the implications of the analysis for the MR field are discussed in the discussion chapter. Finally, the conclusion is presented to answer the research questions outlined in 1.8, followed by suggestions for further research.

2. Theoretical Background and Construct

This chapter explains the theoretical background required to define what are the limitations and contextual challenges for startups doing MR, and what are the propositions for addressing these issues. Based on the theoretical findings in this chapter, a new framework that defines contextual MR challenges for startups and ways to deal with these challenges is presented. The subsequent case analysis help illustrate the workings of the theoretical construct in a real-life case-study, based on the structure outlined in this section.

On a general level, scholars agree that *reliability*, *validity* and *representativeness* are the main factors that influence the quality of MR results (Dibb et al., 2005; Solomon, 2009). As seen in the MR literature, issues that affect the quality of the MR may arise during the whole MR process, particularly if resources are not abundant. By adding the natural limitations of how startups operate, new issues and contextual challenges are introduced that need to be handled effectively for startups to obtain reliable, valid and representative MR results. This process will be outlined throughout this chapter. To help define the startup context, a discussion of the limitations for startups conducting MR and how these limitations invariably introduce bias to the MR will be presented in 2.1. Subsequently, specific challenges that startups are likely to encounter during the MR process will be discussed in 2.2, followed by propositions for addressing MR challenges in 2.3. Finally, a coherent framework based on the main theoretical arguments is presented in 2.4.



Figure 2: Overview of the theoretical background. *Source: Author.*

2.1 MR limitations and bias in the startup context

Startups have certain limitations which differentiate them from conventional marketing in large companies, which invariably introduce bias in MR (Gilmore, 2001). Bias is defined by Tortolani (1965) as “any force, tendency, or procedural error in the collection, analysis, or interpretation of

data which provides distortion”. In MR, the most common types of biases are *method bias*, *sample bias*, *self-selection bias* and *confirmation bias* (Balogun, 2014).

The tendency for MR results to be somewhat biased is relatively high, as all MR methods and techniques introduce some form of bias. However, the *degree* of bias is dependent on the conditions in which the MR is conducted (Balogun, 2014), and these conditions are clearly different in a startup context than in larger, resource-abundant firms. Firstly, startups are limited by resource constraints, especially in terms of financial and human resources (Bettiol, 2012; Gilmore, 2001; Mc Cartan-Quinn, 2003; Zontanos, 2004). Brush et al (2001) argues that for the entrepreneur, each decision regarding human, social, financial, physical, technological and organizational resources has significant implications for survival and growth. By not being able to afford using the necessary methods that measure the actual phenomenon of the study, method bias is likely to arise, for example from respondents providing answers that are socially desirable (Malhotra, 2008). Furthermore, proper sampling depends on available resources (Churchill et al. 2001), and a general rule of thumb is that more extensive sampling gives better data (Dibb et al. 2005). Accordingly, MR scholars agree that limited resources imply that sample bias is likely to occur, as sampling options such as random sampling might have to be eliminated (Babin and Zikmund, 2015). In addition, by having limited resources to choose samples in a random manner, self-selection bias might occur for startups, as respondents can decide for themselves whether they want to participate.

Secondly, startups tend to lack MR experience and expertise (Berthon, 2008; Franco et al., 2014; Gilmore, 2001). They rarely use specialists in the field, as the financial limitations restrict startups’ ability to employ marketing experts (Bettiol, 2012; Venkatesan, 2001; Zontanos, 2004). Consequently, those who attempt to conduct market studies often lack the prerequisite understanding and training (Krueger, 2002; Mc Cartan-Quinn, 2003). Consequently, method bias is likely to occur by respondents misinterpreting unclear questions or the meaning of the questions. Even more detrimental to the quality of the MR, one might argue, is how the lack of MR expertise is likely to introduce confirmation bias, by those involved not being aware of our natural tendency to interpret data in a way that is consistent with what we believe ourselves (Dooley, 2013). The likelihood of confirmation bias to occur for startups during MR is further multiplied by how entrepreneurs tend to have blind faith in their product (Staff, 2014). Accordingly, they may be less likely to look for alternative ways of interpreting the customer

feedback that does not support their new product, particularly explanations that might prove the product idea less likely to become a success (Dooley, 2013).

To sum up, Figure 3 provides an overview of limitations and main biases to avoid during MR in a startup context. Any startup conducting MR should aim to minimize these biases by making adjustments to the research (Balogun, 2014).

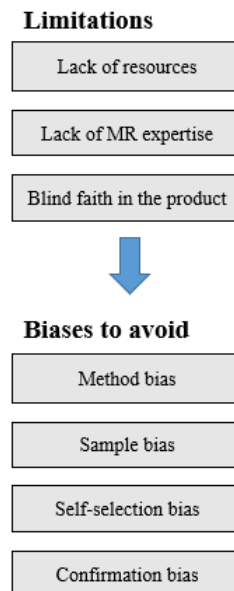


Figure 3: Startup specific limitations and main biases to avoid.

2.3 The MR process and contextual startup challenges

To ensure a consistent and high-quality output of MR, scholars state that a systematic MR process is a key component to yield necessary information (Sheth and Malhotra 2009). In the MR literature, most sources agree that the MR process consists of three phases: *planning, design and execution* (ibid). All the three phases collectively determine the overall quality and value of the research as they are highly interrelated (Churchill et al., 2001). Due to the importance and complexity of the design stage, a few scholars have divided the design stage into separate parts. Among them are Churchill and Iacobucci (2006), who state that the design stage consists of the following three phases: *Determine overall research design, design data collection method and design sample*. However, although the stages in the MR process are presented as if the stages

proceed in a straight and linear fashion, Churchill et al. (2001) states that nothing could be further from the truth. In fact, several scholars have criticized the traditional approach to the MR process because it reflects a linear, sequential, rational approach to decision making that is not always evident in practice (Sheth and Malhotra, 2009). Churchill et al. (2001) suggest that several feedback loops should be included to show the need to rethink, redraft or revise elements of the research during the whole MR process. By implementing Churchill et al.'s design stages and suggested feedback loops into the general MR process as presented by Sheth and Malhotra (2009), we get the MR process model as seen in Figure 4. The elements of the model will be elaborated in the upcoming chapters.

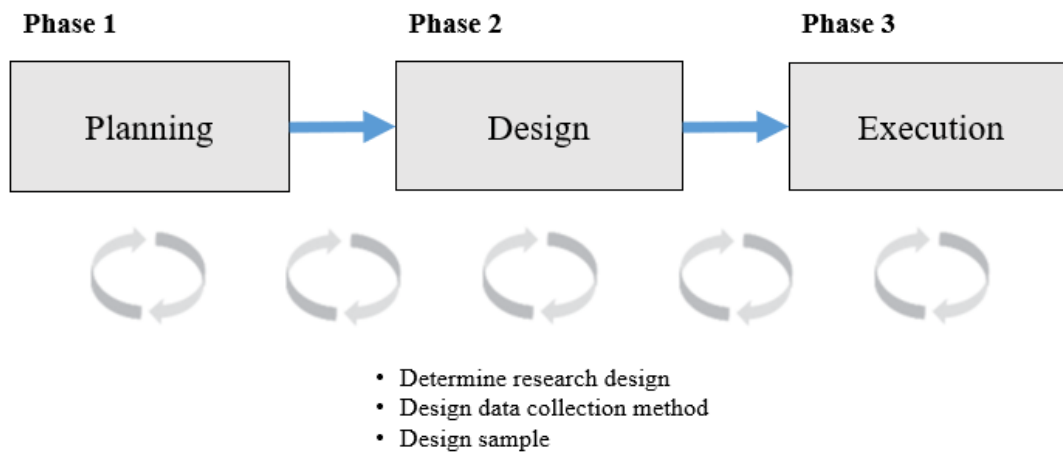


Figure 4: An overview of the phases and stages in the MR process. *Source: Churchill et al., 2001; Churchill and Iacobucci, 2016; Sheth and Malhotra 2009.*

Phase 1: Planning

The MR literature claims that the overall purpose of the planning phase is to decide on research objectives to guide the design of the data collection (Sheth and Malhotra, 2009; Dibb et al., 2005). Accordingly, the planning phase is intended to establish clarity of purpose and to ensure that the information collected will deliver value for decision-making (ibid). However, even though planning is a vital initial part of the MR process, this literature review will focus on the design and execution phase of the process, as this is where startups encounter the most important challenges (Crane, 2009).

Phase 2: Design

Determine research design

As the MR literature states that research design is key to ensuring that the subsequent study will be relevant to the research objective and to make sure the required research is conducted within budget (Dibb et al., 2005; Churchill and Iacobucci, 2006; McGivern, 2009), this phase is critical to startups. Figure 5 provides an overview of the options in the design phase, which startups need to consider in the light of their limitations. While the lines indicate the usual relationship between the different concepts, other combinations not suggested by the lines may also be possible on certain instances.

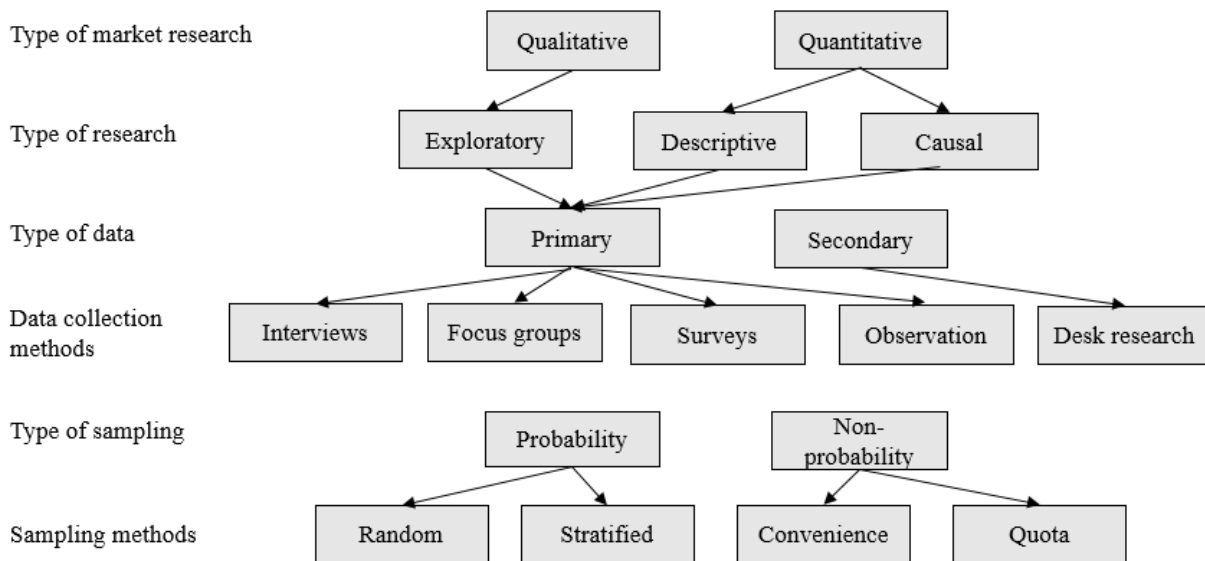


Figure 5: Overview of key considerations in the design phase.

Design data collection methods

The main data collection methods used in MR today are depth interviews, focus groups, surveys, observation and desk research (Babin and Zikmund, 2015; Creusen et al., 2013; Harrison et al., 2016; Kotler, 2009; Wilson et al., 2009). The last two decades have seen the increase of web-based interactive survey tools and online communities, enhancing a firm's ability to engage with customers when developing new products (Hauser, 2007; Sawhney et al., 2005). Accordingly,

desk research has evolved from a focus on mainly offline sources, to now involving extensive research of social media sites, blogs, and user comments or reviews (Kahn, 2012). To evaluate the use of these data collection methods for startups, the following criteria may be considered, as seen in Table 3: *speed of data collection, cost and outcome* (Sheth and Malhotra, 2009).

Method	Data type	Description	Speed	Cost	Outcome
Depth interviews	Primary	Extended interviews carried out face-to-face or by phone using a discussion guide.	Fast (phone) Slow (in-person)	Medium	Deep understanding of specific topics, detailed information
Focus groups	Primary	5 to 10 carefully selected participants take part in a discussion on a common interest, led by a moderator.	Slow	High	Collaborative discussion to uncover new issues or opinions.
Surveys	Primary	Mainly anonymous panels, in addition to self-completion questionnaires. Mostly online today.	Fast	Low	Rapid responses from a chosen sample. Can seek quantitative confirmation.
Observation	Primary	Observation or listening in to understand social meanings and behaviour.	Slow	High	Understanding behaviour; insights that cannot be obtained elsewhere.
Desk research	Secondary	Study of secondary source data that is either available online or offline	Fast	Low	Distilling what information is already available.

Table 3: Description and classification of data collection methods. *Source: Sheth and Malhotra, 2009.*

As startups face limitations less evident in larger firms, priorities must be made during the design phase. Importantly, both focus groups and ethnographic observation are characterized by low speed and high cost, which one could argue would be challenging for any startup, considering their limited resources and time constraint. In turn, as supported by Crane (2009), one might argue that startups are restrained to simpler and cheaper methods, such as survey, desk research and depth interviews.

Design sample

Sampling is about selecting, without bias and with as much precision as resources allow, consumers from whom we wish to collect data. In turn, a major concern for market researchers is a potential discrepancy between a sample and its respective population (Sheth and Malhotra, 2009; McGivern, 2009). The MR literature presents two overall types of sampling: *probability sampling and non-probability sampling* (Babin and Zikmund, 2015; McGivern, 2009; Dibb et al., 2005; Sheth and Malhotra, 2009). While every element in the population that is being studied has a known chance of being selected in probability sampling, personal judgment is used when selecting respondents in non-probability sampling, often due to resource or time constraints (Dibb et al., 2005; Solomon, 2009). As can be seen in Table 4, the typical methods of probability sampling are random and stratified samples, while convenient and quota samples represent the two most used non-probability sampling methods (Churchill and Iacobucci, 2006; Dibb et al., 2005; McGivern, 2009).

Sampling method	Sampling type	Description
Random sample	Probability	Each element in the population has an equal chance of being included in the sample.
Stratified sample	Probability	Random subsamples that are more or less equal on some characteristic are drawn from a subgroup of the population.
Convenience sample	Non-probability	A sample composed of individuals who just happen to be available when and where the data are being collected.
Quota sample	Non-probability	Researchers divide the population into groups and then arbitrarily choose participants from each group.

Table 4: Sampling methods. *Source: Churchill and Iacobucci, 2006; Dibb et al., 2005; McGivern, 2009.*

When choosing sample methods in MR, the MR literature states that the most important issues to consider are the cost, the availability of additional information about the members of the sample and the likelihood of a sampling error (Sheth and Malhotra, 2009). If financial or human resources are restricted, as is often the case for startups, MR scholars agree that certain sampling options, such as random sampling, will have to be eliminated (Babin and Zikmund, 2015). In

turn, Babin and Zikmund (2015) claim that for ventures concerned with the cost of the MR methods while seeking valuable information, a non-probability sampling design should be chosen. In fact, non-probability samples are often used when time and budgets are limited, and startups tend to rely on sampling to limit the time and cost involved in conducting MR (Crane, 2009). In turn, startups need to be aware of how non-probability sampling may introduce a bias by possible lack of representativeness in the sample.

When designing samples, the MR literature highlights the importance of selecting the right sample *size*. According to Churchill and Iacobucci (2006), the selection of sample size depends on the type of sample, the homogeneity of the population and the time, money and personnel available for the study. Here, research shows that in general, large samples are more precise than smaller ones (Kotler, 2009). This is of critical importance for startups, which due to resource limitation may not be able to choose a large sample size. However, as Crane (2009) clarifies, proper sampling may still allow a smaller subset of the total population to provide a reliable measure of the whole.

Phase 3: Execution

The execution phase involves the data collection, analysis and reporting of data, findings, conclusions and insights (Sheth and Malhotra, 2009). As most MR scholars argue that this stage of the research process is generally the most expensive and the major source of errors in MR research (Kotler, 2009), startups face challenges. According to Crane (2009), these are ranging from failure to the matter of selecting the right respondents to incorrect recording of observations when collecting data. When time availability is limited, as is often the case for startups, Sheth and Malhotra (2009) state that the need for quick data collection may in fact completely determine the type of data collected. More specifically, McGivern (2009) claims that errors tend to arise in questionnaire design, which directly affect the validity and usefulness of the results (Dibb et al., 2005; Sheth and Malhotra, 2009). This claim is largely supported by other MR scholars, emphasizing the fact that a carefully constructed questionnaire is critical (Babin and Zikmund, 2015; Birn, 2004; McGivern, 2009).

Even though startups have limited man power to conduct MR, non-MR-related day-to-day operations must still be prioritized (Keskin, 2006). Consequently, as supported by Crane (2009), one would expect that the MR process might take longer to execute than with more man power and that MR often would have to be interrupted by other daily responsibilities for those involved.

To sum up, Table 5 provides an overview of contextual challenges for startups doing market research.

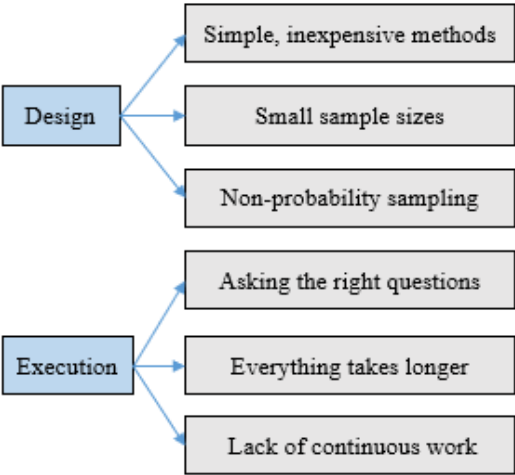


Table 5: Startup specific challenges during the MR process.

2.3 Propositions for addressing the contextual MR challenges

This section provides an overview of key propositions found in the MR literature for startups to address the MR limitations and contextual challenges that they are likely to encounter, as described in 2.2 and 2.1.

Be pragmatic in research design

As highlighted by Sheth and Malhotra (2009), there are cases in which there is not enough time for conducting all formal MR phases and stages in a systematic, sequential manner. In a startup context, one might argue, limitations such as the lack of resources or time could cause similar

constraints. In these instances, Sheth and Malhotra (2009) state that the MR process would have to be compressed, adapted and modified. Crane (2009) is even more specific to the startup context, claiming that for startups who often need to conduct MR in a limited time frame, choosing a research design that can deliver results faster, even though it may not be optimal, should be considered.

Combine methods

Even though extensive research has dealt with the various methods and research approaches to data collection as separate activities, MR scholars agree that the power in research design often comes from combining research approaches (Dibb et al., 2005). Accordingly, the different methods are meant to be complementary methods to increase data quality by supplementing each other (Sheth and Malhotra, 2009). With limited resources and capabilities, startups face challenges within individual MR methods and approaches. To handle these challenges, one might argue that startups should spend more time on understanding how to optimally and effectively combine methods and approaches, rather than figuring out which method or approach in itself is the best. In fact, research by Crane (2009) shows that while new entrepreneurs typically only use surveys to gather MR data, more experienced entrepreneurs tend to combine different methods and find creative ways to obtain more rigorous MR insights.

Harness online resources

Crane (2009) highlights the fact that there are several quick and low-cost methods of obtaining critical information available online. First, MR scholars agree that a firm should examine secondary data through desk research before collecting primary data. Solomon (2009) argues that before primary data collection is conducted, any market researcher must first ask whether the information that they require to make a decision already exists. Using available data saves time and money, while the collection of primary data is usually both more expensive, complex and time-consuming (Dibb et al., 2005). Consequently, secondary data, one might argue, becomes even more important to harness for startups with limited time and resources. The research of

secondary data has evolved from a focus on mainly offline sources, to now involving extensive research of social media sites, blogs, and user comments or reviews (Kahn, 2012). However, scholars disagree on how much value should be placed on secondary data, as this type of data may lack contextual relevance (Crane, 2009).

The emergence of web surveys has created more opportunities for startups to survey a large number of respondents while using little resources. In addition to making it easy and inexpensive to recruit the right respondents across geographical borders, the design flexibility, geographic reach and minimized interviewer error of web-based surveys are superior to more traditional data collection methods (Sills & Song, 2002; Solomon, 2009). However, internet surveys have also created new challenges to the quality of MR. The most important ones are the potential lack of representativeness of certain respondents and the self-selection bias in online samples (Solomon, 2009).

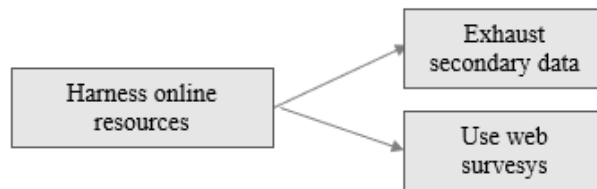


Figure 6: An illustration of how startups ought to harness online resources. *Source: Author.*

Harness relationships or partnerships

Entrepreneurs often know their customers personally, and tend to rely on these informal relationships when gathering market input (Jocumsen, 2004). Thus, as shown by Zontanos and Anderson (2004), a major advantage of startups over large firms is easy access to market information, due to the entrepreneurs being close to their customers and markets. Startups may obtain important and inexpensive market information through networks of contacts that will directly enhance the quality of the MR (Stokes, 2000; Zontanos and Anderson, 2004).

Figure 7 provides an overview of propositions for addressing the limitations and contextual challenges for startups conducting MR.

Propositions

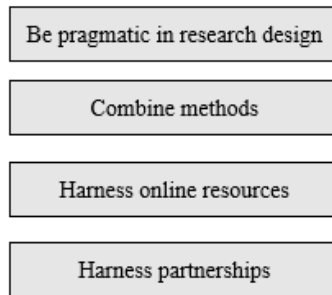


Figure 7: Propositions for addressing challenges.

2.4 Theoretical Construct

Through the review of relevant literature, it is apparent that the MR literature lacks contextual relevance for startups, both in terms of contextual challenges and in turn propositions for addressing these. In fact, few attempts were made by MR scholars to relate their research and theory to a startup context or to a context where human and financial resources or competence are limited. However, there were exceptions, such as Babin and Zikmund (2015), Crane (2009) and Sheth and Malhotra (2009). The literature that has been reviewed suggests that while startups are able to use similar processes and methods as large firms throughout the MR process, startups face their own contextual challenges when conducting MR, which can only be remedied by contextually appropriate strategies, as presented in 2.3.

In summary, the review of the literature identified:

- Startup specific limitations and main biases to avoid
- Contextual startup challenges during the MR process
- Propositions on how startup may address their contextual MR challenges

Based on these findings, the author concludes that to ensure high-quality and actionable MR despite limitations, a coherent contextual framework is needed for startups that aim to conduct MR. Furthermore, such a framework should increase the contextual relevance of the MR

literature for MR scholars researching startups, thereby providing a fertile ground for increased research on MR in this context.

To help illustrate the framework as presented in Figure 8, the author conducts a single-case study of a startup conducting MR. By showing how empirical findings fit into the theoretical construct, the author contributes to making the MR literature more contextually relevant to startups.

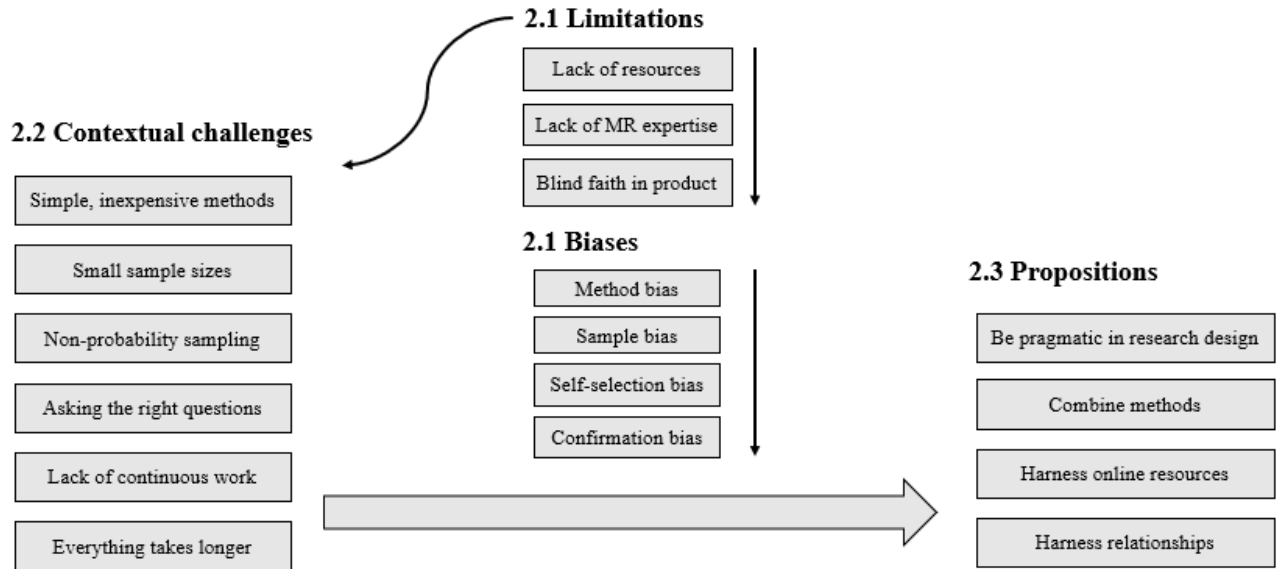


Figure 8: Theoretical construct. *Source: Author.*

3. Method – Qualitative Case Study

This chapter presents the research method that has been applied for this master thesis. The method applied is a qualitative single-case study, following an abductive logic of systematically combining theoretical and empirical findings (Dubois, 2002). The American startup One Earth Designs was chosen as the case to study over the course of five months, as the author had unusual research access to their MR by working as a marketing officer in this company. The following topics related to the research method will be presented: *design, data collection, data analysis* and *systematic combining towards final theoretical framework*.

3.1 Single-Case Longitudinal Study Design

As described in 1.3, contextual challenges and strategies for startups is an unexplored research topic. To fill the contextual gap identified in the MR literature, focused research that provide a deep understanding of MR challenges and contextually appropriate MR strategies is needed (Bocconcelli et al., 2016). As the interaction between a phenomenon and its unique context is best understood through in-depth case studies (Dubois, 2002; Yin, 2011), a qualitative case study was chosen. By choosing this study design, the complex nuances and details which encompass startups conducting MR could be explored and understood (Zainal, 2017 #33). Furthermore, the case study approached allowed for the author to empirically get closer to the theoretical construct and to illustrate processes and relationships within the MR constraints of startups more directly (Siggelkow, 2007).

A single-case study was chosen as the author had opportunity for unusual research access to a highly relevant case throughout the whole research period (Yin, 1994). Thus, a single-case study enabled an exploration of MR in a startup context under rare circumstances, and the opportunity to richly describe MR challenges and strategies in-depth (Siggelkow, 2007). By focusing solely on understanding the dynamics present within a single case, the aim was to develop deep insights and an understanding of important nuances within the case (Yin, 2013). In turn, by employing the single-case study as an illustration of the theoretical framework, the aim was to provide a concrete real-life example of how the conceptual argument might be applied to an empirical

setting (Siggelkow, 2007). Finally, as no logical subunits could be identified in the chosen single-case, a holistic design was applied (Yin, 2013).

As MR specific challenges and strategies to startups are complex and dynamic processes that play out over time, longitudinal research was conducted over a period of five months from November 2016 to March 2017. Thus, the author could try to unravel the underlying dynamics of the contextual MR challenges and strategies in a systematic manner of observing events, collecting data and analysing information over a long period of time (Siggelkow, 2007). By choosing a longitudinal single-case, the author could then follow the execution of the whole MR process in the chosen startup.

3.1.1 An abductive approach

As the author contributes to the development of theory by conducting a single-case longitudinal study after researching the existing MR literature, the method of systematic combining grounded in an abductive logic, as presented by Dubois (2002), is applied to the case research. The main concern of this abductive approach is the development of new theoretical models through a continuous “back and forth” between theory and empirical observations, building more on refinement of existing theories than on inventing new ones (Dubois, 2002). Accordingly, the author started the research by a thorough investigation into the MR literature, where the first version of the theoretical framework served as the basis for the first stages of the data collection. However, as a result of unanticipated empirical findings and new theoretical insights gained during the process, the original framework was successively modified several times, as presented in 3.3. By going back and forth between the theoretical framework, data sources and analysis throughout the longitudinal research, the author could expand his understanding of both theory and empirical observations related to contextual MR challenges and strategies for startups (Dubois, 2002). The full process of going from the initial literature review to the final theoretical framework is illustrated in Figure 9.

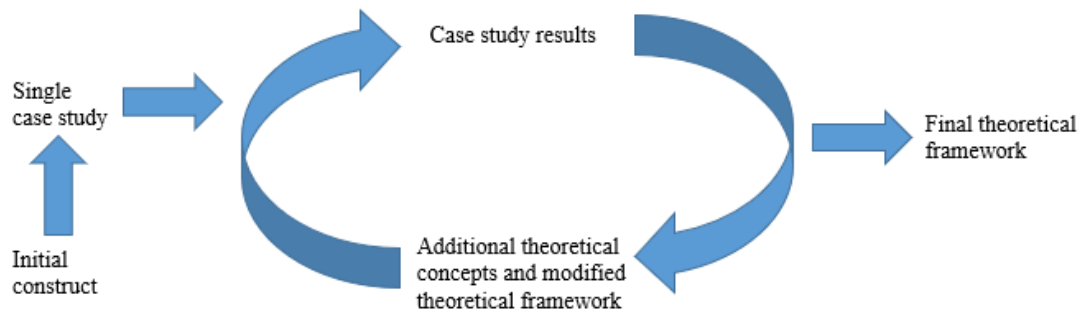


Figure 9: Overview of how the author arrived at a final theoretical framework through an abductive approach.

Source: Author.

3.1.2 Theoretical Base

As the understanding of MR in companies with extensive resources has come far in the academic literature, finding new insights in a startup context was based on understanding what is known in the literature already (Flick, 2015). In order to craft a theoretical framework, the author first conducted a literature study of the MR literature related to a startup context, as case researchers are urged to consider their phenomena in the light of a clear theoretical framework demonstrating that variable x leads to outcome y (Dubois, 2002; Eisenhardt, 2007; Siggelkow, 2007). The author applied Dubois' (2002) recommendation of a tight and evolving framework, as the author articulated his preconceptions through the initial versions of the theoretical framework, but let the framework evolve during the study as empirical observations inspired changes of the view of theory and vice versa. In particular, the author extended the literature review to include references to the SME marketing literature, as neither the MR or startup literature was sufficient in defining the context of startups conducting MR for new incremental products.

3.1.3 Case selection

As the purpose of this research was to develop theory through an in-depth case study, theoretical sampling is appropriate (Eisenhardt, 2007). Accordingly, the American startup One Earth Designs was chosen as the case firm for three reasons. First, the MR conducted by One Earth Designs in 2016-17 is considered a highly relevant case study for the purpose of this research. This startup aims to introduce an incremental product to an existing market, namely, a portable

parabolic solar cooker to the American camping market. Even though some preliminary research had been conducted, the management team had clearly stated that all product development needed to be informed by evidence and market research data. As such, the case is highly relevant to the purpose and the research questions of this master thesis. Secondly, the author would have what Yin (1994) describes as unusual research access to One Earth Designs as a participant-observer over time, due to his role as Marketing Officer in the company. As Marketing Officer in the small marketing team of only two people, the author would experience first-hand all parts of the MR, and get a sense himself for the main challenges along the process and contextually appropriate strategies. Furthermore, by joining weekly marketing and team meetings, in addition to daily catch up calls with the CMO and insight into internal MR documents, the author had full access to the MR being conducted throughout the research. Thirdly, the author had direct access to interviewing two highly knowledgeable informants – the CMO and the CEO - who viewed the phenomenon being studied from diverse perspectives, as described by Eisenhardt (2007) as a key strategy for limiting bias from retrospective sensemaking in case research. In summary, following Siggelkow's (2007) criteria for selecting cases, it was desirable to choose One Earth Designs because it was special in the sense of allowing the author to gain certain insights that other firms would not be able to provide.

These are characteristics of One Earth Designs that influence the external validity of the thesis:

- Can be defined as a startup and has less than 10 employees
- Sell to consumers through its own website
- Develop a new incremental hardware product
- Target the American outdoor consumer market
- Have one product on the market already
- Have necessary funding to support the MR
- The CMO has extensive commercial MR experience

3.2 Data collection

As Yin (2013) states that both lacking sufficiently clear measures of data and being too abstract are common challenges in single-case studies, the author aimed to ensure multiple sources of evidence when researching the MR challenges and strategies in One Earth Designs. Accordingly,

participants-observation, interviews and documentation were chosen as data collection methods. Following Dubois' (2002) and Flick's (2015) recommendations for case studies, the aim was less to test what is known about MR than to discover new aspects in the MR conducted by One Earth Designs and develop a theoretical framework from these discoveries.

3.2.1 Participant-observation

As the author held a role as marketing officer in the chosen case company, participant-observation was a natural source of data acquisition. Observations were made throughout the research during regular team meetings, marketing meetings, conversations in Slack, daily catch up calls via Skype and discussions in the project management software Asana. In addition, following the lead of the CMO, the author was himself responsible for doing much of the hands-on MR, such as crafting the survey questionnaire, finding the appropriate panel of respondents for the online sample, conducting the depth interviews and for writing the final analyses and findings of the research. The observations and reflections made during these activities generated questions on which further interviews could be based, in addition to informing the further development of the theoretical framework and the search for additional theoretical concepts.

3.2.2 Interviews

Interviews are an essential source of case study evidence (Yin, 2013), and an efficient way to gather rich, empirical data when the phenomenon of interest is highly infrequent (Eisenhardt, 2007), as was the case for the MR conducted by One Earth Designs. Semi-structured interviews were conducted as described by Flick (2015), based on an interview guide with questions to be answered more or less openly and extensively (*see Appendix A and B for interview guides*). These interview questions were generated based on the literature review. The most extensive interviews were conducted with the CMO, as he is the person responsible for the planning and execution of the market research, whereas the CEO helped provide a more strategic perspective on the MR being conducted. Here, open questions allowed room for the specific, personal views of the interviewees and avoided influencing them. To obtain the flexibility needed to ask about specific challenges and strategies during the longitudinal study, Rubin and Rubin's iterative

interview design (Brinkmann and Kvale, 2009) was applied. The design enabled the author to adapt to new data, and choose new questions and topic areas during the research.

Case study interviews may provide biased data due to retrospective sensemaking (Eisenhardt, 2007). As Eisenhardt suggests combining retrospective and real-time research as a way of mitigating this bias, the author conducted the interviews when most of the MR had been completed and new prototypes were commissioned in March 2017. At this point, the participants were asked to retrospectively look back at the whole process of the MR taking the product from concept to the latest prototype, in addition to focusing in on those areas of the process that the author found particularly valuable to the study. At the same time, to obtain a real-time perspective, the interviews also focused on challenges and learnings that the team was experiencing at the time of the interviews, as well as the plan for moving forward.

Interview subject	Role	Interview focus	Location and time	Length	Company
Hin-Yan Wong	CMO	Strategic and tactical aspects, contextual differences.	Covent Garden, London. <i>08.03.2017</i>	1h 20m.	One Earth Designs
Catlin Powers	CEO	Strategic aspects, contextual differences.	Skype interview. <i>29.03.2017</i>	1h.	One Earth Designs

Table 6: Interview subjects in the case study.

Both interviews were conducted by the author. As the employees in One Earth Designs are spread across the world, one of the interviews had to be held online via Skype in what Flick (2015) describes as a synchronous form. Here, the loss of direct rapport with the participant compared to conducting interviews face-to-face was an important challenge to tackle to achieve detailed and nuanced answers. Both interviews were audio recorded and transcribed, and then stored.

3.2.3 Documentation

As the author was given access to all internal documents, documents were an important secondary source to confirm or give support to evidence from the interviews and participant-observation (Yin, 2013). Documents and reports related to the MR methodology, strategy and output were studied (*see Appendix C for full overview*), which helped find clear operational measures of what was being researched. If the documentary evidence was contradictory to findings by other data sources, the author would inquire further into the topic, as suggested by Yin (2013).

3.3 Data analysis

Following the abductive approach of a continuous movement between empirical findings and the theoretical frameworks (Dubois, 2002), the data analysis was conducted in several stages. During these stages, the empirical data had to be managed and organised systematically, as a danger with longitudinal case studies is how it can elicit a great deal of data over time (Zainal, 2017). Following the recommendation of Yin (2013), the author thereby relied on logic models of matching empirical findings to the theoretical framework to ensure validity of the data.

Based on the first version of the theoretical framework, the author first conducted open coding (Yin, 2013) to break down the empirical data into the form of concepts and subsequently appropriate categories. This was followed by selective coding to define core concepts. At this stage, contextual factors and contextual challenges were regarded as the main properties of the theoretical framework, even though little support for startup contextual factors were found in the MR literature (*see 1st round of coding, Appendix D*). In hindsight, the theoretical framework at this stage was severely insufficient, which impacted the coding. After the interviews in March, a thorough analysis of the data collected up to this point was conducted, and new codes were defined. By seeing the main topics emerging from the data analysis, the author realized that unilateral focus on MR challenges was not fruitful, as the research showed how the startup specific challenges directly lead to the use of appropriate strategies in the startup context. As these strategies were clearly more tailored to startups than those suggested in the general MR

literature, the author decided to include propositions for handling the specific MR challenges in the construct (*see 2nd round of coding, Appendix D*).

At this stage, the author had to take a four month break from the research, due to the participation in a demanding Kickstarter campaign by One Earth Designs on their new product. However, a positive consequence of this interruption was the fact that the author got to experience the value and the deficiencies of the MR directly, through the response shown by the target audiences to the campaign for the new product. Subsequently, after the campaign was fully finalized in August 2017, the author resumed the research. After conducting a new analysis of the data gathered, a review of additional literature and theoretical concepts more applicable to the empirical findings was conducted. By finding support for the unique startup context in the SME marketing literature and by making the contextual challenges and strategies more specific and action-oriented, the codes were modified in conjunction with the theoretical framework (*see 3rd round of coding, Appendix D*). The modified coding at this stage can be viewed as a development, introduced by the author, aiming to make the theoretical construct easier to understand and apply for startups. Specifically, challenges with research design were specified to the key challenges involved in designing the research. In addition, the specific propositions that emerged for addressing the challenges were defined.

After conducting a new and further analysis of the MR literature, the coding was modified even further. First, the author realized that focusing on human and financial resources only as the resource limitations for startups was too restrained. Furthermore, it became evident that “lack of continuous work” was a more precise and action-oriented description of the non-MR-related and demanding daily responsibilities in One Earth Designs, which could better be defined as a contextual challenge as opposed to a contextual limitation. In addition, more specific contextual challenges and a small adaptation of the propositions were introduced. Finally, following Siggelkow (2007), the author realized that contextual challenges and propositions for addressing these were the main theoretical contributions of this research, whereas the contextual limitations served as the contextual forces present when A leads to B.

The final coding can be seen in the theoretical framework, as presented in 2.4, which will be further illustrated by the subsequent single case study of the MR conducted in One Earth Designs for the new portable solar cooker. Following Siggelkow (2007), the author aims to show detailed

examples of every main element of the theoretical framework, in order for the reader to better comprehend how the conceptual argument would be applied in a real life startup context. To increase the reliability of the research, the author follows Gibbert (2010) in providing detailed data presentations which make minimal inferences of the data.

3.4 Limitations

A main challenge to the reliability of this study was that the author himself was an employee in the case firm and was part of the MR being conducted. Hence, the author would likely be influenced by his own experiences and interpretations along the way (Yin, 2013). Specifically, the author had to be aware of potential biases, such as becoming a supporter of the firm (Yin, 2013) or to have limited time to take notes or raise questions about events from different perspectives (Flick, 2015). To mitigate these biases, the author focused on combining case evidence from interviews, documentation and participant-observation in addition to taking extensive notes throughout the study.

To gather rich, empirical data about the single-case study, as suggested by Eisenhardt (2007), the author aimed to obtain different perspectives by interviewing all the employees in One Earth Designs apart from himself, i.e. the CEO, CMO, CTO and the customer service manager. However, the author realized after the first interviews that the CTO and the customer service manager would not have specific insights to the MR process, as they were not directly involved in the MR apart from hearing updates during team meetings. As the goal of the interviews were not general reflections but understanding the nuances of this case, interviews with the CTO and the customer service manager were not conducted, as participants need to be chosen purposively according to their relevance (Flick, 2015). Thus, despite the author wanting the interview a wider range of employees, the CMO and to a certain extent the CEO were the only interview subjects that could shed light on the challenges of the MR conducted by One Earth Designs.

Finally, the author had planned to conduct two new interviews with the CMO and the CEO in October 2017, after One Earth Designs had completed a pre-launch campaign and thereby received extensive feedback from potential customers on the upcoming product. This could have provided an enhanced retrospective perspective on the MR process of One Earth Designs. However, when starting to plan the interviews in October after months of identifying the main

findings of the research, the author felt the collected data already covered the focus of the research questions, and new interviews would not add significant new insights. Thus, the author decided to not conduct the second round of interviews. Consequently, whereas the data collection through participant-observation and documentation were conducted longitudinally, the data collection through interviews was not longitudinal.

4. Case Presentation and Analysis

This section presents the results from the single-case study of One Earth Designs. Following the initial case presentation, 4.2 helps define the context in which One Earth Designs conduct their MR. Then, 4.3 will provide an in-depth analysis of the contextual MR challenges encountered by One Earth Designs, in addition to appropriate strategies for dealing with these challenges. In doing so, the author illustrates how the theoretical framework presented in 2.4 can be applied to a real-life startup context. Finally, the findings of the analysis are summarized in 4.4.

4.1 Case Presentation

One Earth Designs aims to become recognized as the global leader in solar-powered stoves and solar thermal battery technologies. The company was founded by Catlin Powers and her team in 2013, when they developed SolSource as a solution for energy poverty while working with nomads in the Himalayas. The flagship product, SolSource, delivers 1000 watts of power, and harnesses sunlight with 92% efficiency. SolSource received massive attention when it was launched through a Kickstarter campaign in 2013. However, One Earth Designs still has less than 1000 customers in developed markets, which suggest SolSource to be a niche product.



Given the limited audience of the current SolSource solar cooker and due to a high demand for a portable solar cooker, it was One Earth Designs' intention to bring a portable version of its main product to the market in 2017, which they hope will represent the next generation of solar cookers for the mass market. The portable version can be classified as an incremental product, as it is built based on the main SolSource. The main differences will be its lower price point and power capacity, in addition to being more compact and portable. The primary market is the outdoor market in the United States. Australia, Canada and countries in South-Western Europe will be targeted at a later stage. Furthermore, there will be opportunities to sell the product to emerging markets, but the conditions and the mechanisms for doing so will be different from the Western market.

To start the process, One Earth Designs commissioned the development and creation of a prototype for the portable parabolic solar cooker in January 2017, based on product design work that was carried out in 2013-14. However, the management team felt it was important for the prototype development to be informed by evidence and MR data. Thus, One Earth Designs decided to conduct extensive market research in the American market for their portable solar cooker – from confirming the minimum viable product specification through to full-feature accessory laden “go to market” requirements. This MR spanned from November 2016 to March 2017, which is the focus of this research.

According to the CMO Hin-Yan Wong, the main reason for conducting this MR was to understand who they are selling to, including an understanding of the needs of their expected customers. The objective of the MR was first to get a confirmation that there is demand for this product in the market. Then, One Earth Designs aimed to determine potential usage and context of use, price point, likely expectation of the customers, in addition to how to market the product to prospects and how to develop campaigns. More specifically, One Earth Designs aimed to answer the following questions through this MR:

- Who will buy a portable parabolic solar cooker?
- What are the needs of these prospects and how will they use the product?
- What is their expectations in terms of product form factors, features, price point and purchase method?

To answer these research questions, One Earth Designs determined that they needed to gather data and evidence in the following key areas:

- Specification for a Minimum Viable Product: Price, compactness, weight, speed of assembly, power output, weight of cookware and food combined, durability, sturdiness and carrying case.
- User needs, requirements and acceptance: On transporting, assembling & storing, on using, on cleaning and disassembling, on socialising, associations and appeal and on purchase journey.
- Purchase and pricing estimation

CMO Wong prepared a research strategy and plan that was shared among the team in November 2016. In this plan, a three-phase research approach was suggested, i.e. phase 1 with no prototype, phase 2 with a non-functioning prototype and phase 3 with a functioning prototype. However, as the development of prototypes was more expensive than planned, One Earth Designs decided to limit the MR to phase 1 with no prototype. As such, the focus groups method that were originally planned could not be conducted. Instead, the main methods used were desk research, panel online research and depth interviews.

Figure 10 provides a full overview of the MR that was conducted between Nov 16 and March 17.

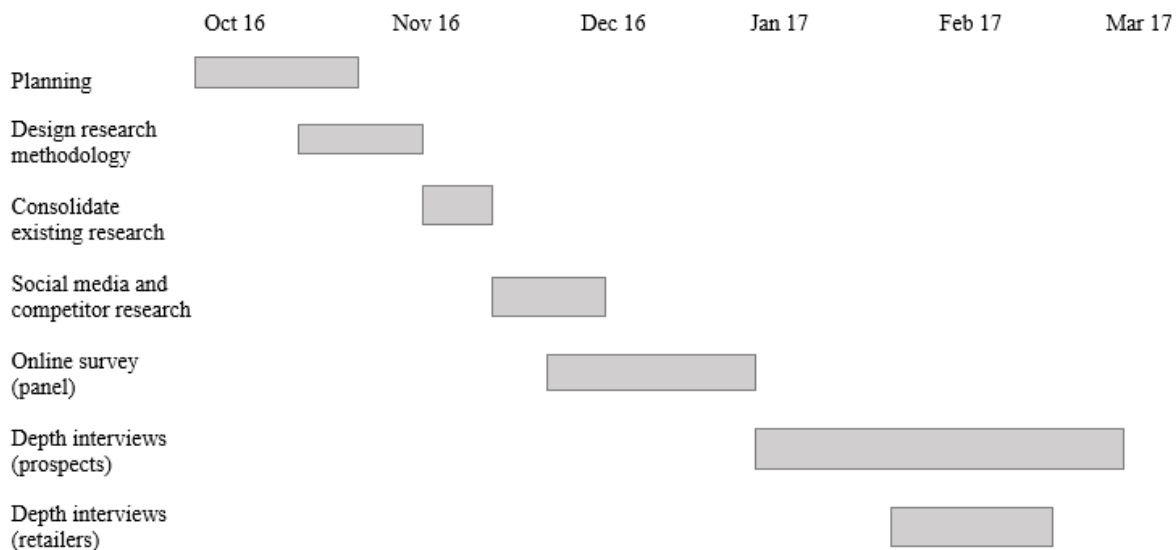


Figure 10: Overview of the MR conducted by One Earth Designs in 2016-17. *Source: Author.*

Note: During the development of the original SolSource, some research was carried out in 2013-14, to ascertain potential interest in a portable parabolic solar cooker. Subsequently, further qualitative research was carried out in 2015-16, however on a small scale and with limited statistical rigor. There was no realization until this year, namely in 2017.

4.2 Defining the Context

The contextual characteristics of a startup conducting MR, as shown in the theoretical framework in 2.5, are limited resources, the lack of MR experience and a “blind faith” in the product. These forces are to varying degrees evident in One Earth Designs, and are important elements in providing an understanding of the unique context in which One Earth Designs conducted their MR.

“We have a very tight budget to accomplish a lot in market research”, CMO Wong

First, One Earth Designs do not have anywhere near the resources a large company would have for MR. CEO Powers states that financial resources are their biggest resource constraint, which have led to a constant trade-off between time and money. However, the management team agreed to set aside a modest budget for the MR. Through the crowdfunding in May, they aimed to secure a small extra budget to be able to conduct a small number of focus groups, but this did not materialize. As human resources, there were two persons in the marketing team of One Earth Designs, including CMO Wong who is responsible for the MR. Wong describes the human resources available to conduct the MR as a few man days per week over a period of several weeks. Even though he is content with the work done by both himself and his co-worker, he clearly states that man power is limited.

“We just don’t have enough man hours to do the work”, CMO Wong

Powers describes the proven, experienced personnel currently involved in One Earth Designs as their most important set of resources, which she believes is unusual for their company size. Specifically, One Earth Designs’ CMO has extensive commercial experience in running MR projects. However, the rest of the team lack experience within MR. Even though the marketing officer on the team has been able to pick up essential aspects of MR for new products, he had no

prior experience with MR. Furthermore, the CEO comes from a scientific background and has no hands-on experience in commissioning and running MR projects. Previous members of One Earth Designs who were involved in MR also lacked MR experience in a commercial sense. Accordingly, CMO Wong states that the biggest difference between an established company and One Earth Designs related to a MR process is the level of experience, because a startup like One Earth Designs is often run by “very young, very enthusiastic people”. As Wong describes, “they may have studied bits of MR or marketing, but it is highly unlikely they will have been exposed to a real life commercial environment of actually getting things done well, and the real pressure that if we fail, it will be detrimental to both the product, the company and your job”. Wong considers this experience vital in MR, because if you have done a lot of market product research, he believes you’ll have a good idea of how the research should be conducted, how to analyse and what kind of results that you should expect. Even though he appreciates the entrepreneurial thinking present in most startups, it is not sufficient for high-quality MR.

“If you do not know how to do market research, and if you don’t have the experience, that’s a real danger”, CMO Wong

Employee	MR experience
CEO	Hands-on experience from previous customer and market research in One Earth Designs. No experience of commissioning or running the MR.
CMO	Extensive commercial experience over the last 25 years.
Marketing Officer	No prior MR experience.

Table 7: Overview of the MR experience present in One Earth Designs. *Source: Author.*

Wong describes how conducting MR in-house in a small startup team like One Earth Designs invariably introduces biases, because they want their product to be successful. More specifically, they don’t want to do research that will lead to failure, which he describes as an exceptionally dangerous bias. Accordingly, along the MR, there were signs that the One Earth Designs team might have been too familiar with the product to be unbiased. Wong describes how they tended not to be sufficiently clear to articulate their product proposition in interviews or questionnaires,

simply because they know the product too well. According to Wong, the product is on the forefront of their minds day in and day out, which makes it hard to take an objective perspective when doing MR. Based on CEO Powers' experience of meeting other startup founders, she adds that most startups rely on their own personal judgment and beliefs of what their product should be like. Her experience is that many founders tend to think that if they have developed a product that they like to use themselves, then everybody else will use it, and the product will sell itself, which she states is a fallacy. It is worth noting that both Wong and Powers showed an openness to their product not having an appeal in the marketplace before they commissioned the MR.

4.3 MR Challenges and Propositions

Throughout their MR, One Earth Designs faced several specific challenges, due to their inherent limitations as a startup. Such challenges were handled by using strategies that can be considered appropriate for the startup context, as they take into account the contextual limitations that are present. By showing a real-life example of the main ingredients to the theoretical framework presented in 2.5, the specific MR challenges and contextually appropriate strategies for startups developing new products are illustrated.

4.3.1 MR Challenges

Limited to simple, low-cost methods and tools

Following Crane's (2009) recommendations for startups, the main methods used by One Earth Designs were desk research, web surveys and individual depth interview by Skype. These are all simple, low-cost methods compared to other more advanced methods (see Figure 11). Wong explains how they have been very limited to the tools that are available to them, as there were many more sophisticated methods he would have considered if the resources were available, such as focus groups, product usage research in a lab or monitored environment or more attitudinal research. More robust, statistical pricing analysis were highlighted by both Wong and Powers as preferred methods, but this would require both more resources, specialist skills and specialist facilities.

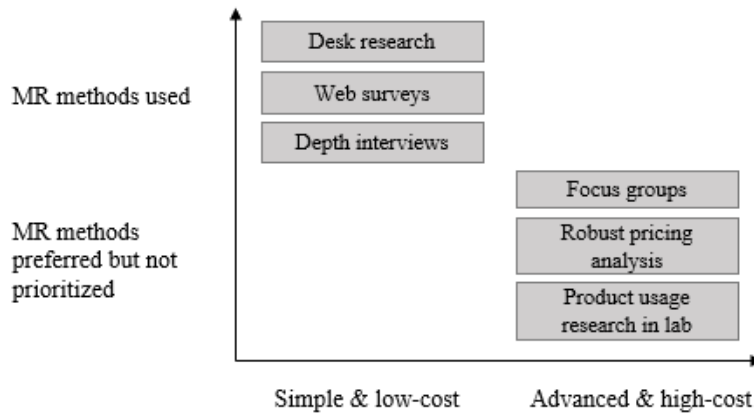


Figure 11: An illustration of how One Earth Designs had to use simple, low-cost MR methods. *Source: Author.*

Small sample sizes

While a large company would make sure they have statistical power around their findings in quantitative research, both Powers and Wong agree that this could not be prioritized due to the time and cost implications of larger sample sizes, as supported by Churchill and Iacobucci (2006). The sample size at 250 respondents for the web survey was considered the bare minimum they could achieve to get statistically significant data. Even though Wong would have liked to achieve more statistical power behind their findings, he questions the value from a startup perspective as the expenditure will be many fold. Similar to what is suggested by Crane (2009), Powers adds that she would not recommend startups to focus on getting statistical power.

“We just want to make sure we do enough to give us confidence in what we’re doing without the luxury of higher confidence level”. CMO Wong

For the qualitative research, Wong states they have run very few individual interviews. At the same time, he considers the small sample size a reasonable amount, as they are a small company. Consequently, they need to be aware of how many people they need to get sufficient answers, keeping in mind when each additional person will not add a significantly different view.

Method	Type of research	Sample sizes
Web survey	Quantitative	250

Depth interview: Prospects	Qualitative	10
Depth interview: Retailers	Qualitative	2

Table 8: Overview of sampling sizes. *Source: Author.*

Non-probability sampling

The sampling for the depth interviewees was one of the main challenges for One Earth Designs, because they did not have money to recruit their interviewees. Instead, interviewees were selected by One Earth Designs based on who they knew and how many people on their mailing list that would respond. In other words, all respondents were somehow connected to One Earth Designs. With a larger budget, they would have recruited pre-selected interviewees not connected to One Earth Designs, based on their sociological, geographic and demographic background. However, they did not have the budget to obtain a more unbiased group of respondents and geographic spread, as often is the case for startups (Crane, 2009), which limited their ability to do rigorous, qualitative research in terms of individual interviews. It should be added that Wong was eager to conduct a small number of focus groups, to get better and more unbiased qualitative answers to some of the questions they still have. Regarding the quantitative research, One Earth Designs were satisfied by the web survey sample that were spread according to demography, geography and interests.

“To secure individual interviews, we were only able to focus on people that we know of or are existing customers”, CMO Wong

As can be seen in Table 9, by classifying the sampling for the web survey and depth interview according to sampling method and sampling type, following Churchill and Iacobucci (2006), Dibb et al. (2005) and McGivern (2009), the depth interviews followed a convenience sampling method, whereas the web survey was based on a stratified sampling method.

Method	Sampling	Sampling method	Sampling type
Depth interview	Respondents selected based on who One Earth Designs knew and who were available to be interviewed.	Convenience	Non-probability
Web survey	Respondents randomly chosen by demography, geography and interests.	Stratified	Probability

Table 9: Sampling description classified by sampling method and type. *Source: Author.*

Asking the right questions

The research methodology, questionnaire and interview guides were developed in a collaborative process within the team. The MR experience of Wong was crucial to making this effective and to generating the right questions to ask to get unbiased and valuable responses, even though Powers adds that she was not certain if the set of interview questions that were asked were going to give the data needed to help develop the subsequent marketing campaign. According to Wong, One Earth Designs used standard questions that are straightforward and typical to ask during MR projects. However, this might be a significant challenge for most startups, according to Wong. As he explains, if the members of the startup company has had no prior experience in doing MR, then the huge risk is that the team would have gone out to get data that is biased, which doesn't answer the questions that needs to be answered. This was about to happen in One Earth Designs early in 2016, when the product engineer developed an interview guide he describes as "extremely biased and certain to get meaningless responses". This illustrates the larger challenge for startups, according to Wong, in that they tend not to have the experience necessary to know what questions to ask prior to starting the research, which scholars agree can be detrimental to the MR (Babin and Zikmund, 2015; Dibb et al. 2005, McGivern, 2009). When they at a later stage realize what questions should have been asked, it might be too late, and the consequence is a waste of time and resources.

"You may be asking a question that people have already answered 5000 times, getting the same answer. By asking the same answer again, you are not going to get a different answer, but you have wasted time and resources." CMO Wong

Lack of continuous work

Throughout the MR process, the marketing team of two people could only do MR part time, as they had the daily responsibilities of marketing and advertising to take care of (see Table 10). Similar to Keskin's (2006) line of thought, these regular tasks not related to MR were demanding in themselves and simply needed to be done, which often implied they didn't have continuous time to do the MR work without being interrupted by other tasks or responsibilities.

Wong describes that each time they had to put the MR aside for a week, they would come back and need time to get back into it.

Employee	Other daily responsibilities during the MR process
CMO	Craft and implement the communications and marketing strategy: Look after the brand all the way down to setting out marketing campaigns, advertising and produce communications material, whether it is online or offline. Participation in management meetings two times a week.
Marketing Officer	Run advertising and marketing activities and work closely with the CMO on the following: Plan and execute advertising and social media campaigns, in addition to regular customer response handling.

Table 10: Other daily responsibilities of those involved in the MR, which lead to lack of continuous MR work.

Source: Author.

Everything takes longer

Even though the MR has been performed as planned in terms of sequence, everything took longer than planned, as expected from Crane (2009). As Wong emphasizes, in MR you need time to digest the information, think about what is the hypothesis being tested, and consider the substance of the results. In One Earth Designs, this focused effort has not been possible over a long period of time. In turn, Wong explains that MR activities that typically should take one month to complete will take around three months for One Earth Designs. Both Powers and Wong are certain that the process could have been speeded up with more dedicated team members and

a larger budget. However, it is worth adding that the timeline of the MR process in One Earth Designs has been managed so that it doesn't impact or delay other activities related to the new product.

4.3.2 Propositions for addressing MR challenges

Be pragmatic in the research design

Due to the limited resources, and as supported by Crane (2009) and Sheth and Malhotra (2009), One Earth Designs needed to be pragmatic in the way they conducted the MR. According to Wong, his most important considerations when designing the research, was that it is pragmatic and practical. This implied making sure that they commissioned enough research to give robust answers, but also choosing sample sizes at a bare minimum of what they could achieve while still getting statistically significant data. In addition, being pragmatic and practical implied accepting the fact that the process will take longer time, and accepting the fact that there will be some element of bias in the research (i.e. the depth interviews). Wong describes it as “doing enough to give us confidence in what we're doing without the luxury of higher confidence level through high quality responses in quantitative research or a great number of qualitative research opportunities”. Figure 12 provides an illustration of these mechanisms.

“My main learning is to be able to work with very, very limited resources and you do that by being very pragmatic.” CMO Wong

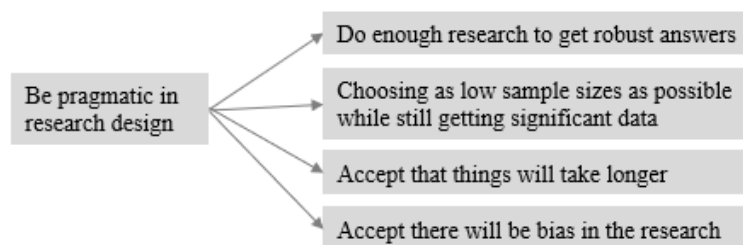


Figure 12: An illustration of what being pragmatic in research design in this context implies. *Source: Author.*

Combine methods

To handle the potential biases in individual methods and to verify the main themes emerging from different data sources, One Earth Designs used a combination of methods, which is what most MR scholars recommend (Dibb et al., 2005; Sheth and Malhotra, 2009). Initial desk research to understand the market broadly was followed by structured surveys to get top-line information and unbiased responses on perception, attitude and behaviour. If questions were raised during the quantitative research, they used qualitative research to explore and probe further, asking questions on specific aspects of the product or the value propositions through depth interviews and focus groups. It should be added that even though they planned to conduct focus groups, it has not yet been commissioned.

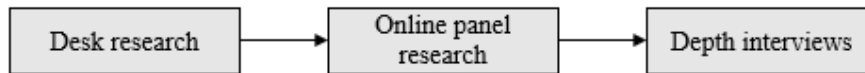


Figure 13: An overview of how One Earth Designs purposefully used a combination of methods to verify findings.

Source: Author.

Harness online resources

As recommended by Crane (2009) and Kahn (2012), a clear strategy for One Earth Designs was to do as much as possible with online resources to minimize the need to do expensive qualitative research. First, One Earth Designs used extensive desk research of secondary data to get an initial broad understanding of the market, stated by Solomon (2009) as a key tactic before any primary data is collected. According to Wong, the desk research was useful both to understand what is the price range, who are the strongest competitors and how these competitors articulate their messages to their target audiences, which gives an idea of the needs that their products are trying to meet. The findings from the secondary sources of the desk research was then used to adjust the questions asked in the subsequent web survey. According to Wong, the desk research One Earth Designs conducted in this MR was well within what professional MR firms would do, thanks to the availability of information online.

“The internet provides just an amazing opportunity to find answers. When you read the product specifications from a company, you see what the product is about, but you can also go in and read reviews and blogs to get an idea of other people’s perceptions and opinions about the product”, CMO

Wong

Secondly, using the Survey Monkey panels for a web survey was both easy and inexpensive, and provided good estimates as to how much they had to spend to achieve reasonable quantitative data that is statistically appropriate. By using these online panels, One Earth Designs could reach out to respondents who knew nothing about them, based on attributes like demographics, geography and interests. Wong states that they did much better than he had expected in the quantitative research, due to the unbiased nature of the online panels at very affordable prices.

Online resources	Description
Secondary data for desk research	Social media, blogs, competitor’s websites, reviews etc.
Survey Monkey panels	Online platform providing survey responses globally at low prices.

Table 11: Overview of online resources that were used by One Earth Designs. *Source: Author.*

Harness relationships and partnerships

One Earth Designs have partnerships both on the legal, accounting, software and marketing side, in addition to their customer base, email list and close supporters. As suggested by Stokes (2000) and Zontanos and Anderson (2004), these relationships save One Earth Designs a tremendous amount of time and money, according to CEO Powers. Of particular relevance for the MR, their relationship with Google provide them with several thousand dollars worth of use of Google Adwords each month, that can be used directly to test value propositions and responses in the market place. Additionally, One Earth Designs has a long list of close customers that has agreed to provide their view on the new product via Skype for free. An overview of these essential relationships and how they helped improve the MR is presented in table X.

Relationships / Partnerships	How they helped improve the MR
Google	\$10,000 of free monthly keyword advertising spend through Google Adwords.
Customers and supporters	By allowing One Earth Designs to reach out and conduct MR without paying for it.

Table 12: Overview of key relationships of One Earth Designs. *Source: Author.*

4.4 Summary of analysis

The case study analysis of the MR conducted in One Earth Designs in 2016-17 illustrates the theoretical framework presented in 2.4, both related to specific MR challenges and propositions for addressing these challenges. To summarize the illustrative analysis, Table 13 provides an overview of how the empirical data presented throughout the analysis supports the main elements of the theoretical framework.

<i>Specific MR Challenges</i>	<i>Case Evidence</i>	<i>Theoretical Backing</i>
Limited to simple, low-cost methods	One Earth Designs was limited to using desk research, web surveys and depth interviews as data collection methods, and could not afford more expensive and advanced methods such as focus groups, robust pricing analysis or ethnographic research.	Crane (2009), Sheth and Malhotra, (2009).
Small sample sizes	The sample sizes of respectively 250 respondents for the web survey and 12 respondents for the depth interviews are limited, and illustrates how statistical power could not be prioritized due to the time and cost implications of larger sample sizes. Therefore, the aim was only to get sufficient answers to give confidence in what they were doing.	Churchill and Iacobucci (2006), Crane (2009), Kotler (2009).
Non-probability sampling	Whereas the web survey sample was spread randomly by geography, demography and interests, the sampling for the depth interviews was a major challenge for One Earth Designs. In the	Babin and Zikmund (2015), Churchill and Iacobucci (2006),

	end, respondents for the depth interviews were selected by One Earth Designs, based on who they knew and who on their mailing list would respond, i.e. convenience sampling. With a larger budget, One Earth Designs would have recruited pre-selected interviewees not connected to them to avoid this bias.	Crane (2009), Dibb et al. (2005).
Asking the right questions	The One Earth Designs team found it hard to be unbiased in their MR as they are so familiar with the product and clearly want their product to be successful. Luckily, however, the commercial MR experience of CMO Wong was crucial in finding the right questions to ask for valuable input. However, without the experience of Wong, there is a huge risk the team would have wasted time and resources by asking biased questions or not knowing what questions to ask.	Babin and Zikmund (2015), Dibb et al. (2005), McGivern (2009).
Everything takes longer	The MR conducted by One Earth Designs took longer time than expected, as they rarely had longer periods of time to digest the information, of to consider the hypotheses being tested and the substance of the results. What should have taken maximum one month with more resources, took One Earth Designs three months to complete.	Crane (2009), Keskin (2006).
Lack of continuous work	Extensive daily responsibilities not related to MR implied that the small team often didn't have long periods of continuous time to conduct the MR. Consequently, the MR had to be conducted in an interrupted and non-continuous manner.	Crane (2009), Keskin (2006).
<i>Propositions</i>	<i>Case Evidence</i>	<i>Theoretical Backing</i>
Be pragmatic in research design	Being pragmatic and practical in how they conducted the MR was a key strategy for One Earth Designs. This implied doing enough research to get robust answers, while choosing as low sample sizes as possible to get significant data, in addition to accepting that things would take longer and that there would be bias in the research.	Crane (2009), Sheth and Malhotra (2009).
Combine methods	One Earth Designs used a combination of data collection	Crane (2009), Dibb et

	<p>methods to verify their findings and reduce bias. Desk research aiming to get a broad overview of the market was followed by web surveys to obtain unbiased responses on top-line perception, attitudes and behaviours. Finally, depth interviews were used to provide a more detailed understanding of respondents.</p>	<p>al. (2005), Sheth and Malhotra (2009).</p>
<p>Harness online resources</p>	<p>One Earth Designs aimed to do as much as possible with online resources to minimize the need to do expensive qualitative research. Before One Earth Designs did any primary research, they conducted extensive desk research of secondary data online. Due to all the information available through websites, reviews, blogs and social media, they got valuable input into the needs that their product need to meet. In addition to the free desk research, online panels through Survey Monkey were used for the quantitative survey. CMO Wong was positively surprised by the outcome of the quantitative research, due to the unbiased nature of the online panels at very affordable prices.</p>	<p>Crane (2009), Kahn (2012), Sills & Song (2002), Solomon (2009).</p>
<p>Harness partnerships and relationships</p>	<p>Key relationships helped save One Earth Designs time and money in conducting the MR. Their partnership with Google allowed them to freely test value propositions and responses from different target audiences for several thousand dollars each month. Furthermore, One Earth Designs could reach out to close customers who were happy to be respondents to the depth interviews without getting paid.</p>	<p>Stokes (2000), Zontanos and Anderson (2004).</p>

Table 13: Summary of analysis.

5. Discussion and Implications

The analysis presented above illustrates how startups, due to their unique limitations, cannot conduct MR like described in most of the MR literature. Consequently, the reliability, validity and representativeness of the MR (Dibb et al., 2005; Solomon, 2009) will be affected. Thus, as supported by Crane (2009), startups need to be sceptical to their MR results, in order not to base their subsequent business decisions on skewed data. However, by understanding which specific challenges will become evident during the research, concrete actions can be taken for startups to obtain valuable and actionable MR results where bias is minimized.

5.1 A new lens to understanding MR for startups

The startup context provides its own set of specific MR challenges that needs to be acknowledged and further investigated by the MR field. As illustrated by the previously described analysis, these challenges are related to both research design, data collection and sampling stage of the design phase and the execution phase of the MR process, as presented by Sheth and Malhotra (2009). The use of simple, inexpensive methods, small sample sizes and the need to use convenience sampling have been identified as the main MR challenges for startups in the design phase. Subsequently, asking the right questions, the lack of continuous work and how everything takes longer are critical challenges that needs to be handled in the execution phase.

The identification of specific MR challenges builds upon research done by Crane (2009), describing the identified challenges in a higher specificity and in the context of the MR process. In order to provide a helpful tool for startups having to deal with these challenges, the author has presented four appropriate strategies for handling these challenges in a startup context. These are combining methods, compressing, adapting or modifying the research design, harnessing online resources and harnessing partnerships. Accordingly, it is hoped that the framework proposed in this thesis will provide a new lens in which the startup context of conducting MR can be better understood.

5.2 A pragmatic approach

A key question that needs to be posed to MR scholars is what are the implications on how to conduct MR if key assumptions of the firms conducting MR, such as extensive resources and MR competence, are not present. Even though the MR field has failed to convincingly answer this question, Sheth and Malhotra (2009) suggest that the MR process would have to be compressed, adapted or modified if there is not enough time available. Similarly, Crane (2009) argues that startups facing a limited time frame should prioritize fast results above top-quality results from a MR perspective. Following this line of thought, but applying it to more limitations and challenges than time constraints only, a key pattern emerging from this study is how startups need to take a pragmatic approach to obtain valuable MR results. A pragmatic approach in this context implies aiming for sufficient data instead of very rigorous research with high statistical power to get actionable results. To exemplify, selecting the right sample size becomes less important than selecting a sufficient sample size to get reasonable results, as money and personnel availability for the study is limited. As illustrated throughout the case study, One Earth Designs chose as low a sample size as they thought they could afford while still getting a reasonable amount of results. They also used convenience sampling in depth interviews and accepted that things would have to take longer. According to CMO Wong, this pragmatic and practical approach to the research was the only way One Earth Designs could obtain the MR results they needed in light of their limitations and challenges. Accordingly, for the MR field to enhance its relevancy to a startup context, it needs to acknowledge the need of startups to apply a pragmatic approach to the MR as a key proposition for handling the challenges that they face.

Inevitably, any MR conducted by startups will introduce a wide range of bias, as presented by Balogun (2014), which needs to be mitigated to maintain quality of the data. Accordingly, the case study of One Earth Designs has illustrated three key principles that are essential when a pragmatic approach is applied by startups conducting MR: *Combining methods, being systematic and making choices*. First, as emphasized by Crane (2009), startups need to use a variation of data collection methods, seeing that using only one method may provide limited insights and might multiply the impact of bias in the research. As shown by the analysis, CMO Wong spent several weeks optimizing the research design before any MR was conducted, in which a key concern was how to optimally and effectively combine methods. Such an approach is supported

by MR scholars such as Dibb (2005) and Sheth and Malhotra (2009), who emphasizes how different methods are meant to be complementary methods to increase data quality by supplementing each other. Secondly, following Sheth and Malhotra (2009), a systematic MR process is a key component of a pragmatic approach to MR. As mentioned above, One Earth Designs spent extensive time to optimize the research design, a systematic approach that followed through the whole MR. Consequently, issues and potential flaws were identified early in the design phase, minimizing the opportunity to waste time and resources in the execution phase of the research. By following the sequencing outlined in the research design, the results from one method, even though lacking in statistical rigour, helped inform the next phase of the research. As of such, the findings were still verified from different perspectives, being of particular importance considering the small and to some extent biased samples. Finally, the case study has shown the importance of making strategically and tactically tough choices throughout the MR process, as a key ingredient to the pragmatic approach. Even though two more phases of the MR with a functioning prototype was originally planned and CMO Wong considered focus group research to be important, One Earth Designs could not afford to do neither. In addition, no prospects for the depth interviews were chosen randomly and the sample was a result of who were available among people they knew. Throughout, however, little time was spent dwelling on these decisions. Instead, firm choices were made, and the research moved forward.

This new lens to understand MR for startups questions several key assumptions present in most of the MR literature. As illustrated by the pragmatic approach of One Earth Designs, the data gained from the individual methods was neither robust nor reliable in itself, which is described by MR scholars as a key ingredient to support decision making (Harrison et al., 2016; Churchill and Iacobucci, 2006). Instead, it was the combining of methods in a systematic manner that led to the key insights emerging from the research. By not aiming for robust and reliable data in individual methods but rather for the MR as a whole, One Earth Designs could complete their MR within their restrained budget. This illustrates how a pragmatic approach makes MR less resource intensive, which has been hailed as a key reason to why most startups choose not to conduct MR (Brooksbank et al., 2003). Importantly, a pragmatic approach to MR for startups acknowledges that startups should not simply be assessed in the context of existing MR models based on large firm practices, which has been a key criticism towards the MR field (Bocconcelli, 2016; Coviello, 2000; Phua, 2009; Zontanos, 2004). Instead, as encouraged by Hills (2008), a

pragmatic approach takes into account the resource constraints, the capability limits and the contexts of startups. In turn, a pragmatic approach provides an alternative to what Venkatesan (2001) describes as the sole large firm focus within the MR field.

5.3 Clarifications to be explored

Following the framework presented in this thesis, there are four clarifications that needs to be explored by further research on startup-specific MR challenges and appropriate strategies. First, the case analysis illustrates how the qualitative research has provided more challenges to One Earth Designs than the quantitative research, both related to sampling and execution. Both Babin and Zikmund (2015) and Crane (2009) support the notion that non-convenience sampling should be chosen when resources available are severely limited. However, as the research has shown, One Earth Designs was able to use a stratified probability-sample for their quantitative web survey at limited costs, whereas a very small convenience sample was used for the qualitative depth interviews. In turn, a further distinction may be suggested between challenges arising for startups in quantitative and qualitative research. This is further exemplified by how One Earth Designs could not afford conducting the initially planned focus groups. Whereas the quantitative research provided satisfying results due to simple and inexpensive online opportunities, the qualitative research took extensive time to administer and organize, even when using non-probability sampling. Accordingly, the author suggests that further research should investigate empirical examples of how qualitative research can become simpler to organize, less expensive and less biased for startups.

The second clarification needed by further research is a more sophisticated understanding of the impact of startups' other non-MR-related daily responsibilities on the MR work, where everything takes longer and there is an often interrupted, non-continuous focus. As illustrated by the case study of One Earth Designs, the small marketing team could only do MR part time when they didn't have time-consuming daily marketing and advertising tasks to worry about. This lack of focus and continuity in the MR work decreased the marketing team's ability to digest the MR input and consider the implications. Even though this contextual challenge has been remarked by Keskin (2006), the broader MR literature has failed to acknowledge how startups cannot set aside a team of dedicated staff to follow a strict, coherent timeline, something that to a larger

extent is possible for a large firm or even a MR agency. Those few involved would need to find time among other demanding tasks, which changes both the time perspective and focus of the research. These are key challenges for startups that the MR field must recognize in order to adapt and increase its relevancy for startups.

A third clarification needed by further research is to what extent MR experience or expertise is present in startups, and how that impacts the ability to ask the right questions in both quantitative and qualitative research. In line with Krueger (2002) and Mc Cartan-Quinn (2003), both the marketing officer and the CEO of One Earth Designs lacked prerequisite understanding and training in MR in a commercial sense. However, as described by the CEO as unusual expertise to have for a startup, CMO Wong harnessed his extensive commercial MR experience in how he coordinated the MR efforts by One Earth Designs. As One Earth Designs still clearly had to deal with significant MR challenges, one would expect even more challenges to have become evident if the MR expertise of the CMO had not been present. For example, by not harnessing desk research to answer questions where answers are already available through secondary data prior to conducting the web survey, or by letting employee's "blind faith in the product" lead to confirmation bias through how questions are asked, there would have been a risk of low-quality MR output and in turn a waste of resources for One Earth Designs. Even more importantly, the contextually appropriate strategies presented in the theoretical framework may not have been identified. Accordingly, in a conceptual perspective, there is a need to investigate the relationship between MR experience and expertise present in startups and to what extent these resources both help ask the right questions and more broadly enhances the quality of the research. Empirically, the framework presented by the author becomes even more important in outlining key strategies for startups where MR competence may be limited.

Fourthly, this study has shown how online resources as described by Kahn (2012) and Hauser (2005) through secondary data and online panels provide new opportunities for MR to be tailored to businesses where key limitations are present. In harnessing these online resources at a very limited fee, CMO Wong stated that their procedures in One Earth Designs were not particularly different to what any larger firm would have done and that he was satisfied with the MR output. Accordingly, there is a need to better understand how these online resources could best be harnessed by startups as a key strategy for startups in obtaining high-quality MR data. This may be built on research done by Carl and Gates (2005), who more broadly describes how online

resources allows for better, cheaper and faster MR. However, desk research and quantitative research should not be considered sufficient, as these research approaches do not provide the in-depth understanding of qualitative research. A further note should be made that despite the promise of startups harnessing online resources in MR, the challenge remains in whether they are able to ask the right questions that elicits valuable responses.

5.4 Quantitative research to test the framework

Finally, this case study has shed new lights upon the unique context in which startups can harness established tools and techniques of MR. By using a single-case study, the author could get an in-depth understanding of the challenges and strategies present throughout the MR process. However, to further refine the theoretical framework presented by the author, quantitative research is needed to test the elements and the relationship present in the framework proposed by the author. Specifically, a key question to ask is what are the relationships between specific MR challenges and the specific propositions. For instance, one could argue that the contextually appropriate strategy to the challenge of using simple, inexpensive methods is to combine the methods of data collection. However, both combining methods and harnessing online resources could be hailed as worthwhile strategies for dealing with non-probability sampling and small sample sizes. Finally, further research should consider what is the impact of any specific challenge not being present for startups, and how that in the end may influence the quality of MR.

6. Conclusion

To address the research questions, the author first reviewed the MR literature in order to develop an initial theoretical construct. This framework provided the foundation for the single case study of One Earth Designs, which was chosen as the case due to the author having unique research access as an employee of this startup. By systematically combining theory and case study results, an approach suggested by Dubois (2001) for single-case studies, the author went back and forth between MR theory and empirical data from participant-observation, interviews and documentation until a final theoretical framework emerged. This framework specifies the specific challenges for startups conducting MR, in addition to suggesting propositions for addressing these challenges. As recommended by Siggelkow (2007), the case study of One Earth Designs was used to provide an in-depth illustration and analysis of how the theoretical framework applies to a real-life context of a startup conducting MR for a new product.

Throughout the analysis, the author identified how the approach used by One Earth Designs was distinctly different to the large-firm processes described in the MR literature, even though the methods and techniques in themselves were similar. To help MR adapt to the unique startup context, the author suggests a new pragmatic approach to MR, in which combining methods, being systematic and making choices are key principles. In turn, the author contributes to theory by acknowledging the unique characteristics, challenges and context in which startups developing new products conduct MR.

7. Suggestions for Further Research

As presented in the Discussion section, the following four topics related to the theoretical framework need to be explored by further research on startup specific MR challenges and appropriate strategies, as they are insufficiently addressed in the current MR literature:

1. The distinction between challenges arising for startups in quantitative and qualitative research, as this study suggests that the majority of the challenges appear in the qualitative research.
2. The impact of startups' non-MR-related daily responsibilities on the MR work, where everything tends to take longer and there is a lack of uninterrupted, continuous focus.
3. To what extent MR experience or expertise is present in startups, and how this impacts the ability to ask the right questions in both quantitative and qualitative research.
4. How online resources could best be harnessed by startups as a key strategy for startups in obtaining high-quality MR data.

In addition to these four topics, quantitative research is needed to test the elements present in the theoretical framework, and the relationships between these elements. More broadly, as the current MR literature has employed a sole large firm focus, substantial work is needed to develop the pragmatic approach to MR, which makes MR more applicable and less resource intensive for startups. Specifically, the author suggests that more qualitative research should be conducted in order to provide a further in-depth understanding of how MR can be tailored to startups through a pragmatic approach. Subsequently, quantitative research is needed to test the theoretical propositions and claims made by such an approach.

References

- ALVAREZ, S. A. & BUSENITZ, L. W. 2001. The entrepreneurship of resource-based theory. *Journal of management*, 27, 755-775.
- BABIN, B. J. & ZIKMUND, W. G. 2015. *Essentials of marketing research*, Nelson Education.
- BAKER, S. & MOUNCEY, P. 2003. The market researcher's manifesto. *International Journal of Market Research*, 45, 415-434.
- BALOGUN, E. 2014. *Analysis and Impact of Bias in Market Research*.
- BAYUS, B. L. 2008. Understanding customer needs. *The Handbook of Technology and Innovation Management*, S. Shane, ed., Wiley, West Sussex, UK, 115-141.
- BERTHON, P., EWING, M. T. & NAPOLI, J. 2008. Brand management in small to medium-sized enterprises. *Journal of Small Business Management*, 46, 27-45.
- BETTIOL, M., DI MARIA, E. & FINOTTO, V. 2012. Marketing in SMEs: the role of entrepreneurial sensemaking. *International Entrepreneurship and Management Journal*, 8, 223-248.
- BIRN, R. 2004. *The effective use of market research: how to drive and focus better business decisions*, Kogan Page Publishers.
- BLANK, S. 2013a. *The four steps to the epiphany*, K&S Ranch Pescadero.
- BLANK, S. 2013b. Why the lean start-up changes everything. *Harvard business review*, 91, 63-72.
- BLANK, S. & DORF, B. 2012. *The startup owner's manual: The step-by-step guide for building a great company*.
- BLANKSON, C., MOTWANI, J. G. & LEVENBURG, N. M. 2006. Understanding the patterns of market orientation among small businesses. *Marketing Intelligence & Planning*, 24, 572-590.
- BOCCONCELLI, R., CIOPPI, M., FORTEZZA, F., FRANCONI, B., PAGANO, A., SAVELLI, E. & SPLENDIANI, S. 2016. SMEs and marketing: a systematic literature review. *International Journal of Management Reviews*.

- BRUSH, C. G., GREENE, P. G. & HART, M. M. 2001. From initial idea to unique advantage: The entrepreneurial challenge of constructing a resource base. *The academy of management executive*, 15, 64-78.
- CARL, M. & GATES, R. 2005. *Marketing research essentials*. Wiley
- CHURCHILL, G. A., BROWN, T. J. & SUTER, T. A. 2001. *Basic marketing research*.
- CHURCHILL, G. A. & IACOBUCCI, D. 2006. *Marketing research: methodological foundations*, Dryden Press New York.
- CONNOR, T. 2002. The resource-based view of strategy and its value to practising managers. *Strategic change*, 11, 307-316.
- COOKE, M. & BUCKLEY, N. 2008. Web 2.0, social networks and the future of market research. *International Journal of Market Research*, 50, 267.
- COOPER, R. G. 1990. Stage-gate systems: a new tool for managing new products. *Business horizons*, 33, 44-54.
- COOPER, R. G. & KLEINSCHMIDT, E. J. 2001. Stage-gate process for new product success. *innovation Management U*, 3, 2001.
- COVIELLO, N. E., BRODIE, R. J. & MUNRO, H. J. 2000. An investigation of marketing practice by firm size. *Journal of business venturing*, 15, 523-545.
- CRANE, F. G. 2009. *Marketing for entrepreneurs: Concepts and applications for new ventures*, Sage Publications.
- CREUSEN, M., HULTINK, E. J. & ELING, K. 2013. product development. *International Journal of Market Research*, 55.
- DAVIS, R. E. 1993. The role of market research in the development of new consumer products. *Journal of product innovation management*, 10, 309-317.
- DIBB, S., SIMKIN, L., PRIDE, W. M. & FERRELL, O. C. 2005. *Marketing: Concepts and strategies*, Houghton Mifflin.

- DOOLEY, R. 2013. *The Most Common (And Dangerous) Market Research Mistake* [Online]. Forbes.com. Available: <https://www.forbes.com/sites/rogerdooley/2013/08/21/market-research-mistake/#4fa7aec173fe> [Accessed 10 Oct 2017].
- DUBOIS, A. & GADDE, L.-E. 2002. Systematic combining: an abductive approach to case research. *Journal of business research*, 55, 553-560.
- EISENHARDT, K. M. & GRAEBNER, M. E. 2007. Theory building from cases: Opportunities and challenges. *Academy of management journal*, 50, 25-32.
- FEINBERG, F. M., KINNEAR, T. & TAYLOR, J. R. 2012. *Modern marketing research: Concepts, methods, and cases*, Cengage Learning.
- FRANCO, M., DE FÁTIMA SANTOS, M., RAMALHO, I. & NUNES, C. 2014. An exploratory study of entrepreneurial marketing in SMEs: The role of the founder-entrepreneur. *Journal of Small Business and Enterprise Development*, 21, 265-283.
- GEISE, F. A. 2017. *Integration of Consumers into New Product Development by Social Media-Based Crowdsourcing—Findings from the Consumer Goods Industry in Germany. Advances in Advertising Research (Vol. VII)*. Springer.
- GIBBERT, M. & RUIGROK, W. 2010. The “what” and “how” of case study rigor: Three strategies based on published work. *Organizational research methods*, 13, 710-737.
- GILMORE, A., CARSON, D. & GRANT, K. 2001. SME marketing in practice. *Marketing intelligence & planning*, 19, 6-11.
- GRUNERT, K. G., VERBEKE, W., KÜGLER, J. O., SAEED, F. & SCHOLDERER, J. 2011. Use of consumer insight in the new product development process in the meat sector. *Meat Science*, 89, 251-258.
- HARRISON, M., CUPMAN, J., TRUMAN, O. & HAGUE, P. N. 2016. *Market Research in Practice: An Introduction to Gaining Greater Market Insight*, Kogan Page Publishers.
- HAUSER, W. J. 2007. Marketing analytics: the evolution of marketing research in the twenty-first century. *Direct Marketing: An International Journal*, 1, 38-54.
- HEILBRUNN, J. 1995. *Marketing encyclopedia: issues and trends shaping the future*, Contemporary Books.

- HENARD, D. H. & SZYMANSKI, D. M. 2001. Why some new products are more successful than others. *Journal of marketing Research*, 38, 362-375.
- HILLS, G. E., HULTMAN, C. M. & MILES, M. P. 2008. The evolution and development of entrepreneurial marketing. *Journal of Small Business Management*, 46, 99-112.
- HOYER, W. D., CHANDY, R., DOROTIC, M., KRAFFT, M. & SINGH, S. S. 2010. Consumer cocreation in new product development. *Journal of Service Research*, 13, 283-296.
- HOYER, W. D., MACINNIS, D. J. & PIETERS, R. 2013. *Consumer behavior*, Australia, South Western Cengage Learning.
- IZVERCIAN, M., MICLEA, Ş. & POTRA, S. 2016. Marketing Practices in SMEs. Case Study: Romania vs. Malta. *Procedia-Social and Behavioral Sciences*, 221, 135-141.
- JALALI, S. & WOHLIN, C. Systematic literature studies: database searches vs. backward snowballing. *Proceedings of the ACM-IEEE international symposium on Empirical software engineering and measurement*, 2012. ACM, 29-38.
- JAWORSKI, B., KOHLI, A. K. & SAHAY, A. 2000. Market-driven versus driving markets. *Journal of the academy of marketing science*, 28, 45-54.
- KAHN, K. B. 2012. *PDMA Handbook of New Product Development (3rd Edition)*, Somerset, Somerset, NJ, USA: John Wiley & Sons.
- KANE, T. J. 2010. The importance of startups in job creation and job destruction.
- KESKIN, H. 2006. Market orientation, learning orientation, and innovation capabilities in SMEs: An extended model. *European Journal of innovation management*, 9, 396-417.
- KIM, J., LEE, S. & PARK, Y. 2013. User-Centric Service Map for Identifying New Service Opportunities from Potential Needs: A Case of App Store Applications. *Creativity and Innovation Management*, 22, 241-264.
- KNIGHT, F. H. 2012. *Risk, uncertainty and profit*, Courier Corporation.
- KOTLER, P. 2009. *Marketing management*. Marketing management 13th Ed. New Jersey: Prentice Hall.
- KRUEGER, N. F. 2002. *Entrepreneurship: Critical perspectives on business and management*, Taylor & Francis.

- KÄRKKÄINEN, H. & ELFVENGREN, K. 2002. Role of careful customer need assessment in product innovation management—empirical analysis. *International journal of production economics*, 80, 85-103.
- LEE, K. S., LIM, G. H. & TAN, S. J. 1999. Dealing with resource disadvantage: Generic strategies for SMEs. *Small Business Economics*, 12, 299-311.
- LI, T. & TAMER CAVUSGIL, S. 1999. Measuring the dimensions of market knowledge competence in new product development. *European Journal of Innovation Management*, 2, 129-146.
- LOJACONO, G. & ZACCAI, G. 2004. The evolution of the design-inspired enterprise. *MIT Sloan management review*, 45, 75.
- MALHOTRA, N. K. 2008. *Marketing research: An applied orientation*, 5/e, Pearson Education India.
- MASLOW, A. H., FRAGER, R., FADIMAN, J., MCREYNOLDS, C. & COX, R. 1970. *Motivation and personality*, Harper & Row New York.
- MAURYA, A. 2012. *Running lean: iterate from plan A to a plan that works*, “O’Reilly Media, Inc.”.
- MCGIVERN, Y. 2009. *The practice of market research: An introduction*, Pearson Education.
- MERKAŠ, Z., GREGUREK, M. & VIKTOR, G. Addressing market risks through lean startup methodology. 1st International Business & Entrepreneurial–BEE conference 2016, 2016.
- MORRIS, M., SCHINDEHUTTE, M. & ALLEN, J. 2005. The entrepreneur’s business model: toward a unified perspective. *Journal of business research*, 58, 726-735.
- MC CARTAN-QUINN, D. & CARSON, D. 2003. Issues which impact upon marketing in the small firm. *Small business economics*, 21, 201-213.
- PATNAIK, D. & BECKER, R. 1999. Needfinding: the why and how of uncovering people’s needs. *Design Management Journal (Former Series)*, 10, 37-43.
- PHUA, S. & JONES, O. 2009. Marketing in new business ventures: examining the myth of informality. *International Journal of Entrepreneurship and Innovation Management*, 11, 35-55.

- RANDOLPH, J. J. 2009. A guide to writing the dissertation literature review. *Practical Assessment, Research & Evaluation*, 14, 1-13.
- RHOADES, E. A. 2011. Literature Reviews. *Volta review*, 111, 353-368.
- RIES, E. 2011. *The lean startup: How today's entrepreneurs use continuous innovation to create radically successful businesses*, Crown Books.
- SAWHNEY, M., VERONA, G. & PRANDELLI, E. 2005. Collaborating to create: The Internet as a platform for customer engagement in product innovation. *Journal of interactive marketing*, 19, 4-17.
- SCHLIESSER, L. R. 2015. The Lean Startup methodology used to promote innovation in existing companies.
- SHETH AND MALHOTRA, J. N. & MALHOTRA, N. K. 2009. *Wiley international encyclopedia of marketing*, Wiley-Blackwell.
- SHILLITO, L. M. 2001. *Acquiring, Processing and Deploying Voice of the Customer*. Boca Raton: St. Lucie Press.
- SIGGELKOW, N. 2007. Persuasion with case studies. *The Academy of Management Journal*, 50, 20-24.
- SILLS, S. J. & SONG, C. 2002. Innovations in survey research: An application of web-based surveys. *Social science computer review*, 20, 22-30.
- SLATER, S. F. & NARVER, J. C. 2000. The positive effect of a market orientation on business profitability: A balanced replication. *Journal of business research*, 48, 69-73.
- SOLOMON, M. R. 2009. *Marketing: Real people, real decisions*, Pearson Education.
- SONG, X. M. & MONTOYA-WEISS, M. M. 1998. Critical development activities for really new versus incremental products. *Journal of product innovation management*, 15, 124-135.
- STAFF, 2014. *Conducting Market Research* [Online]. Entrepreneur.com. Available: <https://www.entrepreneur.com/article/217388> [Accessed 8 Oct 2017].

- STEENKAMP, J.-B. & VAN TRIJP, H. 1997. Attribute elicitation in marketing research: A comparison of three procedures. *Marketing Letters*, 8, 153-165.
- STOKES, D. 2000. Entrepreneurial marketing: a conceptualisation from qualitative research. *Qualitative market research: an international journal*, 3, 47-54.
- TEECE, D. J. 2010. Business models, business strategy and innovation. *Long range planning*, 43, 172-194.
- TORTOLANI, R. 1965. Introducing Bias Intentionally into Survey Techniques. *Journal of Marketing Research*, 51-55.
- VAN KLEEF, E., VAN TRIJP, H. C. & LUNING, P. 2005. Consumer research in the early stages of new product development: a critical review of methods and techniques. *Food quality and preference*, 16, 181-201.
- VENKATESAN, V. & SOUTAR, G. N. 2001. Market research in Australian SMEs: An empirical study. *Small Enterprise Research*, 9, 17-31.
- WILSON, A. M., JONES, R., MILLER, K. & PENTECOST, R. 2009. *Marketing research: An integrated approach*, Pearson Australia.
- ZAINAL, Z. 2017. Case study as a research method. *Jurnal Kemanusiaan*, 5.
- YORK, J. L. & DANES, J. E. 2014. Customer development, innovation, and decision-making biases in the lean startup. *Journal of Small Business Strategy*, 24, 21.
- ZONTANOS, G. & ANDERSON, A. R. 2004. Relationships, marketing and small business: an exploration of links in theory and practice. *Qualitative market research: an international journal*, 7, 228-236.

Appendix A: CMO Interview Guide

Introduction

What is your role in One Earth Designs?

- What are your main responsibilities in the company?
- What is your previous experience with market research?

What product are you currently developing in One Earth Designs?

- To what extent do you consider this an incremental or radical product? Why?
- How would you describe the market you are targeting?

What is the reason you decided to conduct market research for the portable camp stove?

- What did you expect to learn from the market research?

How would you say your startup differ from a typical large company?

- How would you describe the resources available in your startup?
- What resource limitations did you take into account when planning the market research?
- How did being a startup / small business influence the research methodology?
- What financial and human resources have you had available during this market research?
- If you had more resources available, are there any steps in the MR process you would have liked to done more thorough? Which? How? Why?

Which biases have you encountered along the research?

- How do these compare to what you expected?

Which challenges appear

What has been the most challenging aspects of the market research so far?

- Which challenges would have been similar even with larger resources?
- Which challenges have been a consequence of your limited resources?
- How has time constraint affected your research? How have you handled it?
- How has financial constraints affected your research? How have you handled it?

- How has the limited human resources available affected your research? How have you handled it?
- What would you have done differently with more resources?

Research design and sampling:

- What was the process of writing the market research methodology? Which key considerations were made while crafting the document?
- Which methods did you use?
 - What was your reasoning behind choosing these methods in that order?
 - Why did you choose more than one method?
 - What has been the advantages and challenges of using desk research as a method? (Why?)
 - What has been the advantages and challenges of using online panels as a method? (Why?)
 - What influenced the choice of the sample?
 - What was the reasoning behind the chosen sample size?
 - How did the financial resources available influence the choice of sample size?
 - How representative is this sample of the population you wanted to research?
 - What has been the advantages and challenges of using depth interviews as a method? Why?
 - What influenced the choice of the sample?
 - What was the reasoning behind the chosen sample size?
 - How did the financial resources available influence the choice of sample size?
 - How representative is this sample of the population you wanted to research?
 - Are there any other methods that you considered, but didn't include? Why?

Data collection and analysis:

- How has the market research data been collected?
- How have you analysed the collected MR data?
- How did you plan the analysis beforehand?
- How would you have analysed the data if you had more time?
- What have been the major challenges of the data collection and analysis?
- What actions have been taken to ensure the findings from the market research have been used to inform the product development?

Ways to tackle these challenges

What actions have you done to ensure as little bias in the research as possible?

Overall, what actions have OED done to maximize probability of robust MR despite resource constraints?

Outcome

How useful has the information obtained by MR so far been?

- How accurate has the data been in answering the objective of the market research?
- How has MR influenced the product development so far?
- How has MR helped assess the needs and wants of potential customers?
- What has surprised you during the MR?

To what extent has the market research been conducted as planned?

- What has been the reason for the discrepancies?
- How has the discrepancies influenced the market research?

You have a lot of marketing and MR experience. How critical has that been for your startup?

What might have happened without professionals in the MR field involved?

Are there anything you would like to add to our discussion?

Appendix B: CEO Interview Guide

Introduction

What is your main responsibilities as CEO in One Earth Designs?

- What product are you currently developing in One Earth Designs?
- How would you describe the market you are targeting?

Why market research

What is the reason you decided to conduct market research for the portable camp stove?

- What did you expect to learn from the market research?
- What did you know about the market beforehand? To what extent were did you believe people would be eager to purchase beforehand?
- What was your view on the appropriability of the product before conducting the market research? Has that changed during the research?
- What were the main questions you wanted to have answered from the market research?

Context

How would you say your startup differ from a typical large, established company?

- How would you describe the resources available in your startup?
- What financial and human resources have been available during this market research?
- How would you describe the market research experience and competence in One Earth Designs team?
 - How do you believe that experience - or lack of - has affected the research?
- Could you describe the daily responsibilities of those working with marketing in One Earth Designs?

Planning & Design

- What resource limitations were considered when planning the market research?
- How did being a startup influence the design of the research?
- If you had more resources available, are there any steps in the MR process you would have liked to have done more thorough? Which? How? Why?

Which challenges appear

What has been the most challenging aspects of the market research so far?

- Which challenges would have been similar even with larger resources?
- Which challenges have been a consequence of your limited resources?
- How has financial constraints affected the research? What has been done to deal with that constrain?
- How has the limited human resources available affected your research? What has been done to deal with that constrain?
- What would you have done differently with more resources?

Which biases have been encountered along the research?

- How do these compare to what you expected beforehand?

Research design

- Which key considerations were made while crafting the design of the research?
- Which methods did you use?
 - What was your reasoning behind choosing these methods in that order?
 - Why did you choose more than one method?
 - What has been the advantages and challenges of using desk research as a method?
 - What has been the advantages and challenges of using online panels as a method?
What has been the advantages and challenges of using depth interviews as a method?

Sampling:

- What considerations were made when choosing the sample? / What influenced the choice of the sample?
- What was the reasoning behind the chosen sample size?
- How did the financial resources available influence the choice of sample size?
- How representative is this sample of the population you wanted to research?
- Are there any other methods that you considered, but didn't include? Why?

Data collection and analysis:

- How has the market research data been collected and analyzed?

- What have been the major challenges of the data collection and analysis?
- What actions have been taken to ensure the findings from the market research have been used to inform the product development?

Outcome of MR

How useful has the information obtained by MR been?

- How has MR influenced the product development so far?
- How has MR helped assess the needs and wants of potential customers?
- What has surprised you during the MR?
- To what extent has the MR been conducted as planned? / Deviated from the plan
 - Has there been any surprising challenges along the way?
 - Any challenges you were aware of beforehand?
- If One Earth Designs were to do such MR again, what would you do differently?
- What might have happened without professionals in the MR field involved?
- Any recommendations to other startups with an incremental product that are about to do market research?
 - What major learnings have you made?

Are there anything you would like to add to our discussion?

Appendix C: Documentation

These were the main documents investigated as part of the data collection phase:

- Research design strategy
- Research plan
- Desk research overview
- Panel research overview
- Online questionnaire (drafts and final version)
- Depth interview guides
- Sampling spreadsheet for depth interview prospects
- Transcripts of all depth interviews
- Collation of research evidence

Appendix D: Case study Coding

The coding for the interviews was developed in three stages. First, an initial set of codes were developed based on the first version of the theoretical construct. The set of codes were modified after the first iteration of data analysis. Upon conducting a second round of data analysis, and informed by the newly modified theoretical construct, new modifications to the set of codes were applied.

Initial coding, based on the first version of the theoretical framework:

- A. Contextual factors
 - I. Limited resources
- B. Contextual challenges
 - I. General research design
 - II. Research design: qualitative analysis
 - III. Research designs: quantitative analysis
 - IV. Sampling
 - V. Data collection and analysis

The following codes were added after the first data analysis and development of the theoretical construct:

- A. Contextual factors
 - Limited financial resources
 - Limited human resources
 - Lack of experience / competence
 - Familiarity
 - Daily responsibilities
- Contextual challenges

- Everything takes longer
- Asking the right questions
- How to handle challenges:
 - Compress the MR process
 - Pragmatism
 - Market research agency

These were the final codes after the second data analysis and a further evolution of the theoretical construct:

- A. Contextual limitations
 - I. Lack of resources
 - II. Lack of MR expertise
 - III. Blind faith in the product
 - IV. Daily responsibilities
- B. Contextual challenges:
 - I. Simple, inexpensive methods
 - II. Small sample sizes
 - III. Sample bias
- C. Propositions for addressing the challenges
 - I. Exhaust secondary data
 - II. Use online resources
 - III. Combine methods
 - IV. Harness partnerships