



**ABSTRACT**

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The thesis is an exploratory study aiming at evaluating market potential of an industrial technology in a specific industrial context through market segmentation. The thesis contributes to theory, by applying the Nested Approach market segmentation model to a new context. Also, managerial intuition is used in forming the segmentation bases, which has not been paired with the segmentation model before.

Due to the exploratory nature of the research, the thesis adopted a multi-method qualitative methodology consisting of a single-case study accompanied by archival research. First, market segmentation models were compared to arrive at the most appropriate model for the case study and context of the research. Primary data was gathered through a qualitative semi-structured interview, using the chosen model, which was the Nested Approach, as the guiding questions. The interviewee was the case company marketing manager. From the interview, the segmentation bases were formed, which were used to guide the data collection for the market segmentation. Information on the market was gathered through secondary data collection from archival sources.

The findings provide insight on choosing a market segmentation model and bases for the set context and also how market segmentation can be used to determine market potential. When compared to market potential literature, the segmentation results do not provide a full image of the market landscape, leaving room for interpretation. However, a list of criteria-matching companies was generated from the market segmentation, indicating market potential for the case company's technology within the investigated industry.

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# 1 Introduction

## 1.1 Background, research gap and aims

Global warming poses a threat so grave to the Earth and its inhabitants that humanity absolutely must develop new and more efficient ways to generate electricity to decrease carbon emissions.

*“Electricity production is the largest single sector emitting fossil fuel CO<sub>2</sub> at present and in baseline scenarios of the future. (IPCC 2014, 559)”*

The Special Report of the Intergovernmental Panel on Climate Change (IPCC) states that the electricity sector has a huge role to play in the CO<sub>2</sub> mitigation efforts and renewable energy is a cornerstone solution to the problem (IPCC 2014, 559). This responsibility poses a burden on companies operating in the renewable energy business. It is imperative to quickly spot market potential to explore the possibility of applying already invented technology in the fight against carbon emissions.

The commissioning company offers the context for the case study in this thesis. The company's technology is already successfully used in the wind power and marine industries to generate electricity from kinetic energy. The same technological principle could be applied to some hydropower applications. Prior to making market entry and resource allocation decisions, the company wants to scan the possible potential there is in the market. The case company operates in the renewable energy industry, making it a valuable case to learn from and to assist in evaluating market opportunities. The market potential literature offers only few and burdensome evaluation frameworks for companies and therefore the focus of this thesis was magnified to a section in the frameworks, which is market segmentation, to produce an agile method of market potential evaluation. The researcher aims at providing guidance on the process of segmentation and in choosing of the model and the segmentation bases through this exploratory study, which seeks to investigate how market segmentation can be used to reveal market potential for industrial technology. The results will provide insight on the market and possible market potential will be identified. Therefore, the thesis serves both theoretical and practical purposes.

Market segmentation plays a key role in both strategic and operational marketing as it allows the marketer to understand the characteristics, needs and wants of the market and to device appropriate marketing programs to target segments (Boejgaard 2010; Kotler & Armstrong 2010; Weinstein 2011). The purposes of segmentation vary but one is that it can be used

to find growth potential through market opportunities (Sausen 2005). Market segmentation has been a focus of academic research for decades and researchers have noticed that the practice is especially difficult in the business to business (B2B) context and therefore practical approaches are needed to be further studied in the market segmentation field (Simkin 2008; Choffray & Lilien 1978; Bonoma & Shapiro 1984; Clarke 2009). Even though segmentation is deemed highly important and given the amount of time it has been studied market segmentation literature still shows a deficit in practical implementation and in tools and frameworks in the B2B context. The focus of B2B market segmentation literature has been on the development of models and bases, research methodologies and data collection requirements, statistical analysis tools and implementation of the results (Goller, Hogg & Kalafatis 2002). However, there is discussion amongst academia on the plausibility of a generalizable model and bases that would suit all B2B industries and companies and therefore, importance of the process description of market segmentation has been highlighted as a needed addition in literature (Clarke 2009). This thesis will address this need.

As noted, there is an abundance in theoretical research papers, but a chasm exists between theory and practice. This thesis will address this research gap by applying the Nested Approach by Bonoma and Shapiro (1984) to an industrial technology market to attempt to reveal opportunities in the market in the form of an attractive market segment. The Nested Approach has been applied successfully to a computer technology company in literature, but not to an industrial technology firm case study, and also managerial intuition has not been paired with the framework, so this thesis will contribute to the literature in doing so.

## 1.2 Research questions

The research questions were designed to address the above-mentioned research gap and assist the commissioning company in scanning the market for market potential for its technology. Therefore, the research question is:

**How can market segmentation be used to reveal market potential for industrial technology?**

The sub-questions were designed to help answer the main research question by investigating the how to choose the model and bases for the market segmentation. The sub-questions are presented below:

Sub-question 1:

What are the key criteria for choosing a market segmentation model to determine market potential in the industrial technology market?

Sub-question 2:

What market segmentation bases are essential in determining market potential in industrial technology markets?

### 1.3 Definitions and delimitations

The theory considered in this thesis consisted of market potential and market segmentation literature. Market potential literature as such does not exist, so models describing market opportunities were briefly studied to gain understanding of the phenomenon and to comprehend how it can be studied in a real-life context. The focus was magnified to market segmentation, which is an integral part of the models studied. Only B2B segmentation literature was researched in-depth, with an industrial focus, as it was the context of the thesis and because there are considerable differences in B2B and B2C industries making it important to demarcate the literature. The elements of choosing the model and bases of the segmentation process were studied further to gain understanding and to guide the empirical part of the thesis. The empirical part of the thesis is an exploratory study of applying market segmentation to finding market potential for an industrial technology and the final segmentation results are limited to a B2B context in the Japanese market. Therefore, the context of the study poses implications for the generalizability of the results. The segmentation results should not be considered as recommendations for market entry, but only serve as descriptors of the situation at hand. It is up to the management of the case company to implement actions based on the descriptions, if seen desirable.

The most important concepts and definitions of the thesis are provided below:

**Market potential:** Market potential in this thesis is considered as the potential the specific technology has in being bought by a customer in the specified market. It is not a numerical

value and instead is defined qualitatively through various elements in the segmentation model. (Woodruff 1976; Kuada 2016)

**Market segmentation:** Market segmentation is a marketing practice of dividing heterogenous markets into categories or segments, each sharing similarities in wants, needs and characteristics and each requiring different marketing strategies as they respond differently to marketing programs (Kotler et al. 2010, p. 215-216; Kuada 2016; Hollensen 2015, p. 302).

**Managerial intuition:** “*Data collected through experience*”, with data meaning business knowledge of the managers (Palmer & Millier 2004).

**B2B:** Business to business

**B2C:** Business to consumer

**Segmentation base:** Segmentation bases are the criteria that the market is segmented by, meaning the categories that the market is being divided into and that the customers or prospects are being placed into (Bonoma & Shapiro 1984).

**Segmentation model:** A segmentation model, sometimes called a method, is an outline of procedures needed to segment a market. Ideally, it provides guidelines on how to conduct the segmentation on terms of what bases to use, which type of data to collect and how to present the results. (Choffray & Lilien 1978; Wind & Cardozo 1974; Palmer et al. 2004)

**Multi-national enterprise (MNE):** Multi-national enterprise which manufactures and sells products or services in more than one country (European Commission 2019).

**Small to medium sized enterprise (SME):** Small to medium sized enterprise with at least 50 - 250 employees (European Commission 2020).

**Start-up:** Is “a fledgling business enterprise” (Merriam-Webster 2020).

#### 1.4 Theoretical approach

To begin to understand what market potential consists of, market potential analysis frameworks are researched. A Market Opportunity Analysis (MOA) (Woodruff 1976) framework was studied and conclusions on the applicability to the case company’s situation were drawn. It was apparent that the entire analysis would be too vast for the purposes of

the thesis and therefore the focus was magnified to the segmentation analysis, as most relevant information relating to market potential could be derived from that.

Market segmentation with a focus on the business to business (B2B) context was explored. Segmentation purposes, models and bases were studied and compared. With a long history of being studied by prior researchers, B2B market segmentation literature provided theoretical building blocks to develop a framework to be used in this thesis. This culminated into a framework using the Nested Approach (Bonoma and Shapiro 1984) as the main segmentation model, accompanied by managerial intuition (Millier 2000) to form the bases. The Nested Approach has not been studied in an industrial context before and managerial intuition has not been paired with the model, making this a novel approach to study market segmentation. The process and results of the segmentation were used to evaluate how market segmentation can be used to determine market potential. Figure 1 below illustrates the theoretical framework used in this thesis.

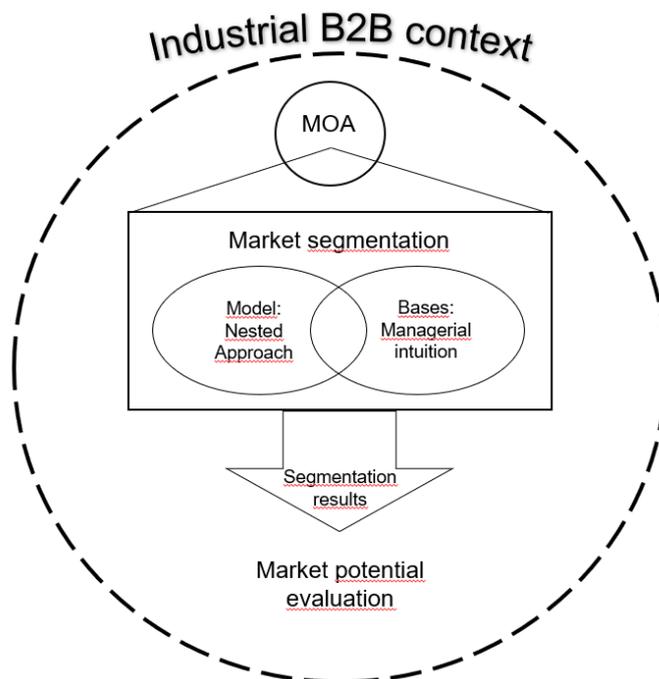


Figure 1 Theoretical framework

### 1.5 Structure of thesis

In the introduction chapter, the background of the research is explained, the research gap and aim identified, and definitions and delimitations provided. The theoretical approach along with the theoretical framework is drawn to set the study in context and provide

meaning. The next two chapters provide the theory, which consists of market potential and market segmentation literature. Market potential is glanced at through a Market Opportunity Analysis framework and market segmentation is investigated in more depth through evaluating models, bases and purposes. A deeper dive is taken into the main market segmentation model that is empirically tested in the thesis, called the Nested Approach. The methodology chapter follows where the research design, approach and strategy are presented. The sampling is explained, and the case company introduced. The chapter ends in a discussion of the validity and reliability of the thesis. The findings and the discussion of those findings are presented in the fifth chapter, where the empirical results are evaluated against theory. Lastly, conclusions are drawn by answering research questions in the final chapter. Also, theoretical and managerial implications are discussed along with limitations and recommendations for future research.

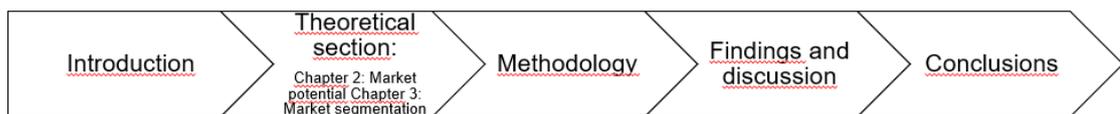


Figure 2. Structure of thesis

## 2 Market potential

It is vital to determine the market potential of a new product prior to launch and it is important for resource allocation in the company. Market potential in this thesis is considered as the potential the specific technology has in being bought by a customer in the market. Literature includes only some methods suitable to evaluate market potential of an industrial technology, which are introduced in this section to understand what market potential constitutes of.

### 2.1 Market Opportunity Analysis (MOA)

Market Opportunity Analysis (MOA) are decision-making tools used by companies to determine the market potential of a product or service. Woodruff (1976) introduced a systematic approach to market opportunity analyses. Below, in Figure 3, Woodruff depicts the determinants of market opportunity in box B. He explained that management is often interested in the size of market demand as it provides a good indicator or potential revenue. However, it is not such a simple equation, as competitors can eat a slice of the market demand pie. Thus, a marketer must evaluate the extent to which the market is already served by competitors. Also, marketing program requirements play a role. By understanding the requirements, the marketer will know how to design the marketing program, for example the messages and the brand, so that it will satisfy the customer's needs and wants, increasing market opportunity. (Woodruff 1976)

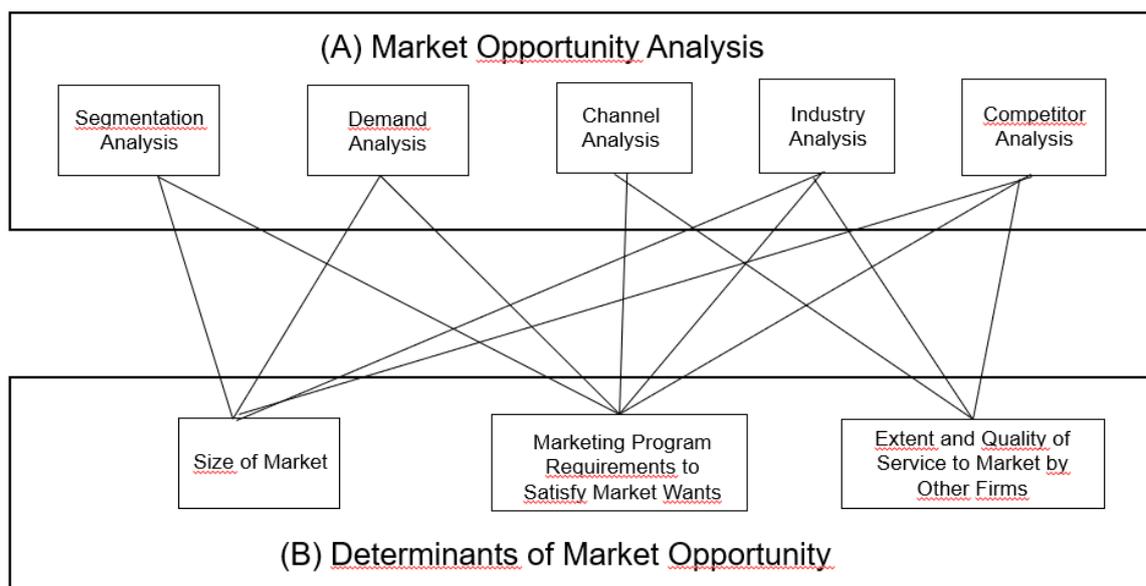


Figure 3. Assessing the major determinants of market opportunity (Woodruff 1976)

In Figure 3, in box A is the Market Opportunity Analysis (MOA). The different analyses provide information on which management can evaluate the determinants of market opportunity. In the figure, the lines depict from which market opportunity analysis can be derived a certain determinant of market opportunity. Below, each analysis is described.

The goal of a *market segmentation analysis* is to find out the best suited target market and then designing the marketing efforts based on that. By segmenting, the marketer will find out segments that will respond in a similar way to marketing efforts (Woodruff 1976). According to Woodruff (1976) a demand analysis should be implemented with a segmentation analysis, to understand the full picture.

*Demand analysis* is, according to Woodruff (1976) the cornerstone of the market opportunity analysis. A market exists only when there is demand for the product or service. A market is comprised of buyers who are willing to buy the product or service for the end-use purposes. Therefore, only the end-users of the product or service should be accounted for. However, Kotler and Armstrong (2010) define a market as the set of actual or potential buyers of a product and does not demarcate end-users as the only group to account for.

First, the product or service should be described by its characteristics. The product should be placed within a broader market of similar products to understand the total market demand. This will assist in comprehending trends within the market. Then, the analysis should move onto the details of the focus product to cut out a niche market. By so, a segment of the total demand is cut out, which can also be used for segmentation analysis. Furthermore, by understanding the total demand in the total market and cutting out a niche market, the firm can decide if the segment is profitable enough to seize the opportunity in the market. Once the segment is identified, information on the buyers within that segment needs to be described to plan marketing programs. (Woodruff 1976)

An *industry analysis* is useful in understanding competitors and how the firm fits into the bigger picture, as the industry is made up of competing firms among other things. Also, it is vital in understanding trends within the industry, for example industry growth. Information such as output, sales and the number of firms operating in the industry can provide insight into how well the competitors have been fulfilling customers' needs and wants and therefore how saturated the market is. The industry analysis can also reveal common operating practices that can make the industry attractive or vice versa or even impenetrable. (Woodruff 1976)

Kuada (2016) refers to Porter's five forces industry analysis in describing how a thorough industry analysis should be done. He states that the industry analysis is a useful way to

begin the competitor analysis, as it gives a full picture of how well the competitors are already serving the market. Also, the five forces analysis explains how the different actors and factors within the industry shape the behavior of competition. The same results are aimed for in Kuada's recommendations for the industry analysis as Woodruff's, which were mentioned in the earlier paragraph. The five forces to be accounted for are 1) the threat of new entrants into the industry, 2) the bargaining power of customers, 3) the bargaining power of suppliers, 4) the intensity of rivalry of companies within the industry and 5) the potential for substitute products or services. (Kuada 2016)

A *competitor analysis* can be done at different levels. A MOA can concentrate on immediate competitors, which are firms that have a very similar product offering and targeting the same segment. (Woodruff 1976) Also, indirect competitors can be analyzed to receive a fuller picture of the market and potential entrants (Porter 1980). Woodruff, however in his paper concentrates on direct competitors.

An analysis of each direct competitor should be carried out. Their strengths and weaknesses financially and operationally should be identified to understand the level of resources the competition has to allocate to the market. Also, the competitors' objectives, capabilities and vision provide information to evaluate market opportunities (Golicic, McCarthy & Mentzer 2003). A competitor analysis should be accompanied with a demand analysis to display how well the competition is meeting the demand in the market. By understanding the demand needs of the market, the firm can concentrate on analyzing those aspects of the competitors. (Woodruff 1976)

A *channel analysis* is key to understanding how the customers are provided for through different distribution channels. However, this analysis is needed only when it is common practice in the analyzed industry to use intermediaries to reach the end-customers. If a channel analysis is carried out, it starts by describing the common channel types used in the industry. This can provide information on whether to use the same channels or create new ones. (Woodruff 1976)

The outputs of the MOA are both quantitative and qualitative. The quantitative outputs are for example market and sales forecasts. The qualitative outputs are descriptions of the market and help in understanding the target market. Qualitative results are for example customer needs, demographic profiles and satisfaction of existing products. Qualitative decisions are needed also for designing of marketing programs to fulfill customer needs and wants. which can be for example descriptions on competition's product offering. Figure

4 below depicts the relationship of the outputs of the MOA to the marketing decisions that are based on the outputs. (Woodruff 1976)

The final evaluation of the market potential is done through evaluating the advantages and disadvantages of the firm in a certain context. The firm finds out how they compare with the competitors and how their capabilities are aligned with the market and customer needs. (Golobic, McCarthy & Mentzer 2003)

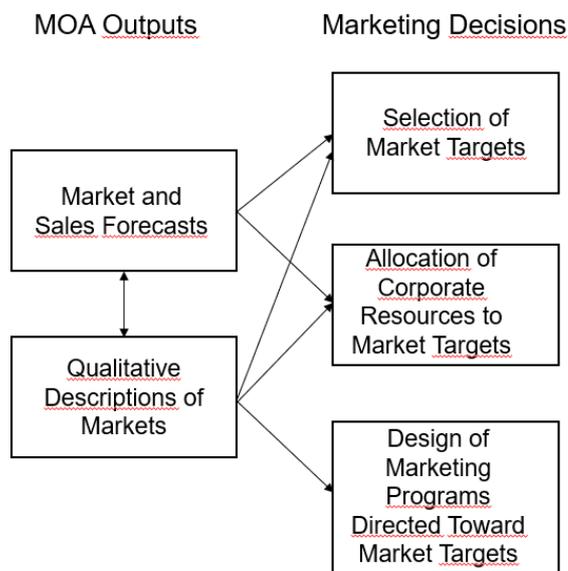


Figure 4. The contribution of MOA to marketing decisions (Woodruff 1976)

There are four different demand forecasts that can be calculated when calculating market and sales forecasts. First, *market potential* is the total sales that could be achieved by all firms in a certain market, given that all demand is met. Kuada (2016) defines market potential from a different perspective, defining it as the set of customers who have shown interest in the product or service. However, usually there are challenges in marketing programs, distribution channels or industry operations resulting in imperfect meeting of demands. Therefore, it is appropriate to calculate a *market forecast*, which is the estimated amount of total sales in an industry by all firms. One can reach these estimates through the product level demand and industry analyses. (Woodruff 1976)

The third forecast is *sales potential*, in which the total possible amount of sales that the brand can capture within the industry. However, since there are probably challenges in the marketing program, the firm will not be able to capture the entire sales potential. Therefore, a *sales forecast* is calculated. (Woodruff 1976)

Demand forecasts can be investigated from different perspectives and Kuada (2016) explains three. *Incipient market demand* is market demand that is expected future demand of the product or service. Incipient demand is relevant to be taken into account in situations where there are expected changes in the industry. *Latent demand* is unmet demand in so that the demand exists, but no company has marketed the product or service to the meet the demand. Also, regulations can silence demand, turning it latent. Once the regulations are relaxed, the latent demand turn active. *Existing market demand* is the level of demand that the buyers are willing to pay. This can be untapped due to challenges in the marketing programs. (Kuada 2016)

Woodruff and Gardial revised the original MOA model in 1996, which Lu and Liu (2014) explain, and it is depicted below, in Figure 5.

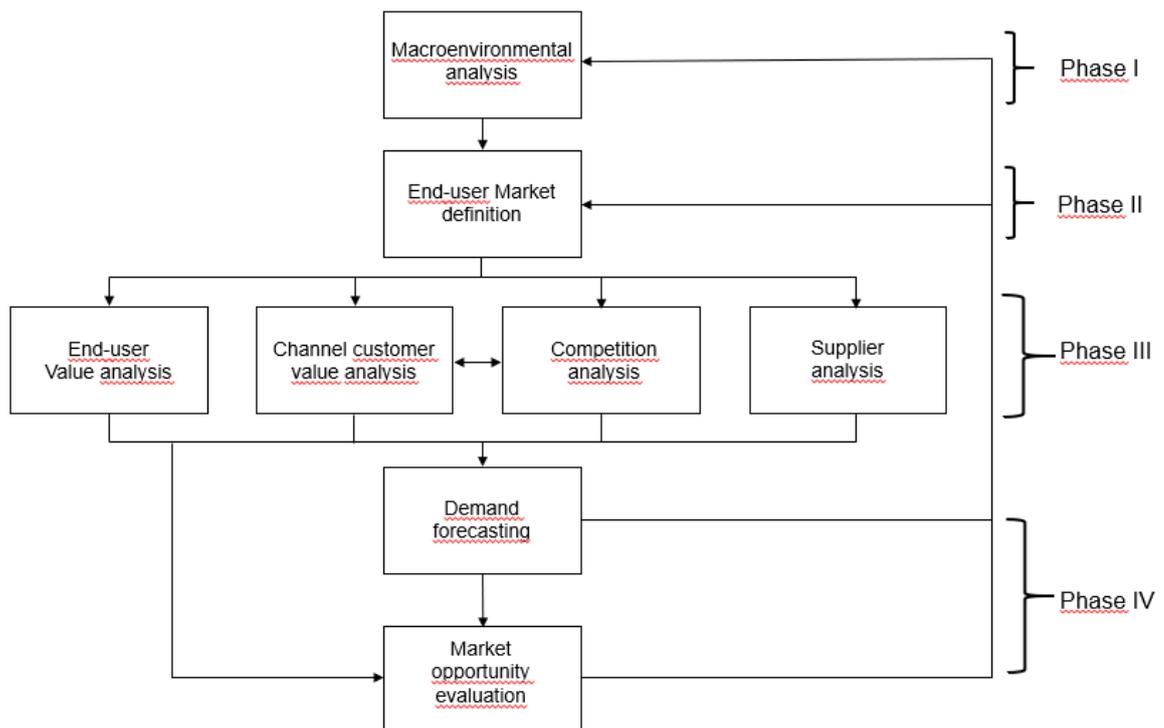


Figure 5. The MOA framework in Woodruff and Gardial (1996) (Lu et al. 2014)

The revised model separates the different levels of analyses into phases. The first phase is the macroenvironmental analysis, in which economic, cultural, technological, governmental, social and natural forces are identified which could affect the market opportunities. In the second phase the firm identifies markets and customers to meet the market opportunities. The third phase consists of four different analyses, by which the firm attempts to characterize the dynamics of the interactions of the players within the industry, which are the customers, competitors, channel members and suppliers. The fourth phase is made up

of two different analyses, in which demand is analyzed to arrive at evaluations of the market opportunities within the market. (Lu et al. 2014)

MOAs can be used to analyze different industries in order to determine market potential of a product or service. Brownlie (1994) used the MOA model in a small tourism enterprise context. Golicic, McCarthy and Mentzer (2003) applied the MOA to air cargo operations, using a 1996 revised version by Woodruff and Gardial of the original 1976 version the MOA, which was introduced by Woodruff. Also, they modified the already revised version to better meet the needs of the case they are investigating. They modified the model by removing the channel customer value analysis and replacing the end-user value analysis with a customer analysis. (Golicic et al. 2003)

Lu and Liu (2014) also used the revised model by Woodruff and Gardial of the MOA to analyze the expansion of Taiwanese air transport services at the Taiwanese Strait. They used the MOA model to come up with a base for an Analytic Hierarchy Process (AHP) framework to conclude determinants for expansion potential. (Lu et al. 2014)

Brisoux and Maxwell (1998) studied the difference in exporting success between SMEs which used market opportunity analyses and ones which did not. According to the study, the firms using MOAs were more successful in exporting, in terms of export sales volume and export intensity. Special attention in the study was given to firms that used market segmentation and conduct sales or market-share forecasts. However, they state that due to the scope of their research, it is not possible to say if the better export success amongst the firms using MOAs was due to the use of the MOAs or better marketing management in general. (Brisoux & Maxwell 1998)

The Market Opportunity Analysis model aims at revealing market potential for a product or service. Insight from the process and idea behind it can be drawn to the case company's situation. The model includes several parts, with varying pieces of information needed to be collected and analyzed. A market analysis or market segmentation in some form is included in both the original and the evolved model, implying that it is a vital part of the analysis in figuring out market potential. This market segmentation analysis is further investigated in this thesis as market segmentation, which has received substantial attention in academic literature.

### 3 Market segmentation

Market segmentation is a marketing practice of dividing heterogeneous markets into categories or segments, each sharing similarities in wants, needs and characteristics and each requiring different marketing strategies as they respond differently to marketing programs (Kotler & Armstrong 2010, 215-216; Kuada 2016; Hollensen 2015, 302). Wendell R. Smith introduced the concept of market segmentation in 1956, when he wrote about the necessity to develop marketing strategies not only on product differentiation, but also on market segmentation (Sausen 2005, Smith 1956).

Market segmentation can be used to find, identify and assess market, product and growth opportunities. The segmentation can help in recognizing possible segments for new products. An opportunity can arise and be identified, for example, when segments are not being sufficiently served by competitors for a specific product or when a segment is identified whose needs are not met sufficiently. (Sausen 2005; Weinstein 2014) It can therefore be concluded that the reasons for market segmentation are both operational and strategic. The operational aspect is derived from the need to design marketing programs per segment and the strategic aspect is derived from the need to plan marketing strategies to gain a competitive advantage, like through finding market opportunities. (Freytag & Clarke 2001)

Segmentation can be used for strategic purposes in situations such as when a new firm is set up, when an existing firm expands through a new division, when a firm takes on new technology, when a firm decides to expand its product portfolio or when the firm creates a new market. In these situations, the firm will need to gain insight into which type of customers are the most attractive for the firm. (Freytag & Clarke 2008)

Palmer and Millier found that segmentation can be a tool in finding a competitive advantage for the firm. This is because segmentation helps in resource allocation, understanding customers and finetuning the correct product portfolio for different markets. (Palmer & Millier 2004)

According to Simkin, benefits of market segmentation include relationship management with most prominent segments, competing for share of wallet, being able to focus on customers' needs, wants and expectations, differentiating from competitors, building barriers of entry for competitors, choosing which segment not to target, realizing market opportunities and finally, creating strategy that is followed by the entire company (Simkin 2008).

### 3.1 Market segmentation in industrial markets

Business-to-business (B2B) market segmentation literature has focused on four main areas over the decades, which are 1) development of models and bases, 2) research methodologies and data collection requirements, 3) statistical analysis tools and 4) how to implement segmentation results in organizations (Goller et al. 2002).

Research has found that B2B market segmentation is very different to business-to-consumer (B2C) market segmentation. It is often mentioned in literature, that is by far easier to conduct in B2C markets and that it is especially challenging for industrial markets. (Simkin 2008; Choffray et al. 1978; Bonoma et al. 1984; Clarke 2009). In fact, literature states that segmentation is usually done very poorly amongst many industrial companies (Millier 2000; Simkin 2008; Clarke 2009). Given the importance of market segmentation in managing industrial marketing activities, it is worthy of further investigation (Clarke 2009).

Market segmentation is challenging in industrial market for several reasons. First, the customers are usually few and they are heterogenous in characteristics. Heterogenous markets makes segmentation difficult, because the end uses of the product can be diverse, resulting in different product benefits sought by the customers (Goller et al. 2002). Second, as communication between B2B suppliers and customers is very often done face-to-face or somehow personally, stimulus and responses patterns become complicated. This is a challenge because one of the objectives of market segmentation is to design marketing programs for each segment with the expectation of a similar response per segment. Third, customers often communicate their needs and wants directly. Fourth, the company-customer relationships are multiform, meaning there may be many touchpoints at both sides. Fifth, industrial products are usually very complicated and oftentimes created or developed together with the selling and buying company. And finally, the sixth reason is that the segments are sensitive to change due to external and internal reasons. (Boejgaard et al. 2010)

Furthermore, the buying situations in B2B contexts are very different. There are usually many people involved in the situation with differing responsibilities. Each organization has its own buying procedures and allocated personnel at each stage as well as buying criteria. (Choffray et al. 1978)

Palmer and Millier found that market segmentation can be difficult for managers in B2B companies for four reasons. The first one is that the B2B companies are highly contextualized, meaning that the segmentation models that seem straightforward on paper

may not apply for all industries. The second reason is that the B2B environments are continually changing, making frameworks obsolete and at the same time managerial knowledge could be more useful for segmentation. The third reason is that segmentation is a difficult task and managers may favor short-term gains over long-term ones, which the segmentation would bring. The fourth reason is that due to a company's internal problems the implementation of marketing programs according to the segmentation results can be hindered. (Palmer et al. 2004) In addition to these, Clarke points out that the B2B segmentation literature does not take into consideration the company's characteristics like culture, resources and activities, which can have an effect on the segmentation capabilities (Clarke 2009).

Also, academic literature has mostly focused on theoretical concepts and descriptive studies on how B2B market segmentation has been carried out in companies and research on how the implementation should be carried out is almost completely lacking in addition to easy-to-follow guidelines. Very little empirical studies have emerged on industrial market segmentation, despite the clear need and calls for it amongst researchers and marketing managers in companies. Literature does point to the fact that B2B companies struggle with market segmentation because of the lack of practical guidance on choosing the model, the bases or variables for segmenting and how to analyze the results. (Boejgaard et al 2010; Millier 2000; Clarke 2009) This presents a gap in the research literature on market segmentation which this thesis will attempt to address.

### 3.2 B2B market segmentation purposes

According to literature the purpose of the segmentation, or in other words, the reason for the company to engage in segmentation governs which model and bases the marketer should use. Therefore, the company needs to have a strategic or operational reason for segmenting the market and it needs to choose a purpose and context for segmenting. (Clarke 2009; Clarke & Freytag 2008; Sausen 2005) This is such an important factor in choosing the segmentation model that it deserves its own subheading. Different models and bases provide different results and have been in fact developed for diverse purposes and even varying contexts. The purpose affects the entire segmentation process from choosing the model and bases, to the type of data that should be collected, to who should be involved in the process. Segmentation objectives can be realizing new target markets, defining or changing product strategy related to positioning, price, design or communication, improvement in resource allocation, identifying market opportunities and improving marketing programs. (Sausen 2005; Clarke et al. 2008)

Clarke emphasizes that the company should adapt theoretical models to their purpose of segmenting and to their offering and the first step to achieve this is by clearly articulating the purpose of segmentation (Clarke 2009). It is therefore vital to define and understand the objective of the segmentation prior to choosing a model and the bases by which to segment. Literature does not, however, give guidance on matching segmentation purposes with segmentation models (Clarke 2009). This thesis will attempt to address this critical step by comparing different models and analyzing their appropriateness to the purpose of the case company's segmentation needs of finding market potential.

### 3.3 B2B market segmentation models and methods

Literature presents different B2B market segmentation models which are discussed below. The methods within those models vary from very rigorous statistical methods to intuition-based methodologies (Clarke 2009). The models can be divided into three categories, 1) the unordered or single stage models, 2) the two-staged models and 3) the multi-stage models. The first category models are used to segment the market using only one base. An example would be benefit segmentation model by Haley (1968).

Prior to Haley's benefit segmentation, most literature had used only descriptive factors as segmentation bases. This meant that the segmentation before this, had focused on the current situation in the market, as the descriptive bases make for a current description of the market. By using the benefit that customers wanted from the product as the basis for segmentation, Haley derived a forward-looking approach, with a causal relationship to the buying behavior of the customer. (Haley 1968)

The benefit segmentation was originally developed for B2C segmentation and focuses on segmenting the existing customer base. Each customer is asked the benefits it seeks from the product and placed into categories according to the benefit and the relative importance it attaches to the benefit. After the customers are segmented according to the benefit, the segments are further broken down according to descriptive characteristics, like demographics. Clear instructions are not provided, the approach being very conceptual; however, it is recommended that a quantitative methodology is used. This approach requires data to be collected directly from the existing customers, which indicates, that the model is suitable for strategies that have to do with the current markets. Therefore, it is not appropriate to investigate market potential in new markets. (Haley 1968).

Wind and Cardozo (1974) considered industrial segmentation as separate from B2C segmentation and evolved the practice into two stages: into macro and micro segmentation

stages. The model used a funnel approach, in which the market was first divided into macro segments according to attractiveness to the company. The most attractive macrosegments were then categorized into microsegments using the buyers' decision-making unit's (DMU) characteristics. The DMU is a significant factor, as in industrial markets it is not only one person that makes the buying decision, but instead, there are usually many people involved. These people make up the DMU of the buying company. For the macrosegments, secondary data was enough and for the microsegments, the marketer could interview the salesforce to understand the DMU characteristics. No clear instructions on how to choose the bases for different purposes was provided. Using of the company's salesforce's knowledge on customers' DMUs implies that the segmentation model can only be used for existing customers, and not for unlocking market potential. (Wind et al, 1974)

Choffray and Lilien (1978) took the macro and micro model further by elaborating on the methodology. Their model uses the same funnel procedure of first segmenting the market into most attractive macrosegments and then further segmenting them into microsegments based on the most attractive DMU characteristics. They, however provided guidance on how to choose the most attractive DMU characteristics, by formulating a decision matrix, although no instructions for choosing macrosegmentation bases were given. Their methodology was quantitative and involved cluster analysis to group together similar DMUs. They proposed that secondary sources were enough for macrosegments but for the microsegments, it was necessary to collect data directly from customers. (Choffray et al. 1978) Collecting data directly from customers on who are involved in decision-making in their company is quite invasive and would probably be difficult to accomplish. Also, involving existing customers indicate that this is not applicable to investigating market potential.

Intuition (Millier 2000) has been introduced as a B2B segmentation approach especially for scanning future opportunities in the market. The general idea is that especially in industrial technology or emerging markets, where customers are scarce or even still non-existent, it is extremely difficult to collect quantitative data for segmentation for it would not make statistical sense. Therefore, it is more appropriate to use managerial intuition, which is defined by Millier as "*data collected through experience*", with data meaning knowledge. (Palmer et al. 2004).

The method begins with intuitively grouping technical uses for a technology or product after which rationalization is used to modify and finalize the segments. The article where Millier introduced the notion of intuitive segmentation used two mathematical models to rationalize the intuitively formed segments. These were what he called the "heap method" and the

“dynamic cloud method” (Millier 2000). Although the two quantitative analysis methods were used to rationalize the segments, the method still emphasized the use of intuition. The type of data that should be gathered is qualitative (first for the uses of the technology) and quantitative for the rationalization process. The article is a general call for the use of intuition in segmentation, and intuition is further studied in Palmer and Millier’s article in 2004 on how managerial intuition can be utilized in the segmentation process.

Palmer and Millier (2004) utilized managerial intuition in a case study and an action learning setting for an industrial company. A case study was deemed appropriate to capture the context, which is necessary for industrial segmentation. Managers were involved in creating the criteria for segment development which were important for the firm and for the customers. The marketing team of the case firm then analyzed customers based on the criteria set by management and came up with relevant segments. They utilized a pattern matching approach, which visualized the different customers on their differences and their fittingness to the criteria set by managers. (Palmer et al. 2004)

An example of a two-stage model is Freytag and Clarke’s (2001) two-step selection process for market segmentation that emphasizes the buyer-seller relationship. First, the marketer needs to define the purpose of segmentation and find several prospective customer segments to evaluate further according to favorable characteristics. When the segments have been chosen, the marketer compares the segments to company resources and management’s approval to find the best match. This process requires customer involvement to find the ideal match. (Freytag et al. 2001) This would require potential customer data to be obtained directly from the potential customer. The required type of data is not directly mentioned. (Hollensen 2015, 306)

Freytag et al.’s (2001) process however addresses the fact that in the B2B industry, it can be a challenge to obtain detailed customer information. Therefore, Freytag et al. presents criteria to use for analyzing customers in a pre-relationship situation. These are pieces of information that can be gained indirectly, without precise knowledge of the customer, but instead through other sources. Data sources could be the customers and the seller’s managers. The points that could be inspected are 1) strategic goals, 2) purchasing strategies, 3) sales strategies, 4) product characteristics, 5) the frequency of replacement of suppliers, 6) who are the other suppliers, 7) buying potential of the customer currently and in the future. (Freytag et al. 2001)

Segmentation by stealth using a buying proforma was introduced by Simkin in 2008. This method involves the managers of the company in forming the segments. Managers are

involved because of their market, product and customer knowledge and to ease the application of the segments in practice. When managers feel included in the process, they are more prone to accept the new segments. The method has six stages and focuses on finding the customers by grouping them into homogenous segments. In a workshop setting, cross-functional teams of managers describe the current customers sectors. The sectors are then analyzed using a buying proforma. The customers within each group are broken down and shifted from group to group until only similar ones remain in each buying proforma group. From the resulting segments, the company chooses the most attractive one(s). The data collected is qualitative. This is most suitable for re-segmenting an existing customer base. (Simkin 2008)

Clarke (2009) emphasized the importance of the purpose and the process in segmentation. She doesn't so much present a new model, but more of a process description, where she emphasizes the importance of certain actions, which she justifies with prior literature on segmentation. Her outline of the process starts from defining the purpose of segmentation, which is underlined as the most critical step. Then, the market that the company wants to segment needs to be identified after which the variables by which to segment are chosen along with the model for segmentation. The market is then segmented, the results communicated and implemented and finally, monitored and followed up on. She states that it is vital to include the company's employees in the process. Her example segmentation used a qualitative approach and KJ analysis, which is a method to identify themes within a qualitative data set. The entire process required several meetings with the case company and a lot of involvement of the case company's employees. Also, she involved the case company's customers to get an idea of which variables would be of most importance. No specific model was mentioned. (Clarke 2009)

Very little is written about multistage segmentation models in literature. An interpretation by Thomas (2016) of multistage segmentation and how it is related to multistage markets, is a particularly on-point description of industrial markets. It entails that the company serves its customers and the customer's customers and even further – the customer's customer's customers even down to the end consumer. The product does not only go from one stage of the market to the next but may travel through a complex network. This makes the market a multistage market, needing multistage segmentation where the company not only considers its direct customers for competitive advantage. (Thomas 2016)

Segments at different stages may share the same need and can therefore be aligned but still be served by the selling company with differing marketing programs. Thomas however

mentions that multistage segmentation may not be possible or even appropriate in all B2B markets. He does not state reasons for this, but it may have to do with the resources and time needed to take part in multistage segmentation and due to the features of some industries. (Thomas 2016)

The process starts by deciding the basis of segmentation. Then, the marketer collects quantitative data from the customers and customers' customers on their needs and finally conclusions drawn on whether alignments can be made. The data can be collected with a questionnaire with importance scale. (Thomas 2016)

An example of a multistage model, which is a segmentation type deemed to provide the most thorough results, is the Bonoma and Shapiro's (1984) macro/micro-segmentation process, called the Nested Approach to segmentation. It is the only multistage model that has been introduced and recognized widely amongst academia as appropriate for industrial business market segmentation. The Nested Approach is therefore taken under a detailed investigation in this thesis as it is discussed within literature to be very applicable to industrial markets in modern times, especially when compared to other models. It provides easy-to-follow steps and thorough results. (Weinstein 2011).

It is challenging, if not impossible to generalize a segmentation model to suit all needs, as it is context specific (Clarke 2009). However, what is clear is that the purpose of segmentation needs to be clearly articulated and according to that, the most appropriate model can be chosen along with the bases and methodology. Also, the model can be modified to suit the needs of the company. The comparison table in Appendix I presents the features of each model, which can be evaluated against the company's needs. As long as the process of segmentation is clear and it is understood what is required from the company, the company can create their own segmentation model with the most fitting bases and data sources.

A comparison table was seen necessary to easily scan the attributes of the different models. The table is situated in Appendix I, called the Comparison table of market segmentation models. In the table, different models are gathered and compared according to different variables. They are listed in order of publication and the author of each is mentioned. The purpose of each model is derived from the literature, even though not all models can be linked to a certain purpose. Some are flexible in what purposes they are useful for while others are clearly built for a certain purpose. The procedure is briefly described in the next column followed by required resources. Some models require certain employees for example to be involved or computer programs to analyze data. The different required data

types are listed for each along with the required access to information. For instance, some models state that data needs to be collected directly from customers or the salesforce. Also, if the model is recommended by other authors, it is stated in the table.

### 3.4 B2B Market segmentation bases

Segmentation bases are the criteria that the market is segmented by, meaning the categories that the market is being divided into and that the customers or prospects are being placed into. These need to be chosen to serve the purpose of segmenting – be it finding, identifying or assessing market, product or growth opportunities. The bases need to be chosen at the very start the process, once the reason for segmentation is clear and the model chosen. Given the importance of the segmentation bases, it is surprising as to how little guidance on choosing the them is provided in any model.

Just like with segmentation models, the chosen bases are dependent on the purpose of segmentation (Sausen 2005). It is at times difficult to separate B2B segmentation models from bases, as some models make no distinction between the model and the base, an example being the single stage models. The approach in those models consists of segmenting the market using one base and the result is a list of customers that match the base, them being the target segment. (Goller et al. 2002)

There are various ways to categorize bases and one being to divide them into two types: macro variables and micro variables. The macro variables are more general and micro variables are more customer specific. Weinstein listed the macro variables as company size, the industry sector, geographical location and product or service usage. The micro variables are listed as behavioral characteristics like benefits sought, purchasing approaches and psychographics. The bases are analyzed through different segmentation methods, of which there are three different types: unordered or single-stage models, two-stage models and multi-stage models. (Goller et al 2002; Weinstein 2011)

In the unordered or single-staged models there is only one segmentation base by which the entire market is segmented by. Usually these models do not provide information on which base to choose to segment by. In the two-stage model, a funnel procedure is implemented. The marketer first segments the market based on chosen macro variables. Then, the qualified macro-segments that are considered suitable targets for the company are further segmented based on the chosen micro variables. In the multi-stage models the segmentation is done using macro and micro variables, but in more stages than just two. However, they also implement a funnel procedure. It is deemed that segmenting based on

multiple bases provides the most thorough outlook of the market. (Goller 2002; Weinstein 2011)

It is often industry specific as to which bases to choose to segment by. Due to this, Goller et al. interpret the market segmentation literature so that the segmentation models provide guidance for the process of segmentation but not for the choosing of the bases for segmentation. (Goller et al. 2002)

Another way of categorizing segmentation bases is to divide them into descriptive and causal ones, like Haley did with the benefit segmentation (1968). Haley proposed a segmentation method, by which the market is divided by the benefit the customer seeks from the product, therefore making the benefit sought by the customer the basis for segmentation. This method would allow marketers to segment the market based on causal factors rather than the descriptive ones used in literature prior to Haley, such as demographics and geography. The descriptive factors describe the current situation of the customer to the selling firm, while causal factors provide insight into future behavior of the customer, which is of interest to the marketer in conducting segmentation. (Haley 1968)

Millier and later Palmer and Millier listed various segmentation bases used in literature which are, geography, demographics, psychographics, behavior, opportunity of purchase, circumstance of use, rate of use, rate of fidelity, strategy of the firm and strategy of the competitors. (Millier 2000; Palmer et al. 2004).

The bases chosen for the segmentation have implications on the type of data and data collection methodologies. Goller et al. (2002) also draws conclusions from prior literature on the requirements of how the data should be collected and states that it is dependent on the bases chosen to conduct the segmentation. For example, for the macro variables he states that secondary sources or expert judgement are appropriate, while for the micro variables primary data is needed. In addition, different segmentation models differ in the manner they provide guidance on data requirements. Some provide comprehensive guiding principles on what data should be gathered, while others offer general guiding principles. Also, the different models offer different sources needed for the same bases. For example, for customer benefits, one model may state that quantitative data should be collected directly from customers, while another model states that this information can be collected from sales personnel. (Goller et al. 2002)

Goller also writes that some segmentation models and the bases chosen are suitable for some industries while others are not, and this is due to how the industries are built and operated. Therefore, a one-size-fits-all solution is challenging to present. (Goller et al. 2002)

However, using several segmentation bases presents the most thorough results of the market (Weinstein 2011).

### 3.5 Bonoma's and Shapiro's Nested Approach

Bonoma's and Shapiro's Nested Approach, originally published in 1983, was chosen as the segmentation model to investigate how to reveal market potential for industrial technology using segmentation. In the nested approach segmentation process, the marketer analyzes five different "nests". The purpose of segmentation dictates which nests are needed to go through. A possible alternative is working their way from the macro to the microenvironment or in other words, from the outer nests to the inner nests. This is the easiest solution, as the macro variables are answered the easiest, with information on them accessible through secondary sources. Bonoma and Shapiro emphasize that Nested Approach framework is a set of guidelines but not a step-by-step plan to segmentation, as the industrial market is so complex. Therefore, it is important to note that the process requires "intelligent judgement", as some of the results from the nests influence results in others and some nests may be unnecessary for the segmenting company. (Hollensen 2015, 303-304; Bonoma et al. 1984) The model with its five nests is depicted below, in Figure 6.

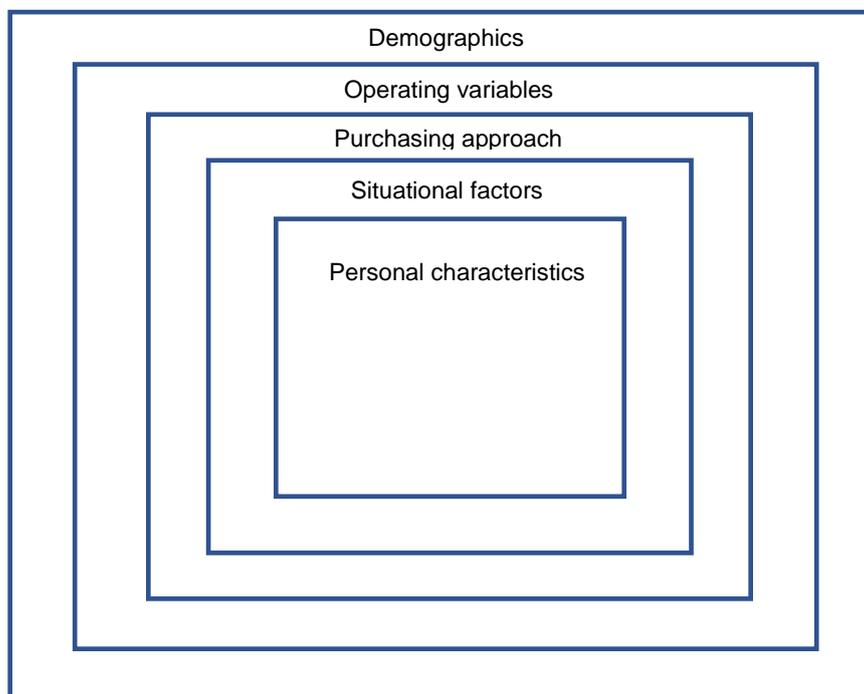


Figure 6. The Nested approach (Bonoma et al. 1984)

The largest nest is demographics, which entails the most general descriptions of the firm and data on them can be collected from secondary sources. The bases that need to be identified or decided upon within this nest are the 1) industry, 2) company size and 3)

location. They will give insight on what the product needs are, what are the purchase situations, what the order sizes might be and how the seller firm possibly should modify its geographical presence. It is possible to subcategorize the industry into smaller subdivisions to create a fuller image of the market with their differing needs. Company size may be a key segmenting base, because the order sizes and the way of managing projects can vary significantly with the size of the firm. Location is a key base, because sometimes the selling company needs to somehow be present in the customers' geography or and understand the cultural aspects of the location. (Hollensen 2015, 303; Bonoma et al. 1984)

The model guides the marketer to find information on the demographic bases in general directories, statistics kept by governments, third party market reports and trade association publications (Bonoma et al. 1984). A modern addition would be search engines, company websites and online material produced by the company.

The second largest nest is the operating bases. These bases are the 1) technology used by the current or prospect customers, 2) the products and brands that the customers already buy and 3) customer capabilities. Insight on the technology already used in the company's product or processes implicate certain needs. The customers or prospects that use the same brands and products indicate similar experiences and needs amongst the analyzed companies, enabling grouping similar buyers. Customer capabilities provide information on the strengths and weaknesses of the customers or prospects in technical, operational or financial dimensions that the segmenting company can leverage. For example, if a customer lacks a testing facility, which the segmenting company can provide as an additional service, this may be an important variable to include in the segmentation framework. (Hollensen 2015, 303; Bonoma et al. 1984)

The third nest is purchasing approaches. These include 1) organization of the purchasing function within the customer or prospect company, 2) the power structure, 3) the relationships between the buyer and seller, 4) the purchasing policies and 5) purchasing criteria. How the purchasing function of the customer is organized is important to understand how to decipher who to influence within the buying organization. The power structure of the various departments within a buying company can influence what the selling company should emphasize in its marketing and who to target with marketing. A strong engineering department for instance would require a technical focus in marketing. Buyer-seller relationships may affect which companies the selling firm can sell to. Having a competitor's employee sitting in one of the prospects boards can make the prospect unattractive as an example. The purchasing policies of a prospect has an impact to their

attractiveness in the eyes of the selling firm because it can dictate whether or not the buyer will buy from the selling firm. For example, the buying firm may want an entire operating system instead of components. Also, the purchasing process has an impact, as for example governmental organizations often buy using a bidding mechanism. Lastly, the purchasing criteria are a major factor, since these largely dictate whether the customer or prospect is willing to consider the selling company. (Hollensen 2015, 303-304; Bonoma et al. 1984)

The fourth nest is situational factors, which are factors valid only at the time of analysis but otherwise are like operating variables. They are the 1) urgency of order fulfillment, 2) how the product will be applied and the 3) size of order. Some customers require fast delivery to meet their needs, which is what is meant by urgency of order fulfillment. A selling company can make fast order fulfillment a selling point, and usually in an urgent situation, availability is key, not price. Product application deals with how the product is applied and the seller needs to meet this demand. (Hollensen 2015, 304-305; Bonoma et al. 1984)

The fifth nest is personal characteristics and how they fit between buyer and seller. The idea behind this nest is that the people within organizations make the buying decisions, considering of course the organization's buying criteria. The segmenting company would therefore benefit from understanding the personal characteristics of the buyer(s) within the buying company. These bases in the fifth nest include 1) the similarity between the buyer and seller, 2) the buyer's risk perception and 3) the motivations and perceptions of the buyer. For example, a buyer who is extremely risk averse will probably not try out a new seller of equipment. Customers with huge sales potentials would be worthwhile to investigate in terms of personal characteristics, as more personalized marketing could then be directed at them. (Bonoma et al. 1984)

The deeper and more detailed information, like personal characteristics of the buyer are most costly and time-consuming to gather. Therefore, it is up to the marketer to decide what level of information on the buyers is needed to sufficiently conduct market segmentation. (Hollensen 2015, 305; Bonoma et al. 1984) Bonoma and Shapiro also discuss the level of detail per customer that is required by each nest and what is most appropriate to the segmenting company. They put forward that the marketer should explain the process of choosing the variables so that they are in line with the purpose of segmentation. (Bonoma et al. 1984)

Weinstein (2011) used the Nested Approach for a case company, Citrix Systems operating in the IT field, in a B2B market to find possible customers for a new product that was to be launched in an emerging market of desktop streaming. To begin the process, he held face-

to-face meetings and telephone and conference calls over a three-month period with the product marketing managers. The segmentation bases were formed based on these meetings and on project documents and all nests of the model were included with 17 bases altogether formed. He started the segmentation from the outer nest of demographics, or firmographics, as Weinstein called it, by conducting an analysis of the US market. He used governmental statistics to create groups of companies according to industry sector and company size, which was assumed by number of employees. Only companies comprising of 250 employees or more were kept in the analysis. Also, large governmental organizations were included. Then, the US market was divided by seven industry sector categories, which were deemed attractive, resulting in knowledge-based and highly regulated companies that were kept in the study. These three groups of large governmental organizations, large companies and specific industry sector companies comprised the potential customers based on the firmographics. (Weinstein 2011)

The next nest analyzed was Technology, which in Weinstein's study indicated user status of the computer software that the case company sold. The Technology base was divided into four smaller bases, which were customer status, Microsoft enterprise agreement, electronic software delivery usage (ESD) and types of devices. The customer status was divided into four categories, which were current customers that either already used or did not use a product that the new product will be bundled with when launched and two non-customer groups. One of the two non-customer groups used Microsoft's products and the other did not. Weinstein then coupled the firmographics' size results to the user status, resulting in market priority groups. It was concluded that the two current customer groups were a priority for marketing efforts and resource allocation, as they could possibly buy many licenses of the product. One of the two non-user groups were large companies, with resources to match. High marketing efforts are required to convince this group, although it does pose high potential. The other non-user group consisted of medium-sized tech-savvy companies, that would require customer specific marketing, like free trials, to ensure the customer of the case company's product benefits. After the quadrant analysis, Weinstein explained that the companies without a Microsoft agreement and those looking to buy an electronic software distribution agreement should be marketed to. The type of devices was also deemed important as the mobile users would be the target. (Weinstein 2011)

The purchasing approaches nest, which consisted of the bases 1) perceived need for streaming, 2) key benefits, 3) type of buyer and 4) IT budget analyzed the buying processes of the segmented companies. The bases were evaluated by assessing the earlier formed priority segments. For perceived need of streaming, results were divided into 4 categories.

The first being no need for streaming and the rest with a need for streaming. These companies with a need for streaming either 1) preferred the case company's products, 2) included the case company's product in their consideration set or 3) did not include the case company's product in their consideration set or used another seller's solution. Out of these, the options 1 and 2 were most prominent. Weinstein used another study's results as the key benefits customers most likely consider when buying an IT product. It was concluded that a company that is aware of at least one of the benefits could be potential customer. The type of buyer base means that the customers can be divided by what motivates them to buy. Others are for example motivated by technical aspects while others by price. The IT budget dictates which companies have more resources to allocate for IT solutions and the most potential customers would be the ones with higher IT budgets. (Weinstein 2011) It was not elaborated if these aspects were asked from the market, or how they were applied to the segmentation to get customer groups according to them.

The next nest analyzed was the Situational approaches which comprised of the following bases: 1) desktop refresh, 2) mission-critical applications 3) specialized applications and 4) management of technology. At the time of the segmentation study, Microsoft was rolling out its new operating system, Vista, which, according to Weinstein, provided insights on segmentation to the case company. The desktop refresh base therefore could provide opportunities to the case company, but it is not explained as to how. It is also stated that it would be beneficial to recognize software solutions that the company needs to run their business and yet, this is not applied in the study. As for the fourth base, management of technology, reference was made to another study which divided companies' IT department management into tightly managed, typically managed and not unmanaged types. The typically and unmanaged types showed potential for the case company. Here again, it was not explained if these companies were identified. (Weinstein 2011)

The fifth nest was the personal characteristics of the buyer, which entailed the base of innovation and risk profile. Customers can be divided according to the acceptance of new solutions and technology. Customers that value new technology and see the potential in it are prospects. Weinstein recommends analyzing the risk profile of potential customers in later studies, but no methodological recommendations are provided. (Weinstein 2011)

From his study, he gathered that although it is easiest to start gathering information from the outer nests to the inner nests, it is sometimes more suitable to conduct the analysis starting from the inner nests. This could be in cases where the outer nest's information and its analysis is ready at hand. Weinstein also affirms that the information provided from the

inner nests can be more valuable to the segmentation than the more general information provided from the outer nests. He does not however, provide guidelines on how to segment the market based on the inner nests. He continues to state that the marketer should find a balance to the information gathered from the outer and inner nests. Weinstein also writes that the Nested Approach is very apt for industrial market segmentation, which is a difficult market to segment. (Weinstein 2011)

Weinstein also emphasized the importance of context in researching segmentation. He wrote that the Nested Approach is most valuable, when modified and pinpointed to serve a certain purpose. At the time of his study, the model had been used in hi-tech markets, but not in industrial markets. (Weinstein 2011)

He defined the bases to be used in the segmentation through several face-to-face and video call meetings with the manager of the project and three other marketing managers that worked with the product in question. The meetings ran over a three-month course. Combining the information from these meetings to project material, the bases were formed. (Weinstein 2011) It can therefore be concluded that Weinstein used managerial intuition as well as rationalization to come up with the segmentation bases.

It is necessary to write about the criticism that the Nested Approach has received as well, to paint a full picture and to address those shortcomings. Hollensen (2015) mentions that the approach concentrates very little on the customer needs. Also, Bonoma and Shapiro do not disclose which variables are most useful for which segmentation purposes, but instead leaves the marketer to their own justifications. Also, in B2B markets, information on competitors and customers may be difficult to obtain, making such a systemic and thorough segmentation method quite challenging on even impossible. (Hollensen 2015, 305) In addition, the model does not indicate when it is appropriate to stop collecting data on the variables or when the marketer has enough data. It is therefore necessary to use one's own judgement in evaluating the need. (Cheron & Kleinschmidt 1985)

Millier (2000) proposed that intuition should therefore be used in the B2B market segmentation in parallel with systemic methods. He states that in the consumer markets, segmentation based on quantitative data is very appropriate, as data is easily available. In the B2B industrial context however, where customers are only a few and the markets are concentrated, quantitative data loses its value. Intuition can be used to choose the first criteria by which to segment the market, and then the segmentation process can be continued with rationalization. Intuitive information could be gathered from industry experts, with strong experience. This is supported by Boejegaard et al. (2010), as they assert that

salespeople can provide valuable information for the segmentation, as they gain customer knowledge from their everyday work. Boejgaard et al. go on to propose that future research should include salespeople's knowledge about customers in the segmentation, especially when the segmentation is being updated. (Boejgaard et al. 2010).

## 4 Methodology

In this section of the thesis the research methodology the study was conducted by will be described. The research design, approach to theory development, the research strategy, the data collection method and data analysis and tools as well as validity and reliability will be discussed and evaluated in the following section.

### 4.1 Research design

The research was designed to answer the main research question, which was formulated to evaluate how market segmentation can be used to reveal market potential. To guide the research, two sub-questions were set to investigate how to choose the segmentation model and bases.

An exploratory research design was used to find answers to the research question, which was chosen as it seeks to explore new understanding of a phenomenon, of something that is not completely understood by the researcher or research community (Saunders & Lewis 2018). The exploratory research design affected the research methods and a multi-method qualitative methodology was adopted for this thesis (Ghuri & Grønhaug 2010; Malhotra 2010, 104). Searching academic literature was conducted to choose the most fitting segmentation model, primary data was collected through a semi structured interview with the case company representative and secondary data was collected through desk and archival research on the segmented companies (Ghuri & Grønhaug 2010; Malhotra 2010, 104; Saunders et al. 2018). Data collection was influenced by the qualitative research design. First, literature was reviewed to better understand how market potential is explored. Once the focus was set on segmentation, literature on the how to choose the most appropriate model and bases was researched. Primary data was collected through a semi structured interview with the case company manager to define the segmentation bases. With the model and bases defined, secondary data was collected on the hydropower market from companies' archival material and websites. The collected data and results was analyzed and evaluated against theory.

The research was investigated in a single-case study context, which was chosen because it allows the researcher to gain a holistic view of a real-life situation, such as a process within a company (Yin 2009). A single-case study method was ideal because industrial market segmentation is context specific thus needing to be set in one real life context (Palmer et al. 2004; Weinstein 2011).

## 4.2 Research approach and strategy

The thesis took a pragmatic philosophy to theory building. Pragmatic research is characterized by first starting with a problem, then through the research, providing practical solutions. In addition, according to this philosophy, the research can entail more than one research method in the attempt to find answers to the research questions, which this thesis holds. (Saunders et al. 2018)

The approach to theory building in this thesis was abductive, which is a research approach where deductive and inductive methods are combined. A deductive research approach involves first familiarizing oneself with theory and forming research propositions based on that. Then, the research design is formulated so that the data is collected to test the propositions. The inductive research approach means to first make observations and build theory based on the observations. Abduction on the other hand involves characteristics of both research approaches. In the abductive research approach, one can utilize existing theory to support the research design and still build up or modify the existing theory. (Saunders et al. 2018) In the case of this thesis, there exists theory, but not in the context studied. Also, the thesis combined different theories on segmentation to build the segmentation framework, which is, modifying an existing theory. Therefore, an abductive approach was adopted.

The research strategy should be derived from the most appropriate way to answer the research questions and the objectives of the research, as well as the time and resources at hand and taking into consideration the researcher's prior knowledge. (Saunders et al. 2018) In this thesis, the research strategy was to use a single case study method, accompanied by archival research, to answer the research questions. A case study method involves examining something in a context found in real life, with the assistance of various data sources (Saunders et al. 2018). The case study method is supported by literature as a method in studying B2B segmentation, as B2B segmentation provides most valuable information when placed in a specific context (Palmer et al. 2004; Weinstein 2011). In this thesis, B2B segmentation was examined through the Nested Approach to segmentation analysis for an industrial company exploring market potential for its technology in the hydro power market. Therefore, the model was placed within a certain context. A case study method can provide comprehensive information on the context and of the activity within that context, making it an ideal research strategy for this thesis. Using a single case instead of multiple was chosen because this provides the most thorough information for the set context, for using the Nested Approach. (Saunders et al, 2018) Due to the nature of the

Nested Approach, it is best applied for one company at a time because each company needs to come up with the segmentation variables most suitable for their purposes. Also, the intent for segmentation has implications to the bases chosen. Therefore, it was appropriate to study one case instead of multiple ones.

Archival research was conducted to gather data which would be used to implement the Nested Approach segmentation analysis. Archival research uses administrative records and documents, as well as documents produced by the companies as well as public files, like articles as the data source (Saunders et al. 2018; Yin 2009). These sources were deemed necessary to extract data from because the Nested Approach requires specific information to be collected on the segmented companies. The nature of the information would have been difficult to obtain via questionnaire from the segmented companies directly and thus, the thesis relied on archival material to obtain the data.

### 4.3 Sampling

Sampling is key in exploratory, qualitative studies, because it is vital to set boundaries to research to understand what is in fact being studied and to limit the amount of data to be analyzed (Miles, Huberman & Saldana 2014, 31). Without boundaries, I would have practically had to investigate every company in the world. The case company was chosen through purposive sampling because of the situation it was in, where it wanted to scan market potential within a new industry for a technology it already sold in other industries. The Nested Approach can be used for this kind of situation and the research question required this setting.

The sampling of the interviewee was also done through purposive sampling because it was imperative to find a suitable case company and manager within that case company who understood the product and the market (Miles, Huberman & Saldana 2014, 31). The chosen manager had a background in sales and marketing, so they had acquired a sense for business. Also, their educational background lies in electrical engineering, meaning they understood the specifics of the technology sold. This was important, as some of the variables required technological know-how to set the parameters. Therefore, they had a suitable background for evaluating the business prominence of the technology that was being evaluated for market opportunities in the thesis.

For selecting the variables and for setting parameters for each variable used in the segmentation, sampling was derived from the interview findings through reputational case

selection. This is a sampling method in which an expert's opinion is used to select samples from the population (Miles et al 2014, p. 32). This method is supported by academic literature, by which managerial intuition is recommended to be used in selecting which variables to use in B2B segmentation (Palmer et al. 2004). A summary of the sampling methods used in different parts of the data gathering process is provided below in Table 1.

Table 1. Summary of sampling techniques

<b>Element</b>	<b>Sampling technique</b>
Case company	Purposive
Interviewee	Purposive
Nested Approach variables	Managerial intuition (theory) Reputational case selection

#### 4.4 Case company

The unit of analysis (Yin 2009) in the study is the process of segmentation and the case company provides the context for the research. Therefore, the case company is described to elaborate the context of the thesis and to help in drawing insights from the research. Yaskawa Environmental Energy / The Switch serves as the context providing case company for the thesis. It is a Finnish company that designs and manufactures drive train technology for renewable energy applications in the wind power and marine industries. Although high-speed machine solutions are also offered for special industries by the company, it is the variable-speed technology which is considered in the thesis as the industrial technology being evaluated for market potential. The permanent magnet technology used in the drive trains accompanied with converter know-how has been the competitive advantage of the company. In July 2014, a Japanese industrial corporation Yaskawa, bought the The Switch, making it Yaskawa Environmental Energy / The Switch. The parent company influenced the demarcation of the market potential evaluation to the Japanese market. (YLE 2020; The Switch 2020)

The permanent magnet technology and the converters of the company together have a competitive advantage in the variable-speed applications market, where the original source of energy – be it wind or water – is not of constant speed. The technology specifications were important parameters in the segmentation process. The company wants to scan industries not included in their current portfolio for business opportunities, as the technology can be applied to other industries as well. In hydropower, the case company's technology

can be placed in the middle of a river and no dam is needed, which makes it more environmentally friendly. Therefore, the hydropower market is studied.

#### 4.5 Data collection and organization method

It is a great opportunity in case studies to be able to use many sources of data (Yin 2009). Several data collection methods were used and both primary and secondary data to answer the different research questions set for this thesis. Also, different data sources were needed in the different stages of the case study. The reason was that different data collection methods were more suitable for answering the different questions and to derive data to work with on later stages of the investigation. For sub-question 2, both primary and secondary data sources were used. Below in Table 2, is a summary of the data sources used in this thesis.

Table 2. Summary of sources of data collection

<b>Data used</b>	<b>Sources of gathered data</b>
Primary data	Interview with manager of case company
Secondary data	Academic literature, company websites, news articles
Archival materials	Reports, company annual reports, presentations

For the first sub-question “What are the key criteria for choosing a market segmentation model to determine market potential in the industrial technology market?” data was gathered from secondary sources, which were academic literature on B2B segmentation to form a well-reasoned answer for this. The various B2B segmentation models and their characteristics were tabulated for effective comparison. Various methods to segmentation came up from literature, but the Nested Approach was the most appropriate in the context of the case company, which will be later justified in the results section of the thesis.

For the second sub-question “What market segmentation bases are essential in determining market potential in industrial technology markets?”, both secondary and primary data were used. The secondary sources were academic literature on B2B segmentation. The primary data was collected from a semi-structured interview with the case company marketing manager, who is familiar with the technology and the target industry. The interview was done over a Skype call due to time restraints. The interviewee was briefed on the interview topic prior to the interview to provide a chance to get acquainted with the topic. Also, in the beginning of the interview, the Nested Approach model was explained to the interviewee so

that the interviewee understood the context and the reasons for the questions. Using of a semi-structured interview with a manager as a way of defining the segmentation bases is supported by findings in literature, as was earlier in the theory section discussed.

The interview did not include set questions, but instead the Nested Approach framework was the guide to the interview. Each nest along with each variable within that nest were explained and discussed in terms of the case company. First, it was asked if the base at hand was important for the case company when evaluating suitability of a customer. If the base was important, I asked for the parameters of that base that were to be kept in mind while segmenting the market. This was important to be able to establish boundaries by which to select prospect companies to be evaluated. The interview began with the most general bases and worked towards more specific bases, as is instructed by the framework. The actual segmentation process also followed this order. This made it easier to select the sample of companies to evaluate against the criteria, as for example geographical location made it easier to search for companies in certain geographical areas. If no location was provided, every company in the world would have had to be googled.

To provide structure and to assist in defining the segmentation parameters, the interview was transcribed in MS Word. After transcribing, deductive coding was conducted, as the list of codes came directly from the theoretical framework (Miles et al. 2014 p. 81). Here, sections were highlighted of the text and assigned to the bases according to the Nested Approach. This was necessary, as sometimes the interviewee would jump back to a question to clarify something. The bases from the Nested Approach were then codes that the researcher picked up from the transcribed interview text. This was done to establish a filter or a set of criteria through which each prospect company was evaluated against. Some bases were quickly dismissed as unimportant or meaningless to the case company, but others were extremely critical in determining if the prospect company held opportunities for the case company.

Once a complete list of the bases was retrieved that the segmentation could be conducted by, they were all listed in MS Excel. It was important to keep the data in an order, due to the number of companies analyzed.

The researcher then proceeded to search the internet for companies according to the bases, starting first by the type of company and location. For example, Japanese hydropower companies were googled to retrieve a list of electric utility companies operating in Japan. After building a list of these companies and adding them to MS Excel, the researcher proceeded in finding out the information on each company according to the

bases and their parameters. MS Excel was used to organize the data, as it was the most convenient tool in terms of price, availability and features. If the research showed that a certain company did not meet one criterion, I marked it down as not showing market potential. One of the most important criteria was Technology, because it largely dictated if the company worked with the case company's technology. If this was not the case, then no business could commence between the companies.

From the interview three types of companies were gathered to analyze, which were OEMs (original equipment manufacturers), hydropower companies and integrators. The researcher first searched for these types of organizations of Japanese origin, after which she proceeded to search for OEMs and integrators that did business or showed intent on doing business in Japan. The reason no electricity companies from other countries were searched was because the electricity market in Japan is regulated so that only Japanese companies can take on the role of an electricity company.

For the Technology base a sub-categories called Current and Intent was added, because it became evident during the investigation, that even though some companies did not list the suitable type of technology in their portfolio, they still showed intent in providing services in that technological area.

Data source triangulation was used to secure data reliability in the archival research for the segmentation bases. This is a method used in qualitative research in which at least three sources of data are consulted for verifications. Usually, three sources are needed to agree or disagree with a claim. (Miles et al. 2014, 299) In the case of this thesis, triangulation was used in the way that if information on a base could not be found from the main source, being the company's website, then at least three other sources were checked. The different sources were the company website, annual reports, press releases and googling "the company name + [variable]". If no evidence was found to support the variable's existence within the investigated company, then the company was deemed not to meet the criteria of the case company and no market potential existed in that company. The reason that some sources agreed or contradicted the variable's existence is because the sources were created for differing purposes and none were created solely for the purposes of this thesis. Also, the time of publication of the source resulted in differing results. In contradicting cases, the most recent publication was deemed correct in terms of the variable. Conclusions were made from the resulting list of companies as well as the process of the segmentation, including the choice of segmentation model and bases.

## 4.6 Validity and reliability

Validity and reliability account for the quality of a qualitative study's processes, results and conclusions. Below, the two terms are explained and how the researcher controlled for them in conducting the thesis is elaborated on.

Validity can be thought of as the truth. And considering this, one can evaluate how true or credible the results are of a study. The researcher needs to control for the validity of the results throughout the research. In addition, the researcher needs to account for contradicting explanations for the results. (Silverman 2010) Validity can be divided into two separate subcategories: internal and external validity. The internal validity means that the results obtained within the study are true. External validity means that the results can be generalized for example in the case of this thesis, to different industries. (Ghuri & Gronhaug 2010; Miles et al 2014, 314; Saunders et al 2018)

To control for internal validity in this thesis, several segmentation models were considered and compared to arrive at the most appropriate one to use in the context of the case company. The interview was guided by the theoretical framework of the Nested Approach to ensure the resulting segmentation bases were valid in terms of theory. Due to resource constraints, only one interview was conducted. Including more interviewees to form the segmentation bases would have increased the validity of the results further. Triangulation of data sources was used to control for validity of the segmentation results. The process was described to ensure transparency and methodological shortcomings were considered when evaluating the results. All these procedural elements were used to enforce the rigor of internal validity.

When it comes to external validity, one needs to understand that this is a single case study, in a specific context. Also, the segmentation is a very context-specific practice. Therefore, as external validity refers to the generalizability of findings, precaution must be taken when generalizing the results. (Miles et al 2014, 314; Saunders et al 2018) The case study method is ideal for exploratory purposes, which was the intent of the thesis (Saunders et al 2018). The exact results of the segmentation cannot be generalized for other companies, but the process presents generalizable findings, as it can be applied to different contexts.

Reliability in qualitative research means that the methods and results are reliable. The researcher would get the same results, if the study was repeated and a different researcher would also obtain the same results. (Silverman 2010) The research questions were worded so that the entire scope of the underlying issue at hand was investigated with appropriate

demarcations. This was done to limit the scope of the needed data collection. To ensure the reliability of the study, the process was described transparently. The interviewee was purposively selected to strengthen the reliability of the answers. When collecting secondary data from archival materials on the prospect companies according to the segmentation bases, rules were set to ensure consistent data extraction from sources not primarily made to answer the research question. Data source triangulation was used to account for all evidence. The results of the study were linked to theory and the conclusions linked to the results. (Yin 2009; 160; Miles et al 2014, 311-312).

## 5 Findings and discussion

In this section, the findings from the archival and empirical research are presented and discussed. The empirical findings of the thesis are evaluated against theory to present new perceptions on using market segmentation to reveal market potential. Also, any contradictions to theory are discussed. First, insight on the key criteria for choosing the segmentation model and the bases and followed by the process of segmentation are discussed, and finally the results of the segmentation are evaluated in their success in revealing market potential.

### 5.1 Segmentation model

The market potential evaluation literature was quite scarce, but the evaluation models that were included in the theory section of this thesis portrayed the importance of evaluating the market and possible customers in one way or another. The Market Opportunity Analysis (MOA) (Woodruff 1976; Lu et al. 2014) incorporated elements of market segmentation into their models to find out market potential. (Woodruff 1976) It is from these models that market segmentation was derived as a possible procedure to find out market potential and from the market segmentation literature five key criteria were derived to assist in choosing the most appropriate model.

In this case study, it was imperative to first understand the case company and its needs and find a suitable segmentation model to match those needs to serve the purpose of segmentation. To find a suitable model, a literature review therefore was conducted on B2B segmentation models to comprehend the key criteria in choosing one to determine market potential in the industrial technology market. The researcher investigated the points made by previous researchers in their studies on the relevant elements to consider when choosing a segmentation model and how they justified using a certain model. In the analysis, the case's setting and resources were taken into account to find the most suitable model. The key criteria, which are not in order of importance, for the case's purpose based on literature were:

1. Suitability for finding market potential: The intent of segmentation (Clarke 2009; Clarke & Freytag 2008; Sausen 2005)
2. Suitability for industrial B2B markets (Simkin 2008; Choffray & Lilien 1978; Bonoma & Shapiro 1984; Clarke 2009).
3. Proven application by other researchers (Weinstein 2011)

4. Includes multiple segmentation bases, both macro and micro (Weinstein 2011)
5. Suitability for the case/context: Does not require a lot input and time from company representatives (Clarke 2009)

Even though the listed criteria above are not in order of importance, the top-most important criterion is that the model suits the intent of segmentation (Clarke 2009; Clarke & Freytag 2008; Sausen 2005). This was underlined in several literature sources as the key criterion for choosing a segmentation model, as the models vary in terms of outcomes and perspectives on the market. Not all the models are suitable for investigating market potential, which was concluded from comparing the models in table X. For example, the models that require involvement of existing customers implies segmenting a market where potential is already evident. The case company needs to segment a market from a pre-relationship perspective. When scanning for market potential, one is investigating customers in the pre-relationship phase and therefore the marketer cannot involve the customers in the data collection. Linked to the first criterion is the second criterion, the requirement of B2B market applicability (Simkin 2008; Choffray & Lilien 1978; Bonoma & Shapiro 1984; Clarke 2009). B2B and B2C markets are quite different in characteristics and customer behavior, making B2C segmentation models obsolete in the B2B paradigm.

The third criterion emphasizes the importance of proven applicability of the model. It was found that some models had been tested by researchers other than the creators of the model to learn about their practicalities. It was therefore rationalized that this was an important criterion, because it provided evidence for the applicability in other contexts than the original one. It also provided evidence of the pitfalls of the models. The Nested Approach was widely cited and empirically tested by Weinstein (2011), making it a sound model for this case. The majority of the other models were only put into test by the creators themselves. The Nested Approach was also tested in a technology context, giving more evidence to its applicability.

It was important for the model to include many segmentation bases, which is the fourth key criterion in choosing a segmentation base, to provide the most complete picture of the market and to consider all essential criteria for making conclusions on market potential in the market (Weinstein 2011). As the segmentation models had evolved, as can be observed in the comparison table in Appendix I, it is noticeable that the number of the bases increased as well as the level of detail the bases provided on the market. The models went from one segmentation base to macro-micro level bases or two-step models to multilevel models

comprising of several bases. More bases make it possible to segment the market truly based on the purpose of segmentation and to match the needs of the segmenting company.

Finally, the model needs to fit the context or the case at hand, which is the fifth criterion. In the scope of this thesis, it was important to find an agile model that did not require a lot of time and resources from the case company. This meant that the researcher could not hold numerous workshops with several of the case company's managers or employees to design a model with the bases. Extensive case company involvement was a requirement in several of the models considered. Also, the researcher could not be in contact with the customers or prospects directly, as the technology under question is not her expertise and it could have hurt the brand of the company had the researcher said something incautious about the products. This is the reason why it was the salespeople or engineers of the companies in prior studies that were in contact with the market, if the model in question required data to be collected directly from the market (Clarke 2009).

The reasons for rejection of the other models are provided next. Haley's (1968) benefit segmentation model involves data collection from existing customers, meaning it is not suitable for market potential evaluation for new markets. Also, one segmentation variable does not provide an extensive enough picture of the market for the purpose of the case study. Wind and Cardozo's (1974) as well as Choffray and Lilien's (1978) model also involved segmenting the existing customer base, which is not suitable for market potential evaluation. Even though elements were borrowed from Freytag and Clarke's (2001) two-step process in this case study, it was not completely implemented, as it had not been tested by other researchers empirically. Simkin's (2008) segmentation by stealth was rejected because the process is very lengthy and requires vast involvement of the case company with several employee's attending workshops. Furthermore, the model segments the existing customer base. Clarke's (2009) process segmentation did not provide a model as such, but the emphasis on the importance of the process description was a useful element, which was included in this thesis. However, with lacking a model, no model from Clarke was used in this thesis. Lastly, the multistage model by Thomas (2016) was not suitable for the case company, as it involves aligning customer needs at different level of the market to find most prospective segments. For the industry of the case company, as well as the purpose of the segmentation in this case study, this is not fitting.

The Nested Approach by Bonoma and Shapiro (1984) was deemed the best model to use in the context of the case company as it matched all criteria, unlike the other models. First, the model is versatile in applicability and can be used to find out market potential. It is

purposely made for the B2B and especially the industrial market. The model has been proven to work for B2B market segmentation by other authors than the creators and it is widely cited by academia, giving it credibility. It is the only multi-variable segmentation model tested and approved by other researchers. The bases considered are especially suited for B2B industrial markets, giving a thorough framework to work with. Finally, the model -- allowing for modification to fit the context -- suits the needs and resources of the case company.

An example of applying the Nested Approach was written in section 3.5 Bonoma's and Shapiro's Nested Approach, where Weinstein (2011) applied it to a hi-tech company seeking to find market opportunities in the US market for a soon-to-be launched product. The way in which the model was applied in this thesis and how it was applied by Weinstein differed in some respects for several reasons. The main affecting aspect was the differing starting situation for segmentation of the case companies. In Weinstein's study, the case company was expanding its product offering in an industry it was already in, being the hi-tech computer software industry. It already operated in the US market and already sold computer software and the competitors were known. For the case company in this thesis, the situation was quite different. The case company was segmenting a market within an industry it was not yet in, within a new geography and the competitors were unknown. Also, the type of product between the two case companies differed and this had implications on the data collection and analysis techniques. Computer software can potentially be bought by any organization and therefore governmental statistic databases can be used to segment the market based on industry codes and number of employees. In this thesis, the case company's products of generators and converters can only be used by specific companies. Therefore, using governmental statistics regarding all companies within the geography would be useless, as the companies for this thesis had to be handpicked from internet sources. Furthermore, since the target market and the companies within that market were English speaking, the language barrier problem was not an issue in Weinstein's study. In the case of this thesis, it was sometimes troublesome finding information on the segmented companies, since they did not provide all information in English.

Also, Weinstein (2011) formed the bases for segmentation in a different way than what was done in this thesis. He held numerous interviews with several managers in the case company, while the researcher in this thesis involved only one manager and held only one interview to guarantee agility.

From Weinstein's (2011) process description, it is not possible to conclude how the information on the bases in the inner nests was collected, or if it was collected at all. It seems that only the first nest's (Demographics) bases were used in collecting data from the market. The inner nests, starting from Technology, were used as describers of how segments could be formed, and marketing recommendations were put forward based on those assumptions. This is contrary to what was done in this thesis, as all the bases that were set in the beginning of the study were used in guiding data collection from the market. The application of the Nested Approach in this thesis provided more concrete results on market potential, since the results were company lists matching the criteria set. Weinstein's study on the other hand only provided assumptions on the possible target customer segments.

## 5.2 Segmentation bases

To answer the second research sub-question, investigation on what other researchers had done prior to this study in defining the segmentation bases was conducted. The researcher found that involving the case company somehow in the process guaranteed that the segmentation would serve the purpose and suit the case company the best. It was also found that managerial intuition can be used in assisting the segmentation process and in coming up with the most useful bases (Millier 2000; Palmer et al. 2004; Boejgaard et al. 2010). Also, the bases need to serve the purpose of the segmentation, to probe answers to the questions raised (Clarke 2009). The researcher therefore interviewed a marketing manager within the case company, who understood the technology and its possible applicability, and the chosen bases were based on the manager's judgment. The explanations for the chosen six bases as well as the bases that were not included in the analysis are presented below and are all taken from the interview conducted with the marketing manager. The segmentation framework with the chosen bases is depicted in Figure 7 below.

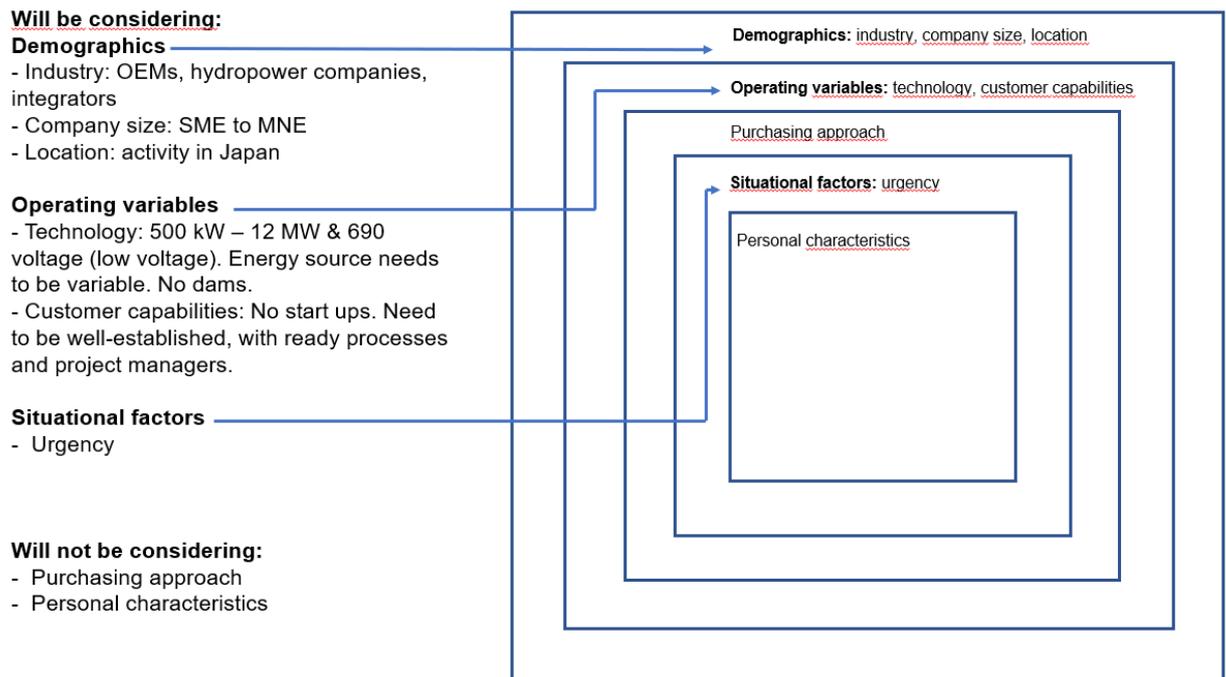


Figure 7. The chosen nests and bases used in the segmentation analysis

The nests considered and the bases and sub-bases within those nests chosen for the segmentation were:

- Demographics
  - o Industry: OEMs, hydropower companies, integrators
  - o Company size: SME to MNE
  - o Location: activity in Japan
- Operating variables
  - o Technology: 500 kW – 12 MW & 690 voltage (low voltage). Energy source needs to be variable, so no dams.
  - o Customer capabilities: No start-ups. Need to be well-established, with ready processes and project managers.
- Situational factors
  - o Urgency

Demographics was a useful nest, as it provided the guiding frames for what industries, company sizes and locations to investigate. All variables within this nest were included. The industry variable was sub-divided into three sub-categories of OEMs, hydropower companies and integrators. The interviewee stated that *“I’d say that for us, number one would be the OEMs, so the original equipment manufacturers. They’re the guys that build*

*the whole system. Then there's the hydropower companies. In that order. And third would be the integrators. Sometimes the hydropower companies have in-built integrators, so they can command themselves to integrate. So those three."* For the hydropower companies, the researcher first listed all Japanese electricity companies and out of them, drafted the ones in hydropower. Two of the companies were not in hydropower.

The second variable within Demographics that was included was Company size and the sizes included were medium sized to big, which were interpreted as SME to MNE. The interviewee was very clear in not including start-ups or small companies, as *"it's very difficult, as even though they have the core competence of the technology in check, they're still missing basic stuff like project managers...it's a skill to have the daily routines in place. If the company doesn't, then it burdens us a lot."* This may lead to problems that the case company would have to fix, because they cannot leave their customers in trouble which would lead to reputational problems. In the segmentation process, an SME was defined as a company with at least 50 - 250 employees and MNE as companies with a number of employees more than 250, so the number of employees was a key determinant.

The third variable within Demographics is location and at first the interviewee stated that it was not necessary to restrict the geographic locations of the companies, but continued that if it was a must, then focus should be on Japan and EMEA (Europe, Middle East and Africa) and the reason stated was *"it's due to our organizational structure and also, it makes it difficult if the customer is in a totally different time zone"*. This is a vast geographical area and would have been troublesome to retrieve all OEMs, hydro power companies and integrators from all these regions. Therefore, to suit the scope of this thesis, the segmentation was restricted to companies operating in the Japanese market. The reason why Japan was mentioned first was because structure of the case company – the parent company of the case company is a Japanese firm. This gives them an advantage in operating in the Japanese market.

Operating variables provides micro level information on the market and was a nest deemed necessary for this case. The most critical variable within this nest was Technology, as it dictated if the case company could do business with the segmented company. The manager describes the competitive advantage of the company, which is the reason the Technology base is so important, *"Our generators perform at their best when the speed is slow, so you don't need a gearbox. That means that the machines are quite big, so from 500 kW to 12 MW. And our specialty is low voltage. Which means that we can manufacture large machines for 690 voltage, which is low voltage"*. The competitive advantage of the

technology that the case company sells lies in the slow speed, low voltage, the power range of the technology and the type of energy source. Therefore, it was stated that the power range would be from 500 kW (kilowatt) to 12 MW (megawatt), and the voltage had to be 690 (low voltage). All other powers outside of these ranges were considered either too small or too large to be served by the case company, as competitors' products might outperform them in the outside ranges. Also, since the case company's technology requires the energy source to be variable, not stable, in order to gain a competitive advantage over competing technologies, it poses restrictions on the type of hydropower. For example, water from a dam is not a variable energy source, since the outflow is controlled. However, an undammed river or tide flow are variable. Therefore, run-of-river technology was considered as the ultimate signal for suitability amongst segmented companies.

Wave or tidal energy was also mentioned in the interview as a possible application where the technology could be used, and the case company would have a competitive chance to succeed. However, due to the scope of the thesis, the scope was limited to only one industry area within hydropower, that being run-of-river hydropower.

Also, Customer capabilities was chosen as a variable, and this had to do with the way the company is managed. The interviewee stated that no start-ups should be considered, as they may have problems in managing projects. This is linked to the company size in terms of what is expected from the customer company. The year of establishment was also considered as an indicator of customer capabilities because if a company has existed for several years, they most likely have their processes under control.

The next included nest was Situational factors, and within that, the variable of Urgency. When asked if urgency is a beneficial variable to the case company the interviewee was immediately thrilled and stated that this is a very beneficial factor to include. When a customer is in urgent need of a component, for instance due to a force majeure situation, they are very willing to go to great lengths to find the needed product making even price an unimportant factor. *"An example of an urgent situation would be that say you have hydropower station in Indonesia and a flood washes your converters away. It'll be nice to get compensated by insurance, but you're still missing the converters. If you get the converter, they will pay almost anything, if you get it to them fast."* This however proved to be a very difficult element to identify in the market.

The nests not used in the segmentation were Purchasing approach and Personal characteristics along with some variables in the otherwise included nests. In the Operational variables nest, which was included, there is a variable called Product and brand use status,

which in this case means checking if the customer already uses variable speed technology in hydropower applications. This is identical to the Technology variable, so it was not included as a variable in the segmentation.

The Purchasing approaches nest was completely dismissed from the segmentation analysis. The variables inside the nest were Organization of decision-making unit (DMU), Power structures, Buyer-seller relationships, Purchasing policies and Purchasing criteria. The Organization of the DMU was deemed unnecessary, because it is a variable important once it has been decided to target that specific customer. Once the decision has been made, it is vital to know to whom within the organization should the selling company direct its marketing. The interviewee went on to explain that *“[in sales] this is important. Inside the customer company, there are the employees who will use the products and design solutions around the products. Also, there’s the employees who procure the products. So which ones hold the decision-making power? If it’s a commodity, then the purchasers decide. But if it’s a technology product, then it’s the engineers that decide. But in this case, we’re only looking for market potential, so this is an irrelevant segmentation base.”* If market potential is found, then this would be an important variable to include. The same logic applies to power structures within the buying company as well as the Buyer-seller relationship variable, and therefore the Power structure and Buyer-seller variables were excluded for the same reasons.

The Purchasing policies was not estimated to be important in evaluating market potential because of the nature of the product, i.e. it is not a commodity good and therefore a buyer would not use a bidding system. The interviewee stated that, *“the machines we sell are such that you won’t get identical quotes from two firms selling these, as technologically it’s impossible. So, this is not an important base for us”*. Moreover, Purchasing criteria was also dismissed from the segmentation, as this entails the criteria of product and organizational benefits that the buying organization needs the selling companies to meet. In this thesis, the purpose of segmentation is to find market potential and will not be considering the perspective of potential customers’ purchasing criteria set for selling companies.

One variable from the Situational factors nest was not included, which was Size of Order. The reasoning for this was due to the type of product sold, as was explained by the interviewee: *“Size of order is not significant for us. At least until now we’ve never seen a situation where this would have been a problem. Usually the challenges come from shorter than possible delivery times”*. In addition, it is very rare that a customer will order large

numbers of the product in a very short delivery frame, but instead, the delivery time will be modified to meet the size of the order. Therefore, this is not a variable that requires attention.

The innermost nest called Personal characteristics was completely left out of the segmentation. The interviewee explained that the type of business and business landscape make it impossible to pick customers based on personal characteristics. The interviewee stated that in this industry, the buying firm evaluates the entire company and cannot afford to base their decision on the personal characteristics of an individual within a company. The same logic applies the other way around. The interviewee therefore concluded that market potential cannot be evaluated based on individual personal characteristics of employees in a customer organization.

The bases for segmentation were selected from the variety available in the Nested Approach model (Bonoma et al. 1984) through managerial intuition (Millier 2000) by interviewing the case company's marketing manager. The bases were selected to serve the purpose of segmentation (Clarke 2009; Clarke & Freytag 2008; Sausen 2005). The formation of the final segmentation bases required only one interview, as the manager grasped the model's concept quickly. This could mean that the model is easily apprehensible. This was also opposing to the examples in literature, where the researchers had to hold several meetings spanning over a long time period to formulate the bases (Clarke 2009; Weinstein 2011). A reason for the lengthy discussions could be that literature examples involved several managers, whereas this thesis involved only one. Reaching a consensus with many managers involved is a tedious task, adding to the difficulty of segmentation, which is one of the reasons some B2B companies do not even attempt segmentation (Clarke 2009). One could, however, argue that using only one manager's intuition in forming the final bases for segmentation can result in a biased view of the market. However, in this case study, the manager was apt in marketing as well as technological knowledge, providing a balanced view.

Also, it can be argued that for the purposes of evaluating market potential it is enough to involve one manager instead of a larger group, because the company is only testing waters at that stage. If the company was aiming at segmenting the existing customer base, then a vast understanding of the different customers would be needed, and more managers should be included to utilize the gained knowledge. Furthermore, once the market potential is found, and more specific intentions are the motor for segmentation, including more managers in coming up with the segmentation variables is needed. All in all, choosing of the most appropriate manager(s) or employee(s) to interview for the segmentation base

formation is a critical task and should be further researched to reach a definite conclusion on how many should be involved for different purposes.

### 5.3 Segmentation process

Below, the segmentation process of using the Nested Approach and its suitability in evaluating market potential in this thesis is discussed. According to literature (Clarke 2009), it is important to describe the process of segmentation, to aid in future endeavors. Through the process evaluation the suitability of market segmentation in revealing market potential is discussed.

A process description of segmentation is needed because it became extremely clear in exploring B2B market segmentation literature, that companies find it very difficult (Palmer et al. 2004; Clarke 2009; Boejgaard et al. 2010). Managers in companies need clear guidelines to accompany the vague models. Clarke (2009) addressed this in her process description piece, where she clearly described all steps taken in the segmentation process. This process description, she thought could be modified to fit the needs of other cases. She also pointed out that many segmentation models do not consider company resources, which can be a limiting factor in engaging in market segmentation for many organizations. (Clarke 2009) Therefore, in this thesis company resources were taken into account and only involved one manager in forming the segmentation bases. From the interview answers it was straightforward to draw out the bases that were used to segment the market. This is in line with the fifth listed key criterion used to select the segmentation model, which was found from evaluating segmentation literature. With this example, other companies can take note and attempt a more agile market segmentation process than many academic models provide. By having less invasive processes the barrier to engage in segmentation will become lower. Also, the process description in this thesis will guide other companies to take on the process.

The first step of choosing a model is understanding what the purpose of segmentation is (Clarke 2009; Clarke & Freytag 2008; Sausen 2005). This is the first listed key criterion found for choosing a model for this thesis. The differing models presented in literature were suitable for many purposes, but elements were taken from several and combined into the model and analysis used in this thesis. Even though the main model was the Nested Approach by Bonoma and Shapiro, ideas and analysis techniques were incorporated from others to fully serve the purpose of the segmentation. This was opposing to any other literature example, all of which based their studies strictly on one model. The models from

which elements were included on top of the Nested Approach in the process of segmentation for the case company in this thesis were Millier's (2000) managerial intuition, Freytag and Clarke's (2001) two-step process and Simkin's (2008) segmentation by stealth.

Some similarities with the segmentation process and theories in this thesis can be drawn to literature. Managerial intuition was used in choosing the segmentation variables. Millier's and Palmer's paper (2004) used managerial intuition in setting criteria for segment formation. This is similar to what was done in the case study in this thesis, as managerial intuition was used to form the segments. From the interview with the marketing manager of the case company, the segmentation variables were derived. Freytag and Clarke's two-step process (2001) included guidelines on how to gather data on the variables in a pre-relationship stage. The point was that it can be challenging to collect data from the customers in a pre-relationship stage, so one must use indirect sources and interpret the data to find answers one is looking for. For instance, the segmenter could inspect the sourcing strategies mentioned in annual reports and company websites to draw conclusions on the buying potential of the customer. In this case study this logic was used, because data was collected from secondary sources and conclusions were drawn from them. Annual reports provided insight on strategic goals, purchase item lists provided insight on purchasing strategies and the described product characteristics indicated what type of technology they used or were interested in. The idea of including managers was used in the segmentation process, which was a key attribute in Simkin's segmentation by stealth (Simkin 2008), by interviewing the case company's marketing manager in forming the segmentation variables. This ensured that the segmentation served the true needs of the case company.

Next, some data collection issues in the process are discussed. Gathering data on the three selected industrial company types posed some challenges. Even though literature referring to the Nested Approach states that the model should be applied in order of the nests, in the original paper by Bonoma and Shapiro (1984), it is stated that the marketer can start from whichever nest is most suitable for them. Also combining nests is possible. In the case of this thesis, some nests were combined in evaluating the companies, due to the nature of the information needed to be gathered. Since the information was gathered from sources such as the company websites and annual reports and electronic sources, like news articles on the internet, the data presented itself in an unordered fashion. Therefore, data related to a certain nest became available at the time it was discovered by the researcher. It was thus quite impossible to collect the data in the order of the nests.

Even though the interview for finding relevant segmentation bases resulted in very vast geographical areas including Japan and EMEA (Europe, Middle East and Africa), the case study focused on the companies operating in the Japanese market to provide some demarcation to data collection. Later, the same process can be implemented onto different geographies. This poses the question of the extent the model provided means of evaluating market potential in this case study, as only one geographical area was considered. However, this was necessary, as evaluating the entire world's companies is very difficult so therefore demarcation was required.

Language of the secondary sources became a challenge because some of the Japanese and Chinese companies' websites were clearly lacking information in English, making the data collection a contextual problem specific to the case, because of the language of the market being evaluated. Also, two German companies had their websites entirely in German, indicating a German-speaking market focus. Were the researcher investigating companies that were from only English-speaking countries, this language problem would probably not have occurred. Some of the Chinese OEMs did not have their own websites, so some of the information was collected from third party websites that compiled many hydropower companies together. Therefore, a suspicion of the trustworthiness of the information collected from these compilation sites arose, presenting implications towards the reliability of the data collected.

The type of data needed on the market based on the chosen variables enabled secondary sources to be used. Due to the nature of secondary sources, the data was readily available for some bases and had to be interpreted for some. This was because some companies provided the information on their websites, but with some of the companies, more extensive research had to be done to collect the data for a certain base. For example, the Technology base required searching for news articles on hydropower projects to ascertain the use of run-of-river technology, because the companies had decided not to spell it out on their websites. Also, some technology jargon on the websites was difficult to grasp at times.

Cheron and Kleinschmidt (1985) wrote that the marketer should use their own judgement to decide when to stop collecting data on segmentation bases. This was an important guideline to follow, as with some companies, information on a certain base did not reveal itself, even after lengthy searches. In situations like these, it was noted off as "Information not provided". This was the case for the company size, for instance, where number of employees was not provided as well as in situations where specific technological

information was not found. It can be concluded that the Nested Approach has an in-built interpretivism that can pose implications for the correctness of the results.

Despite the challenges faced, the process of setting the bases for segmentation and collecting data of the companies was quite straightforward and easily tabulated. From the tables, one could glance at the data results and spot the companies that matched criteria and portrayed market potential. This is very different from Weinstein's (2011) methodology, as in his study of the Nested Approach, he segmented a US hi-tech market. The entire industry is very unlike to the hydropower market, as practically all companies were possible customers. Therefore, he could obtain data from governmental statistic sources and segment the companies based on key characteristics. In this case study, the players are much fewer, making Weinstein's methodology unnecessarily complicated for the purposes of this case study. In this context, it was possible to make company-specific evaluations and conclusions and provide a list of companies portraying potential for the case company.

#### 5.4 Segmentation results

The segmentation results are presented in three separate sets, divided based on industry sub-categories, which are OEMs, hydropower companies and integrators. Data is presented for each base, according to the Nested Approach. The first column in the segmentation results table presents the name of the company, followed by each segmentation base in separate columns. The companies that are evaluated are each on their own row. The results can be found in the in Tables 3, 4, and 5 below.

##### **Results from OEM segmentation**

The results for the OEM category can be found in table 3 below. The companies from the OEM sub-category fitting the case company's criteria are Gugler, Global Hydro Energy and Mavel Americas Inc. Wärtsilä is not considered in the calculations because, its subsidiary, Weir American Hydro handles the hydropower business. Out of the 17 OEMs considered, three matched the criteria set, resulting in 17,65% out of the sample size.

It was interesting to see that even though the Technology base was the most critical in determining market potential, it did not ensure market potential. Two companies were in this situation and they were HM Hydro and General Electric. Both included run-of-river technology in their current offering but did not portray market potential for the case company because both companies manufacture their own generators and are thus rivals.

The companies that were not in run-of-river, were in the dammed type business. This was the most common type of technology. Therefore, the intent sub-category was added to the Technology base and was analyzed to see the possible future development of which technology companies engage in. Five companies in total had run-of-river examples listed, but only four showed intent in being involved with the technology in the future. Also, the companies that currently only engage in dammed type hydropower, did not show intent in engaging in run-of-river technology. This can indicate the direction the industry is going, or it could mean that run-of-river is being taken on slowly by the players in the industry.

Consequently, it can be concluded that in the OEM sub-category, there exists market potential for variable speed technology in the hydropower context.

### **Results from hydropower companies**

The segmentation results the hydropower companies can be found in table 4 below. The companies from the hydropower sub-category fitting the case company's criteria are Chubu Electric Power (Chuden) and Tohoku Electric Power (Tohokuden), while Kansai Electric Power Company (KEPCO) and Shikoku Electric Power Company (Yonden) resulted as "maybe". Kansai Electric Power Company (KEPCO) resulted as "maybe" because although they did include run-of-river in their current portfolio and showed intent in including it in their future offering, they did not provide power ranges for their run-of-river initiatives. As for Shikoku Electric Power Company (Yonden), the reason for the "maybe" is because they have run-of-river in their product portfolio, but no power ranges are provided. Because no power ranges were provided, it was impossible to determine a match with the case company's technology. Also, both of the "maybe" resulting companies did not show intent in including the run-of-river in their future offering.

Out of the 10 Japanese electricity companies, 8 were in the hydropower industry and 2 out of the 10 matched the criteria set, meaning 20% of the companies showed market potential.

Companies that listed run-of-river in their product offering but did not portray definite market potential for the case company were Kansai Electric Power Company (KEPCO), Tokyo Electric Power Company (TEPCO) and Shikoku Electric Power Company (Yonden). The reasons were because KEPCO and Yonden did not indicate power ranges while TEPCO's power ranges exceeded those set by the case company as the limits. Thus, KEPCO and Yonden were considered "maybe" in portraying market potential.

Data collection was stopped if the Japanese electricity companies did not meet one of the criteria. The companies did not provide straightforward answers on their websites or other

material, but it can also be that they provided only truncated versions in English of the material. Therefore, it cannot be concluded what type of hydropower the companies were using, if run-of-river was not mentioned on their website or other material.

Four companies in total portrayed involvement in run-of-river hydropower and two out of the four indicated intent in engaging in it in the future. Yonden and Tohoku did not specifically state interest in run-of-river hydropower in the future. This can provide insight into the development of the industry, as with the OEMs also.

To conclude, there exists market potential for variable speed technology in the hydropower context hydropower company sub-category.

### **Results from integrators**

The segmentation results of the integrators can be found in table 5 below. The companies from the integrators sub-category fitting the case company's criteria are Voith Hydro, Andritz Hydro GmbH and Stantec Consulting Inc. Three companies, them being Gilbert Gilkes & Gordon Ltd, Pöyry Energy Ltd and SNC-Lavalin Inc resulted in "maybe". These companies resulted in "maybe" because they did not provide power ranges for their run-of-river offering. Out of the 17 integrators, 3 matched the criteria set, meaning 17,65% showed market potential.

Companies that were involved with run-of-river technology, but did not show market potential were Piedmont Hydro Technologies, General Electric, Gilbert Gilkes & Gordon Ltd, Tractebel Engineering GmbH and Pöyry Energy Ltd. Piedmont Hydro Technologies only operates in USA and Jamaica and no information on the company size was found. General Electric was otherwise compatible, but it manufactures its own generators, making it a rival. Gilbert Gilkes & Gordon Ltd, listed as a "maybe", did not provide information on the power ranges it is involved in with run-of-river. Tractebel Engineering GmbH exceeds the power ranges in the run-of-river technology and Pöyry, listed as a "maybe" did not include power ranges in the projects they are or wish to be involved in.

The integrators that had not listed run-of-river in their offering either did not list any specific type of hydropower technology or then they listed dammed type. Also, some operated outside of the geographical area considered in this thesis. The ones that listed dammed type were CKD Blansko Holding as, Hatch Ltd and Fuchun Industry Development. Omexon, listed no specific technology. Troyer SpA did not list a specific hydropower type, but stated that they provide medium voltage switchgear, which is incompatible with the case company, as they work with low-voltage technology. Stellba Hydro GmbH & Co KG had their website

only in German, making interpretation impossible and indicating that their market is in Germany. BHI and Canyon Hydro both operate only in USA demarcating them out of the consideration set.

To gain a view of how the integrator market is developing in terms of which technologies are being used, an analysis of the future intentions of the segmented companies was conducted. Nine companies in total listed run-of-river in their offering as case examples, while only five out of the nine specifically listed it in their future intentions. Voith Hydro, Piedmont Hydro Technologies, General Electric, Gilbert Gilkes & Gordon Ltd and Pöyry Energy Ltd were the five with specific future intentions in being involved with run-of-river technology. Andritz Hydro GmbH, Tractebel Engineering GmbH, Stantec Consulting Inc. and SNC-Lavalin Inc did not specifically list run-of-river as a sought-after technology.

Therefore, it can be concluded that in the integrator company sub-category, there exists market potential for variable speed technology in the hydropower context.

### **General results conclusions**

When all the segmented companies are considered as one market, a total of 8 out of 44 companies match the criteria of the case company, meaning 18,18%. Based on these figures, there exists market potential in the hydropower market for the case company's technology. On the other hand, market potential can be thought of as a continuum rather than something that is either exists or doesn't. There can be more potential or less potential. It can be stated that market potential exists for the case company's technology in the hydropower market, with relatively largest potential found in the hydropower companies, the second most in the integrators and least in the OEMs. Market potential has also been defined as the set of customers showing interest in a product (Kuada 2016). In this thesis, the customers showing interest in the product are the ones that have listed run-of-river as a current technology type or at least intent towards it is shown.

All in all, the OEMs, hydropower companies and the integrators that fit the criteria in the segmentation process were of an appropriate company size, which was determined as at least an SME size (at least 50 employees), indicating suitable customer capabilities as well. The establishment year also indicated suitable customer capabilities as no start-ups were considered. They operated in Japan or globally. Operations globally showed possibility of operating in Japan, even if Japan was not specifically mentioned. Their technological portfolio included run-of-river, which is a non-dammed hydropower type. Also, the technology matched the power range requirements of 500 kW – 12 MW. If their current technological portfolio did not match the requirements, it needed to be shown that there was

intent on reaching the requirements. Urgency was not shown to be imminent in any company, which on the other hand, did not erase market potential, as this was a bonus variable.

The companies that did not fit the criteria and therefore did not portray market potential for the case company were lacking in one or more of the variables needed. For example, a company may have included run-of-river in their offering portfolio but exceeded the power ranges where the case company would be competitive. Also, sometimes language was an issue, like in the case of Stellba Hydro, whose website was only in German.

Next, the segmentation results are evaluated in how well they portray market potential for the case company's industrial technology. In addition, through the evaluation of results of the segmentation the suitability of market segmentation in revealing market potential is discussed.

According to market potential literature, the marketer needs to conduct a competitor and industry analysis to determine how successfully the competition has satisfied the market and how the industry is developing (Woodruff 1976, 59; Golicic 2003, 13; Bandarian 2007, 79; Lu et al. 2014, 11). Although these two analyses were out of the scope of the thesis, some insight into the industry was provided by the segmentation. With the addition of the "intent" subcategory into the Technology base, conclusions could be drawn on the development of the industry.

Amongst the companies investigated, run-of-river hydropower seemed not to be a focus, but instead the trend was opposing to it, as they did not express interest in engaging in run-of-river in the future. In fact, 19 out of the 44 companies, meaning 43,18% were involved in run-of-river projects, but only 11 out of 44, meaning 25% showed intent in engaging in run-of-river in the future. This could mean that companies do not see a future with the technology or that the demand is so low among their customers that they do not see fit to mention the hydropower type in their material. To retrieve a certain answer, this would have to be asked directly from the companies themselves.

Also, none of the companies that currently engaged only in the dammed hydropower mentioned expanding into run-of-river in the future. The traditional hydropower companies thus seem rigid in expanding to new technologies. It is possible that there are younger companies willing to take risks with new technologies, but they were demarcated out of the analysis in forming the segmentation bases, as only well-established companies were considered. Since most of the companies considered were in business with a technology other than the case company's, it is questionable how much trust should be put in the

possibility of the customers expanding into the run-of-river hydropower type. It is a worthy question that should the case company allocate resources into such an industry. Perhaps more investigation into the attitudes of the segmented companies should be undertaken.

As for the competitor analysis, the results do not provide insight into the competition within the industry. Even though some customer prospects turned out to be rivals for the case company, a thorough evaluation of the competitive landscape cannot be drawn from the segmentation process or results. It can thus be concluded that market segmentation does not consider competition and consequently undermines the market potential results. This is further discussed under section 6.3 Managerial implications.

### 5.5 Comparison to Market Opportunity Analysis (MOA)

The Market Opportunity Analyses (Woodruff 1976;1996) presented earlier in section 2.1 consisted of several analyses to determine opportunities in the market, or in other words, market potential. The analyses included were segmentation, demand, channel, industry and competitor analyses. This thesis focused on the segmentation analyses, as segmentation literature states that it alone can be used to determine market potential. The Nested Approach framework did not provide all these analysis elements and therefore conclusions on market potential cannot be made in such a thorough way that the MOA framework suggests. However, insight on market potential can be drawn from the results as information on the potential customers, the demand as well as the industry could be drawn from the results. Insight on the demand in the market and the industry developments can be drawn from the Technology base results. However, more thorough competitor and channel analyses could be conducted.

Table 3. Segmentation of OEMs

Company	Industry	Company size	Location	Technology		Customer capabilities	Urgency	Potential
				Current	Intent			
General Electric	OEM	22,900 (in renewable energy)	Global	Run-of-river listed in offering GE makes their own generators for hydropower	Run-of-river listed in offering GE makes their own generators for hydropower	Qualifies (large enough company, no start up. Processes in check.)	?	No
Siemens	OEM	379,000	Global	No mention of variable speed, run-of-river hydropower	No intent found on website, in annual report or by googling name + run-of-river	Qualifies (large enough company, no start up. Processes in check.)	?	No
Pide Electrade Group	OEM	No information provided	Global	Power range from 100 kW - 10500 kW, no indication of variable speed technology	No intent found on website or by googling name + run-of-river	Qualifies, Operated for over 30 years	?	No
Global Hydro Energy	OEM	No information provided	Global	Includes run-of-river, power ranges 100 kW-15 MW	Includes run-of-river, power ranges 100 kW-15 MW	Qualifies, Established 2002	?	Yes
Gugler	OEM & integrator	65	Global, Japan listed separately	Turbine manufacturer which also integrates. Suitable for run-of-river. Includes suitable power ranges.	Shows intent by taking part in smaller projects.	Qualifies, Over 100 year's experience	?	Yes
Toshiba	OEM	128,697	Global, Japanese	Includes variable speed, but no mention of run-of-river. Only mentions pumped storage type of hydropower. Manufactures all system component itself.	No mention of run-of-river. Includes variable speed and suitable power ranges.	Qualifies (large enough company, no start up. Processes in check.)	?	No
Hyundai engineering & co ltd	OEM	5,611	Global	No mention of variable speed, run-of-river hydropower	No intent found on website or by googling name + run-of-river	Qualifies (large enough company, no	?	No

						start up. Processes in check.)		
Zhejiang Jinlun Electromechanic	OEM	No information provided	Chinese, Presence in Afghanistan, North Korea, Georgia and India	Makes turbines. Currently all dam type.	No intent found on website or by googling name + run-of-river	Qualifies, Established in 1958, so not a start up	?	No
Fuchun Industry Development	OEM /integrator	100-200	Chinese, global presence	No mention of variable speed, run-of-river hydropower	No intent found on website or by googling name + run-of-river	Qualifies, 30 year's of experience.	?	No
Emeishan Chicheng Machinery	OEM	101 - 200	Chinese, but main markets are North America, South America, Eastern Europe	No mention of variable speed, run-of-river hydropower	No intent found on website or by googling name + run-of-river	Qualifies, Been around since 1980s	?	No
Shaoyang Hengyuan Zijiang Hydroelectric Equipment Co.,Ltd. (SHZ)	OEM	600	Chinese, but customers in Korea, Burma, Mexico, Nepal, Sri Lanka, Vietnam etc. Not in Japan.	No mention of variable speed, run-of-river hydropower	No intent found on website or by googling name + run-of-river	Qualifies, Founded in 1969. Began exporting to international market in 1985.	?	No
Chongqing Bochi	OEM	No information provided	Chinese, no information on where hydropower customers are located	No mention of variable speed, run-of-river hydropower	No intent found on website or by googling name + run-of-river	No information on founding year.	?	No
Wärtsilä	OEM	19,000	Global, Finnish company, with worldwide presence 180 countries	Subsidiary American Hydro Corporation in charge of hydropower business	Subsidiary American Hydro Corporation in charge of hydropower business	Qualifies, Large corporation	?	No
HM Hydro	OEM	400	Japanese, but global presence	Run-of-river in Malawi in 2017 However, HM Hydro builds their own generators.	No intent found on website or by googling name + run-of-river Builds own generators	Qualifies, Established in 2011, but large enough to be	?	No

						considered capable.		
Mavel Americas Inc HM Hydro	OEM / integrator	200	Czech-American. Has done business in Japan	Website includes run-of-river applicability	Website includes run-of-river applicability and suitable power ranges.	Qualifies, Established 1990	?	Yes
Prime Engineering Ltd	OEM	No information provided	Canadian	Not suitable. Firm that specializes in medium and high voltage equipment design			?	No
Wasserkraft Volk AG	OEM	No information provided	German, with presence globally.	All components 100% made in Gutach, Germany. Produces synchronous alternators and turbines. Therefore, will not source from the case company.		1980 It's a stock company	?	No
Weir American Hydro	OEM Wärtsilä's subsidiary since 2016.	241	Global	Variable speed competent. No mention of run-of-river hydropower. Suitable power ranges.	No intent found on website or by googling name + run-of-river	Qualifies, over 30 years' experience	?	No

Table 4. Segmentation of hydropower companies operating in Japan

Company	Industry	Company size	Location	Technology		Customer capabilities	Urgency	Potential
				Current	Intent			
Chugoku Electric Power Company (CEPCO)	Not in hydropower business	9,021	Japan			Qualifies (large enough company, no start up. Processes in check.)	?	No
Chubu Electric Power (Chuden)	Hydropower company	16,086	Japan	Run-of-river with suitable power ranges.	Constructing run-of-river	Qualifies (large enough company, no start up. Processes in check.)	?	Yes
Hokuriku Electric Power Company (Hokuden)	Hydropower company	5,010	Japan	no indication of run-of-river in annual report or googling company name + run-of-river	No intent found on website, in annual report or by googling name + run-of-river	Qualifies (large enough company, no start up. Processes in check.)	?	No
Hokkaido Electric Power Company (HEPCO)	Hydropower company	5,617	Japan	no indication of run-of-river in annual report or googling company name + run-of-river	No intent found on website, in annual report or by googling name + run-of-river	Qualifies (large enough company, no start up. Processes in check.)	?	No
Kyushu Electric Power (Kyuden)	Hydropower company	12,947	Japan	annual report indicates only dam pumped storage hydro power	No intent found on website, in annual report or by googling name + run-of-river	Qualifies (large enough company, no start up. Processes in check.)	?	No

Kansai Electric Power Company (KEPCO)	Hydropower company	21,817	Japan	Run-of-river. However, no power ranges for run-of-river initiatives.	Annual report states that they will explore new business opportunities especially abroad. Run-of-river etc. P. 7 However, no power ranges provided.	Qualifies (large enough company, no start up. Processes in check.)	?	Maybe
Okinawa Electric Power Company (Okiden)	Not in hydropower business	1,535	Japan			Qualifies (large enough company, no start up. Processes in check.)	?	No
Tokyo Electric Power Company (TEPCO)	Hydropower company	42,060	Japan	Run-of-river	Mission to make renewable energy the main source combination. Intent on engaging in overseas projects. Includes run-of-river. However, the power ranges aimed for are too large: 30 – 500 MW.	Qualifies (large enough company, no start up. Processes in check.)	?	No
Tohoku Electric Power (Tohokuden)	Hydropower company	12,189	Japan	They are part of 3.7 MW run-of-river projects abroad,	No intent found on website, in annual report or by googling name + run-of-river	Qualifies (large enough company, no start up. Processes in check.)	?	Yes
Shikoku Electric Power Company (Yonden)	Hydropower company	4,489	Japan	Run-of-river, no indication of power ranges.	No intent found on website, in annual report or by googling name + run-of-river	Qualifies (large enough company, no start up. Processes in check.)	?	Maybe

Table 5. Segmenting the Integrators

Company	Industry	Company size	Location	Technology		Customer capabilities	Urgency	Potential
				Current	Intent			
Voith Hydro	Integrator	19,410	Global	Run-of-river from 1000 kW	Shows intent for run-of-river	Qualifies (large enough company, no start up. Processes in check.)	?	Yes
Omexom	Integrator	No information on website	Global presence	No indication of specific technology	No intent found on website or by googling name + run-of-river	Qualifies, Established in 2000	?	No
Piedmont Hydro Technologies	Integrator	No information on website	USA, presence in USA and Jamaica	Run-of-river	Shows intent on website	Qualifies, 2001 first reported project	?	No
General Electric	Integrator (and OEM)	22,900 (in hydro)	Global presence	Includes variable speed technology and run-of-river The micro solution does not fit the case company's technology, as the system power output is 480 V, 3-phase AC, 50 Hz & 60 Hz. However, GE makes their own generators for hydropower.	Shows intent on website. GE makes their own generators for hydropower	Qualifies (large enough company, no start up. Processes in check.)	?	No
BHI	Integrator	No information on website	Operates in USA and Canada	No indication of specific technology	No intent found on website or by googling name + run-of-river	Qualifies with over 20 year's of experience	?	No
Andritz Hydro GmbH	Integrator (and OEM)	28,700	Global presence	Small hydro mini hydroplants, in suitable power ranges and examples of run-of-river, however, this example exceeds power range. And they have tidal energy possibilities.	No intent found on website or by googling name + run-of-river	Qualifies (large enough company, no start up. Processes in check.)	?	Yes

Canyon Hydro	Integrator	No information on website	Operations only in USA	No indication of run-of-river	No intent found on website or by googling name + run-of-river	Qualifies, in business for over 35 years	?	No
CKD Blansko Holding as,	Integrator	328	55 countries	No mention of run-of-river, only dam type.	No intent found on website or by googling name + run-of-river	Qualifies, operations started in 1948	?	No
Gilbert Gilkes & Gordon Ltd	Integrator	220	England Has supplied to more than 80 countries	Includes run-of-river, but power ranges for run-of-river is not provided.	Shows intent, as run-of-river is listed on website	Qualifies, established 1856	?	Maybe
Hatch Ltd	Integrator	Our global network of 9,000 professionals	Canada head office, Global, no office in Japan	No specific hydropower technology listed on website or googling company name + run-of-river	No intent found on website or by googling name + run-of-river	Qualifies (large enough company, no start up. Processes in check.)	?	No
Lahmeyer International GmbH is now Tractebel Engineering GmbH	Integrator	5,000 ( <a href="https://tractebel-engine.com/en">https://tractebel-engine.com/en</a> )	HQ in Belgium but global presence. Japan not mentioned No hydropower projects in Japan	Does run-of-river schemes but exceeds power ranges for those schemes.	No intent found on website or by googling name + run-of-river	Qualifies, Over 150 year's of experience	?	No
MWH Global In 2016, MWH was acquired by Stantec Consulting Inc.	Integrator	22,000	Canada	Has done run-of-river, with power range of 200 – 600 kW.	No intent found on website, annual report or by googling name + run-of-river	Qualifies (large enough company, no start up. Processes in check.)	?	Yes
Pöyry Energy Ltd	Integrator	4,551	Finland, but global customers	Run-of-river is included in their consulting, but no mention of power ranges.	Run-of-river listed in offering	Qualifies (large enough company, no start up. Processes in check.)	?	Maybe

SNC-Lavalin Inc	Integrator	52,435	Global presence	Power ranges 1 MW - 22,000 MW Includes run-of-river, but no power ranges shown for that specifically	No intent found on website, annual report or by googling name + run-of-river	Qualifies (large enough company, no start up. Processes in check.)	?	Maybe
Stellba Hydro GmbH & Co KG website only in German	Integrator			Website only in German			?	No
Troyer SpA	Integrator	No information on website	Italy	No other technological specifications were found on the website, except that they build medium-voltage switchgear, and the case company wants low-voltage gear. No indication of run-of-river	No intent found on website or by googling name + run-of-river	Qualifies, 80 year's of experience ( <a href="https://www.troyer.it/en/">https://www.troyer.it/en/</a> )	?	No
Fuchun Industry Development	Integrator and OEM	100-200	Chinese, global presence	Currently only dam type.	No intent found on website or by googling name + run-of-river	Qualifies, 30 year's of experience	?	No

## 6 Conclusions

The study is concluded here with answers to the research questions and theoretical implications of the findings are presented. Also, implications for managers are presented as well as limitations of the study and further study recommendations are proposed.

The need for the thesis came from the case company's situation in which the company wanted to find new markets for its technology and assigned this thesis. The goal was to evaluate the technology's market potential before the decision to allocate resources to enter the hydropower market. The decision to enter a market is demanding and the case company wanted support for the decision. The academic literature on market potential pointed towards the possibility to utilize market segmentation in evaluating market potential. In the market segmentation literature, there was a research gap in applying market segmentation, especially in B2B industrial contexts. The study also poses implications for the Earth, as with climate change knocking on Earth's door, the need to find new solutions to carbon free energy production is vital. A procedure for renewable energy companies to evaluate their offering's market potential for new markets is therefore clearly needed.

### 6.1 Answering the research questions

Here, the first sub-question guiding the research is answered, which was:

*What are the key criteria for choosing a market segmentation model to determine market potential in the industrial technology market?*

The key criteria for choosing a market segmentation model to determine market potential in the industrial technology market are listed below.

1. Suitability for finding market potential: The intent of segmentation (Clarke 2009; Clarke & Freytag 2008; Sausen 2005)
2. Suitability for industrial B2B markets (Simkin 2008; Choffray & Lilien 1978; Bonoma & Shapiro 1984; Clarke 2009).
3. Proven application by other researchers (Weinstein 2011)
4. Includes multiple segmentation variables, both macro and micro (Weinstein 2011)
5. Suitability for the case/context: Does not require a lot input and time from company representatives (Clarke 2009)

The key criteria for choosing a segmentation model all supported the use of the Nested Approach as the ultimate model to be used in this case study for the purposes of finding market potential for industrial technology. It is suitable for finding market potential in the B2B context, it had been tested and proven to be applicable by prior studies, it includes multiple bases and it is suitable for the case company's context and resources. Also, the models from which elements were included were all created for the B2B context.

Some segmentation models require collecting data directly from customers on the segmentation bases. On the other hand, literature states that managers find segmentation in B2B markets difficult to implement and the barrier to involving customers in the process may be high. Therefore, the Nested Approach is less invasive and intimidating to use than the customer involvement-rich models in finding out market potential. Also, the Nested Approach model works for market potential with only secondary information. However, once the market potential is shown to exist, and should the case company want to use market segmentation to decide on which customers are most prominent, then the innermost nests should be included in the segmentation. This means that customer involvement would be required. But, for market potential mapping, the model and secondary data are suitable.

Next, the second research sub-question is answered, which was:

*What market segmentation bases are essential in determining market potential in industrial technology markets?*

To answer this question, the effectiveness of each segmentation base in revealing market potential is evaluated. This is done to evaluate which bases are essential in determining market potential in industrial technology markets. The nests Demographics, Operating variables and Situational factors were chosen by the interview with the marketing manager from the case company conducted based on the Nested Approach model. Within the nests the following bases were chosen to be included: Industry, Company size, Location, Technology, Customer capabilities and Urgency.

The macro elements in the Demographic nest were mandatory in demarcating the market area to segment. It provided the geographical area, the company types and sizes to consider in the segmentation. There was a need to set a specific geographical location because it was thought impossible to consider all companies of the world operating in the industries under investigation. The thought premise was that if one wanted to consider the entire world as a possible market, then a series of segmentations would need to be done, because it is not possible to make sound conclusions on the market with the entire world under investigation. However, in the conducting of the segmentation, companies based in

several countries outside of the decided location were considered, for instance European or Canadian companies. These were companies that resulted from searching the chosen company types from search engines. It became apparent during the investigation that there were not a huge number of companies operating in the set industries and that is why companies showing up in search engine results from other locations than the set ones were considered. This brings forth the context dependency of B2B segmentation, which was mentioned as a key aspect affecting the segmentation process in literature. In this thesis, the companies were considered to portray market potential to some extent if they showed signs of operating in the Japanese market. However, in determining market potential, the location base was helpful mostly just to assist in a methodological way in the segmentation and not the key base to determine market potential. The industry base, or company type base, was essential, as it helped methodologically to find the companies capable of using and thus buying the case company's technology.

The Company size base alone did not prove market potential. The Customer capability base, which was measured with year of establishment was linked to the Company size base, as they both indicated how well the company handled processes. These bases were a somewhat key in determining market potential, as no start-ups were considered.

Technology was the most essential base that determined market potential, as even though a company would have matched all other criteria, no business could be done if the technological attributes were not compatible. Ultimately, the segmentation for market potential aimed at finding companies that posed potential in buying the case company's technology, which is what the Technology base represented. On the other hand, even if the Technology base was a match, and all other bases a mismatch, then no market potential was there either. All in all, however it was a sum of all the bases that determined the market potential.

An anomaly amidst the segmentation bases was Urgency in the Situational nest, as none of the companies matched this criterion. This was an example of a micro variable that would have required direct contact with the customer or inside knowledge within the industry. Although a potentially effective base to determine market potential, this one was extremely difficult to verify to exist in any company. It is likely, that this would only become imminent if the customer company itself contacted a supplier and revealed the urgency, just like the example given by the case company manager in the interview.

To conclude, it is very much up to the case company's situation and context as to which segmentation bases are essential in determining market potential. In the case of this thesis,

the Technology base proved to be a key determinant, but it could not stand alone. To draw a complete picture of the market potential in each prospect company, all bases set by managerial intuition needed to be considered. As B2B segmentation is so context dependent, the management of the company should be involved in setting the bases.

Finally, the main research question is answered, which was:

*How can market segmentation be used to reveal market potential for industrial technology?*

From the results of the exploratory study at hand, it can be concluded that market segmentation can be used to reveal market potential or at least insight to market potential in an industrial technology context by choosing an appropriate segmentation model and bases and modifying those to fit the purpose and context of the company. Because of the extreme context dependency of B2B market segmentation, a generalizable solution cannot be presented, but the methods to reach the results can be utilized by other companies. To ensure a full picture of market potential however, it is recommended to conduct further investigation into the competitive landscape as well as the developments of the industry.

## 6.2 Theoretical implications

The goal of this thesis was finding out how market segmentation can be used to find out market potential for an industrial technology. The context of the case study was evaluating market potential for a specific technology in the hydropower market. Therefore, market potential literature was researched, from which Market Opportunity analysis frameworks were found. The requirements were, however, too vast in scope for a thesis, so the focus was magnified into segmentation and it was found that segmentation has been used to find market potential earlier in literature in other contexts. This was the motivation to find out how to best utilize segmentation as a tool for mapping market potential in this case study. The process was described, and challenges discussed to guide other companies in their search for market potential for their service or product offering. This was also called for from prior literature, stating that B2B managers lack clear guidelines on how to conduct market segmentation.

Market segmentation has been studied for decades and there exists plenty of theoretical research papers discussing the methodological issues and models and bases, but very few

studies focus on the actual implementation of any model. This thesis answers this research gap by applying the Nested Approach in a context it has not been applied in before.

Conclusions on market potential could be made already during the process of segmentation rather than the end results of the segmentation. This is a notion that is not mentioned in any literature source. This was because already during the process, some companies could be dismissed as incompatible for the case company. What resulted were not market segments as what is considered by literature as such. Literature defines segments as “categories or segments, each sharing similarities in wants, needs and characteristics and each requiring different marketing strategies as they respond differently to marketing programs” (Kotler et al. 2010, p. 215-216; Kuada 2016; Hollensen 2015, p. 302). What resulted instead was a list of companies that shared similar characteristics that were ideal for the case company. Also, the process was not so much segmenting the market but rather screening it using a segmentation model to find companies matching the ideal customer criteria. Through the process, it was possible to examine the details that the case company is interested in within each prospect company. Segmentation as a process enables companies to collect information on prospects and derive conclusions on market potential. The resulting list of companies could be segmented further by for example DMU characteristics to design effective marketing programs. This aspect is discussed below in section 6.3 Managerial implications.

Also, it can be argued that for the purposes of evaluating market potential it is enough to involve one manager instead of a larger group, because the company is only testing waters at that stage. This is contrary to theory, as most models involved many company representatives. If the company was aiming at segmenting the existing customer base, then a vast understanding of the different customers would be needed, and more managers should be included to utilize the gained knowledge. Furthermore, once the market potential is found, and more specific intentions are the motor for segmentation, including more managers in coming up with the segmentation variables is needed. All in all, choosing of the most appropriate manager(s) or employee(s) to interview for the segmentation base formation is a critical task and should be further researched to reach a definite conclusion on how many and who should be involved for different purposes.

Another theoretical implication is that the marketer does not have to stick to only one segmentation model but can combine features of more than one to serve the needs of the segmenting company, context and intent.

### 6.3 Managerial implications

As the research at hand was initiated to assist the case company's management in the decision to expand to new markets in a new industry, the managerial implications the thesis present are discussed below.

The empirical results of the thesis provide a list of prospect companies that pose market potential to the case company. It has been determined that market potential exists in the hydropower market for the technology of the case company. If the decision to enter the hydropower market is taken, management could analyze each company further by perhaps the inner nests of the Nested Approach. They could use for example DMU characteristics or the buyer's personal characteristics to determine who within the listed companies should marketing be directed at. The companies that can leverage the inner most nests of the Nested Approach are considered to have a competitive advantage (Weinstein 2011, 675). A deeper analysis is supported by the other segmentation models in literature as well.

The location base was according to the interview set to include Japan and EMEA. However, due to methodological reasons, only Japan was considered. Should management be interested in investigating the EMEA region, they can implement the described process to that region.

If the resulting segment of criteria-matching companies is not enough to initiate market entry, a possibility is for the case company to adapt to the market and perhaps consider younger companies such as start-ups, who would be willing to buy the technology. It is also advised for the management to conduct a competitor analysis as well as deeper industry analysis to fully understand the potential in the hydropower market.

### 6.4 Limitations and future research

In this section the limitations of the research are discussed as well as the future research recommendations and implications from the point of view of the case company and theory.

The findings on market potential for the case company's industrial technology are extremely context dependent and therefore cannot be generalized to a wider array of companies. However, should a company sell the exact same technology, they can too benefit from the segmentation results to some extent.

It needs to be stated that even though some segmented companies did not show intent in being involved in run-of-river technology, it does not necessarily mean that they are not or

will not be. In some cases, it may be that the company has decided for some reason to not list the technology type on their website or annual report and thus no articles linking their name and run-of-river was found. Possibly asking directly from each evaluated company would have resulted in a different conclusion.

Other data collection methods could be used to find out more detailed information and information that could not be retrieved as secondary information. For example, questionnaires sent directly to the customers could reveal information that is not visible on the websites, annual reports, news articles or other archives. For instance, technologically specific questions could be asked. On the other hand, customers may not want to answer questions that probe very sensitive information.

In addition, a challenge was the uncertainty of not knowing when there is enough information and when to stop searching for data. This could be a topic of further studying if one wants to study the appropriateness of the Nested Approach in B2B market segmentation. This is also supported by earlier studies.

In answering the main research question, only using market segmentation does not provide a full picture of market potential, even though it does provide insight to some extent. According to market potential literature, one must conduct an industrial and competitor analysis to draw solid conclusions on the market potential of a product. In this study, some conclusions on the industry could be drawn, but a competitor analysis remains lacking.

Moreover, due to using managerial intuition in forming the bases for segmentation, the results can be biased, leaning towards the preconceptions of the one manager interviewed, leaving unrealized opportunities undiscovered.

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## Appendix I. Comparison table of market segmentation models

Publication date	Model / approach & author	Purpose – strategy, new market/product/growth opportunities, segmenting existing customers or entire market?	Procedure	Required resources	Data type(s)	Required access to information	Recommended by literature for
1968	<b>Benefit Segmentation</b> by Haley	-Originally for B2C industry. -Segmenting entire market on benefit sought of the product/service -Each segment is identified by the benefit it seeks and the relative importance it attaches to the benefit -recommends focusing on existing market and not creating new markets	-each customer is categorized according to the benefit they seek from the product / service -They are then segmented further by the descriptive categories like demographics -clear instructions are not provided	-computers to calculate quantitative analyses -managerial intuition can also be used -clear instructions are not provided	Quantitative	-Individuals' opinions -existing descriptive segmentation data	- No mention
1974	<b>Macro and Micro model</b> by Wind and Cardozo (1974)	-industrial market focus -designed for strategic planning of marketing -use of salesforce's knowledge implies that only current market can be segmented, and no new market opportunities can arise.	-funnel procedure -decide most attractive macro criteria e.g. geography for macrosegmentation and conduct segmentation -qualified macrosegments divided further into microsegments based on most attractive DMU characteristics -no instructions on choosing segmentation bases	- secondary sources for macrosegments - data from salesforce on DMU characteristics	-quantitative and qualitative	-existing data on customers for macro -knowledge of salesforce for micro	- No mention

1978	<b>Macro and Micro model focusing on composition of purchasing function</b> by Choffray & Lilien	<ul style="list-style-type: none"> <li>-based on Wind and Cardozo's macro-macro model</li> <li>-focus on finding out influential members in buying DMU and similar DMUs within microsegments</li> </ul>	<ul style="list-style-type: none"> <li>-decide most attractive macro criteria e.g. geography for macrosegmentation and conduct segmentation</li> <li>-qualified macrosegments divided further into microsegments based on most attractive DMU characteristics</li> <li>-no instructions on choosing macrosegmentation bases</li> <li>-Decision matrix used to choose microsegmentation bases</li> <li>-cluster analysis used to find similar companies in terms of DMU composition</li> <li>-defining the roles of decision makers involved in buying process</li> </ul>	<ul style="list-style-type: none"> <li>- secondary sources for macrosegments</li> <li>-data directly from customers</li> </ul>	-quantitative	<ul style="list-style-type: none"> <li>-existing data on customers for macro</li> <li>- primary data directly from customers for micro</li> </ul>	- No mention
1983	<b>Nested Approach</b> by Bonoma and Shapiro	<ul style="list-style-type: none"> <li>-purpose not specifically mentioned, but flexible for many purposes</li> <li>- the focus is on the ideal customer and matching the company's resources to them</li> </ul>	<ul style="list-style-type: none"> <li>- start from outer nests and work towards inner nests</li> <li>- specify which nests and variables are important for the company and purpose</li> <li>- with list of important variables, screen market</li> <li>- all companies that match ideal customer serves market potential for technology</li> </ul>	<ul style="list-style-type: none"> <li>-depending on purpose, not specifically mentioned</li> <li>-if innermost nests variables are considered, data will need to be collected directly from customers</li> </ul>	-depending on purpose: qualitative and quantitative	<ul style="list-style-type: none"> <li>-directly from customers if innermost nests are considered</li> <li>-data on outermost nests' variables can be gathered from secondary sources</li> </ul>	- recommended by Weinstein (2011)

			-does not state who should decide the important variables				
2000	<b>Managerial intuition</b> by Millier	-industrial market focus -can be used to segment market for future opportunities for technology -intuition is used to get a starting point for rationalization -this is a general call for using intuition in segmentation → further study by Palmer & Millier (2004)	- list all possible uses for new technology -intuitively group similar technical uses into applications, that solve the same technical problem - rationalization according to appropriate principles used in mathematical tools e.g. test matrices -rationalization techniques not generalizable to all situations	-intuition is used as a starting point, but no guidelines on who's intuition it is that should be used.	-qualitative and quantitative	- may need access to manager's or customers' intuition	- Palmer & Millier 2004 - managers have been interviewed to form bases in other studies as well
2001	<b>Two-step selection process</b> by Freytag and Clarke (2001)	-Using customer's desire for cooperation as segmentation base -purpose focused on existing customer relationships and finding potential in them -Focus on relationships and networks and to find a good match between supplier's offering and buyer's needs and wants -useful for existing customer relationship analysis	-first segments need to be identified within market according to selected characteristics, according to purpose of segmentation -each company's desires and capabilities are analyzed within each segment -the segments are then evaluated in 4 steps (1. Development in the segment, 2. Resources, 3. Management, 4. Organization) and matched to meet set criteria - the best match is selected as the target segment	-access to data about customers and/or prospects -access to own organization's management's insight	- qualitative and quantitative, however not directly mentioned	-Access to customers' or prospects' needs and wants -requires extensive research on each segment and customer / prospect	- No mention

2008	<b>Segmentation by stealth using buying proforma</b> by Simkin	<p>-purpose is on finding out the most attractive customer segment from the current customers and trying to achieve a competitive advantage</p> <p>-existing customers</p> <p>-managers and customer contact personnel who will be affected by the new segmentation scheme are involved in the segmentation process, meaning they will be more lenient to take on the new segmentation. Hence, segmentation by stealth</p>	<p>-involves six stages and focuses on finding target markets from the existing customer base by grouping them in homogenous segments</p> <p>-cross-functional team of managers describe current customer sectors in workshop setting</p> <p>-each resulting customer sector is analyzed using a buying proforma (Dibb &amp; Simkin,1996).</p> <p>-the customers within each group are broken down until only similar ones remain in each buying proforma</p> <p>- similar customer groups are joined to form new market segments</p> <p>- from the resulting segments, the company can choose which ones to target.</p>	- cross-functional managers and sales personnel	-qualitative	<p>- managers and sales personnel must be involved to gain access to their market and customer knowledge</p> <p>-if uncertainty remains on any proforma items, the researcher must retrieve the information directly from customer</p>	- recommended by Simkin & Dibb (2011)
2009	<b>Clarke's segmentation</b> by Clarke	<p>-flexible purpose</p> <p>-involves many employees and several meetings</p> <p>-focus was on the process, the segmentation bases and involvement of company employees. No specific model was described or used.</p>	<p>Step 1: Identification of Purpose</p> <p>Step 2: Identification of Market to Segment</p> <p>Step 3: Identification of Segmentation Variables and a Segmentation Model</p> <p>Step 4: Segmenting and Analysis</p> <p>Step 5: Verification, Evaluation, and Selection of Segments</p> <p>Step 6: Communication and Implementation</p>	<p>-access to customers for insight on which bases are most valuable</p> <p>-involves many of the company's employees</p>	-qualitative -KJ analysis	-access to customers for insight on which bases are most valuable -involves many of the company's employees	- No mention

			Step 7: Monitoring and Updating				
2016	<b>Multistage market segmentation</b> by Thomas	<p>-The exploratory study at hand focused on finding market opportunities based on customer needs in multistage markets. However, the method could use another base for segmentation.</p> <p>- this is useful, when insight on customer's customers is needed as well as the first level customers (p. 828)</p> <p>-aligning a segment based on customer needs at a market level with another customer segment with similar needs at another market level. (p. 823)</p> <p>-the paper does not argue that this is a superior method, but rather an exploratory study</p>	<p>-marketer needs to decide basis of segmentation</p> <p>-quantitative data from customers and customer's customers need to be collected and analyzed and finally conclusions drawn on whether alignment can be made</p>	<p>-access to customers and customer's customers</p>	<p>-quantitative</p> <p>- questionnaires with importance scale to obtain needs of respondents</p>	<p>- requires data to be obtained directly from customers and their customers</p>	<p>- No mention</p>