A MARKET SCANNING ROADMAP FOR THE BUSINESS DEVELOPMENT OF SMES -A NOVEL APPROACH

Master's Thesis

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ABSTRACT

Small and medium-sized enterprises (SMEs) are constantly looking for new business opportunities to enable sustainable growth. However, this is also seen as one of the biggest challenges for SMEs to achieve. The concept of business development aims to overcome these challenges with the analytical preparation of potential growth opportunities. To be precise, a SME needs to become market oriented by scanning the market for relevant intelligence to anticipate on customers' current and future needs. However, because of time, financial and human resources constraints the methods and tools to do this are generally not available or applicable for SMEs.

This research aims to overcome these obstacles in the form of a newly designed market scanning manual and roadmap. To provide a reliable foundation for this, a literature review was done. This led to the observation that current market scanning sources are not applicable for SMEs. Therefore a new source, Amazon.de, was introduced to obtain the required market intelligence. A market scanning manual provided the different steps on how to analyse the freely available data obtained from Amazon.de with the help of the visualisation software Tableau. The manual was then integrated into a roadmap to underline the linkages between the steps in the market scanning manual and the processes in the company in relation to time, the required resources and company decisions.

To assess its practical significance, the newly designed roadmap was implemented and evaluated within a German SME operating in the consumer goods industry. In the evaluation both the quality and utility of the roadmap could be confirmed. The roadmap provided the SME with thirty-two potential growth opportunities in the form of new products. This more than tripled the SME's product portfolio and exceeded all the beforehand set (financial) goals.

Scientifically, the research found that by combining the different but interrelated concepts of market scanning, foresight and roadmaps, it is possible to create a new method contributing to the business development of SMEs. It was demonstrated that the online data from Amazon.de could be successfully used as a first external market scanning source. Additionally, the roadmap determined that high quality results can be achieved with (very) limited resources. Thus, giving SMEs access to previously unreachable market and foresight intelligence to create sustainable growth.

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List of abbreviations:

Small and Medium Sized Enterprise - SME

Research and development – R&D

New Product Development - NPD

Information Technology – IT

Information Systems – IS

Best Seller Rank – BSR

Design Science Research Methodology – DSRM

Electronic commerce – E-commerce

Asin – Amazon Standard Identification Number

1. INTRODUCTION

In Germany, over 99 percent of the companies are categorised as small and medium-sized enterprises (SMEs) (Venohr, Fear, & Witt, 2015). SMEs are companies which employ fewer than 250 persons and who do not exceed an annual turnover of 50-million euros (European Commission, 2015). These firms are constantly looking for new business opportunities to enable sustainable growth. While growth for a SME is recognised by the literature as an important condition for survival because companies, which enable sustainable growth, are seen as less vulnerable to failure than firms which do not. (Coad, 2009; Forsman, 2008; Gancarczyk & Zabala-iturriagagoitia, 2015; Sørensen, 2012; Stam, Suddle, & Hessels, 2009; Wright & Stigliani, 2013)

Generating growth is most often associated with a company's capability to innovate and the development of new products (NPD). The importance of innovation for economic development was already pointed out by Schumpeter (1934, 1942) and many scholars have confirmed that innovation and NPD are a source of competitive advantage and therefore one of the fundamental elements for a firm to generate growth (Ahuja, Lampert, & Tandon, 2008; Coad, 2009; Eidhoff & Poelzl, 2014; Gupta, Guha, & Krishnaswami, 2013; Wright & Stigliani, 2013). However, in the context of the increasing global competitive environment, highly differentiated customer-needs and saturated markets, in combination with low resources and human capital constraints, growth is also seen as one of the biggest challenges for SMEs to achieve (Eidhoff & Poelzl, 2014; Kotler, 2011; Sørensen, 2012).

An industry that in particular has to cope with these challenges is the consumer goods industry. Consumer goods are finalised products which are distributed directly or through retailers to the end consumer (E.g. Food and consumer electronics) (Tomczak, Reinecke, & Kuss, 2018). The product life cycles of these goods are becoming ever shorter and the high frequency of new arising products and competitors are a constants threat for the firms existence (Chong, Ch'ng, Liu, & Li, 2017; Zhu, 2010).

The concept of business development aims to overcome these challenges with the analytical preparation of potential growth opportunities in already existing markets. To be precise, it concentrates on developing a pipeline of potential innovations or products which have a strategic fit within a company and could be used for (future) commercialisation (Achtenhagen, Ekberg, & Melander, 2017; Lorenzi & Sørensen, 2014; Sørensen, 2012). These potential innovations and products are found through the screening of the market and are evaluated so

that they fit not only strategically, but also financially (Kind & zu Knyphausen-Aufseß, 2007; Lorenzi & Sørensen, 2014). In other words, a firm needs to generate market-intelligence to foresee changes in the market and from this be able to anticipate accordingly on the customers' wants and needs (Eidhoff & Poelzl, 2014). Three concepts from the business literature can be derived from this. First, a SME needs to become market oriented. Second, a SME needs to scan the environment to obtain the market-intelligence and third, to foresee the changes a SME requires foresight tools.

A suggested method to generate market intelligence, is the environmental scanning method. Environmental scanning is the systematic and continuous evaluation of the key forces that drive change in a firms' external environment (Aguilar, 1967). The scanning can not only be applied in a SME foresight exercise but also has a significant positive effect on SMEs and their ability to react to market, customer and product changes (Nyuur, Brecic, & Sobiesuo, 2015). In particular in relation to finding new products and innovations for a firm's product pipeline, the scanning and analysis of technology and market forces have an important impact (Yoo & Sawyerr, 2014). However, market scanning is still relatively resource demanding and the external sources, from which scanning exercises can obtain valuable information, are hard to access (Franco, Haase, Magrinho, & Ramos Silva, 2011). Nevertheless, there are uncharted opportunities with online sources as input for the market scanning (Kayser & Blind, 2017). Yet, in relation to market forces, this has not been demonstrated.

Concerning foresight, there are many, often used tools available to create foresight in technology and innovation management, but it is generally limited to larger corporations. Nonetheless, there is a substantial need for foresight methods which can be used by SMEs, but there is little research that actually provides these (Jannek & Burmeister, 2007; Vishnevskiy & Egorova, 2015; Vishnevskiy, Karasev, & Meissner, 2015; Will, 2008). Vishnevskiy and Meissner (2015) state that existing foresight methods have been extensively researched in the literature and despite that, based on theoretical grounds, they show great potential for larger companies, they are almost never available or applicable for SMEs. Two main reasons are given for this. First, foresight methods are complex and companies need to invest considerably into this process. Not only financial capital, but also human and time investments are required. (Vishnevskiy, Karasev, & Meissner, 2015; Vishnevskiy & Egorova, 2015; Will, 2008) Second, the time horizon of SMEs is smaller than that of larger companies. Larger companies have the resources to look further into the future and have a research and development (R&D) department to anticipate on the results of their foresight exercise. SMEs on the other hand need

more short-term predictions to be able to immediately react on their immediate surroundings (Ejdys, 2014; Vishnevskiy & Egorova, 2015; Will, 2008).

Thus, for the business development of SMEs it is important to become market oriented and foresee changes in the market but also be able to anticipate to these changes accordingly. Consequently, the existing foresight methods used by larger companies need to be more simplified and result oriented in order for them to be useful for SMEs (Jannek & Burmeister, 2007; Vishnevskiy & Egorova, 2015). A simple but reliable methodological toolkit for SMEs to scan and create foresight in the market is therefore appreciated (Jannek & Burmeister, 2007; Vishnevskiy & Meissner, 2015; Will, 2008).

To support SMEs with the implementation of the methodological toolkit and its results, it is suggested to visualise the steps in a manual or roadmap (Vishnevskiy & Meissner, 2015). This is an often used tool to provide firms with a visual representation of the right steps and focus (Kayser & Blind, 2017; Robert Phaal, Farrukh, & Probert, 2004; Will, 2008). The roadmap method is a flexible technique that provides a structured and multi-layered graphical representation of a firm's foresight and market scanning plan and can therefore explore and communicate relationships between markets, products and technologies. Through visualising these steps it becomes easier to maintain the desired direction of a firm to reach its goals (Carvalho, Fleury, & Lopes, 2013; Jun, Seo, & Son, 2013; Phaal, Farrukh, & Probert, 2004; Phaal & Muller, 2009). Especially in relation to SMEs and enabling growth, using a roadmap can be helpful to provide a clear step-by-step guideline to find and implement market intelligence into the company (Vishnevskiy & Egorova, 2015).

Because of the absence of a suitable market scanning foresight method for SMEs, the creation of a pipeline with new innovations and products is not easily achieved. For this reason, the key focus of this research is to fill this gap by designing a suitable methodological toolkit in the form of a roadmap for the business development of SMEs in Germany. The purpose of this roadmap is to provide SMEs with a step-by-step approach on how to easily and cost effectively scan the market to fill their business development pipeline with new innovations and products for immediate or future commercialisation.

The scope of the research will lie with the consumer goods industry, which includes the retailers as well as the producers. There are two main reasons for this. First, online information about consumer goods is easily accessible and there are many large Electronic commerce (E-commerce) platforms, such as Amazon, on which consumer goods products are offered. This platform shows great potential as a source for the market scanning information because of its

size and openly available market intelligence. Second, the consumer goods industry has to cope with rapidly changing markets in which product lifecycles are becoming shorter, new products arise more frequently and new competitors are a constant threat (Chong et al., 2017), therefore their time horizon has a maximum of 2 years (Hammoud & Nash, 2014), which is in accordance with SME foresight time-horizon (Vishnevskiy & Meissner, 2015). Consequently, the new method will be more challenged to provide SMEs with new products and innovations for their pipeline. Therefore, the new methodological toolkit will be best applicable by German SMEs operating in the consumer goods industry.

This leads to the following research question:

Research question: *How can a roadmap be designed to efficiently scan the market for the business development of German SMEs operating in the consumer good industry?*

Because the objective of this research is to deliver a new, cost-effective, reliable method, the design science research approach will be leading in the structure of this paper (Gregor & Hevner, 2013). The abovementioned purpose and scope of the research explained why the new method is relevant to apply. With a literature review, the prior theories, empirical studies and findings will be elaborated on to assure that the new method is actually novel and innovative. To guide the literature review, four sub-questions will be answered:

1. *"What is business development and its relation to market orientation?"*
2. *"What is market-scanning and from which sources is the market-scanning intelligence obtained?"*
3. *"Which current foresight methods are available for SMEs and what are their advantages and limitations?"*
4. *"How can roadmaps contribute to the implementation of a new market scanning method and its results?"*

The literature review will provide a reliable foundation and motivation for the further development of the method. Furthermore, it will contribute to a better understanding of the current problem as well as create the objectives for a solution.

Thereafter, the methodological six-step design science approach will be discussed (Peffers, Tuunanen, Rothenberger, & Chatterjee, 2007). This will lead to the chapters that explain the new market scanning method and corresponding steps in the roadmap. Accordingly, the new roadmap will be demonstrated and evaluated through a case study in a SME operating in the

consumer goods industry. The last chapter will present the most important conclusions and contributions as well as limitations of this research.

2. LITERATURE REVIEW

The literature review will analyse the current and relevant literature to provide a foundation and motivation for the development of the new method. The method should provide SMEs with q cost, human and time effective way to fill the pipeline with new products and innovations. Although, business development, market-orientation and foresight are closely related concepts, it is essential to find how they are related and where opportunities can be found to provide a foundation for its development. First, the concepts of business development and its connection with market orientation and scanning are discussed. Then, a further analysis of the market scanning is made, the sources from which the market intelligence is obtained. The third paragraph elaborates on the current SME foresight methods and their advantages and limitations. From this the connection with roadmaps is presented. The contribution of roadmaps to the implantation of a new market scanning method and its results is explained so that the right direction, type and form of the roadmap can be selected for the new method.

2.1 BUSINESS DEVELOPMENT AND MARKET ORIENTATION

In this chapter the concept of business development is explained and how it is connected with market orientation. To answer the sub-question "*What is business development and its relation to market orientation?",* the concept of business development is elaborated on with several definitions on how the literature sees business development and which definition is most appropriate. Second, the connection is made with the market orientation concept and how market intelligence is obtained through scanning.

2.1.1 BUSINESS DEVELOPMENT

Business development is a concept derived from practice and has not received much academic attention yet (Achtenhagen et al., 2017; Eidhoff & Poelzl, 2014; Kind & zu Knyphausen-Aufseß, 2007). However, in the business world it is a widely spread term with thousands of job applications asking for business developers and several universities offering a business development master (Achtenhagen et al., 2017; Eidhoff & Poelzl, 2014) Although, there is not yet a consensus about the exact definition of business development, there are several researchers who defined the concept in their paper. (Achtenhagen et al., 2017; Davis & Sun, 2006; Eidhoff & Poelzl, 2014; Kind & zu Knyphausen-Aufseß, 2007; Sørensen, 2012).

First, Kind and zu Knyphausen-Aufseß (2007) define business development, in relation to the biotechnology industry, quite detailed. They state that business development has the

principle task to prepare and realize input, throughput and output deals. Input deals are new external technologies and/or products that can fill the R&D pipeline for a company when the internal sources do not suffice. The throughput deals are related to increasing the value of the products and technologies that are already produced by the company through R&D and the output deals are concerned with the commercialisation of the products and technologies. Thus, business development includes all activities with the intention to create value and revenue for the company, developing new products and technologies or the establishment and maintenance of new relationships with potential customers, partners and other stakeholders. (Kind & zu Knyphausen-Aufseß, 2007)

Next, Davis and Sun (2006) have a different definition of business development. They define business developments processes and skills to identify opportunities for the firm to enable growth through the expansion or extension of existing product-markets. Moreover, it aims to provide additional guidance for the deployment of resources to expand the firm's value-creation activities in new technological or market areas. They state that the leading business development functions are finding profitable opportunities in business networks, recognizing and being able to respond to customer needs, developing and maintaining partnerships and the support for the new product development. Moreover, they describe business development as an essential factor for enabling organisational growth. (Davis & Sun, 2006)

In the context of micro-firms, Achtenhagen et al. (2017) propose an extended definition of business development which focusses more on the challenges of resource constraints of micro firms. They suggest that business development activities are more focussed on value creation through the internal and external resource base. Moreover, the support activities obtain the required financial and human recourses and organise this through talent management and suitable organisational structures and processes.

Lastly, a more general definition is given by Sørensen (2012). He defines business development as "*The tasks and processes concerning analytical preparation of potential growth opportunities, and the support and monitoring of the implementation of growth opportunities but does not include decisions on strategy and implementation of growth opportunities.*" (p.1). He emphasizes on three aspects in this definition. First, business development is concerned with both the horizontal as well as the vertical coordination within the company. Meaning, that all departments and functions need to be addressed in the business development process. The stated tasks and processes do not only focus on the internal aspects of a company, but also the external parts. Second, he explains that business development is

essentially the preparation and evaluation of a continuous stream of potential innovations or products that, in operational terms, have a strategic fit but do not (yet) fit with the strategic budget. Thirdly, in business development there is a clear distinction between the planning phase of a potential growth opportunity and its actual implementation. Thus, the decision to implement the new growth opportunity or product lies with the management and is not included in the process of business development. (Sørensen, 2012)

Because the definition of business development by Sørensen (2012) is relatively clear and applicable to most industries, this will be leading for this research. However, he does not provide the content of these tasks and processes concerning the analytical preparations and how to find the potential growth opportunities accordingly. The research of Eidhoff and Poelzl (2014) elaborates more on this aspect. They state that the key to finding potential growth opportunities lies with having strategic foresight in the market in which the company operates. Specifically, foreseeing changes in the market and customer needs, while at the same time shaping fitting innovative strategies to these developments. In other words, the company needs to become market oriented and collect market intelligence in the form of current and future customer needs and consumer habits, product and market trends as well as the capabilities and strategies of competitors (Slater, Mohr, & Sengupta, 2010). This is confirmed by the empirical research of Reijonen (2014), who provided evidence that SME's with a higher intention to grow belonged to the more market-oriented companies, but also that if SME's want to grow, they should look for specific support, in the form of tools, methods and trainings, to become more market oriented. Therefore, the concept of market orientation and scanning will be further elaborated on in the following paragraphs.

2.1.2 Market Orientation and Scanning

Market orientation is a marketing concept, first defined by Kohli and Jaworski (1990) as the extent to which a firm generates market intelligence, distributes this inteligence within the company and the know-how of how to respond to the gathered intelligence. The concept of market orientation has been studied intensively over the years and a signifcant body of research demonstrates a positive effect on a firm's performance when they are more market oriented (Kirca, Jayachandran, & Bearden, 2005).

Concerning the generation of market intelligence, this is the part of market orientation that has changed the most in the last decades. Kohli (2017) elaborates more on the changes of market orientation in a digital world. He points out that with the availability of the internet, it has become cheaper, easier and faster to generate certain forms of market intelligence. Although,

the richness of information can create valuable insights, it simultaneously can create information overload. Currently, there is such a vast amount of data available that the information flow can cause "paralysis by analysis", meaning that the amount information is so large that it becomes more difficult to scan markets and be able to generate and process usable insights and intelligence from it (Kohli, 2017). Moreover, SME resource constraints in combination with complex and diverse markets make it almost impossible to scan markets entirely. Therefore, scanning efforts on the market forces should be adjusted to the encountered critical issues based on the strategy of the firm. One suggested approach by Slater et al. (2010) is to adjust the collection and use of market intelligence on one of the four different strategy types based on the typology of R.E. Miles et al. (1978) , namely the firm being a *prospector* (product leader), *analyser* (fast follower), *low-cost defender* (operational excellence) or the *differentiated defender* (customer intimacy) (R. E. Miles, Snow, Meyer, & Coleman, 1978; Olson, Slater, & Hult, 2005; Slater et al., 2010).

According to Slater et al. (2010), there are different market scanning approaches in relation to obtaining market intelligence. First, *prospectors* have the strategy of being product leader and are therefore constantly seeking to locate and utilize new product and market opportunities. Its market scanning should emphasise on the generation of pro-active customer intelligence and innovation development which can lead to new improvements for current customers or the development of new products to penetrate new markets.

Second, the *analysers* occupy an intermediate position as a fast follower. They cautiously follow the *prospector* into new product and market domains. When the *prospector's* first move is perceived as successful, *analysers* try to improve upon this product/service offering while at the same time protecting and maintaining a constant set of customers and products. *Analysers* must therefore closely monitor customer reactions to the offerings of prospectors as well as be actively scanning the competitor's activities, successes and failures.

Lastly, both the *defender* strategies attempt to seal off a portion of the total market by creating a stable set of products and customers. *Low-cost defenders* focus on producing goods or offering services as efficiently as possible to be able to provide their customers with the best prices. While *differentiated defenders* accomplish this by implementing superior product quality or services. Successful *low-cost defenders* focus their market intelligence gathering on the processes, supply chain and competitors rather than on product innovations. Moreover, the competitor intelligence makes it possible to compare all costs, prices and performance with the competitor. The *differentiated defender* however emphasises on the generation of customer

intelligence to be able to establish a strong customer relationship. Thus, for companies to monitor or scan the market to generate market intelligence, it is important to realise which approach and strategy they are holding and which market intelligence is therefore important for them to obtain. (R. E. Miles et al., 1978; Olson et al., 2005; Slater et al., 2010).

On the whole, business development is in practice a big part of the business world but has not been widely discussed by the literature. Although most definitions of business development are quite distinct, there is a consensus regarding the objective of business development, namely the identification and realisation of sustainable growth (Achtenhagen et al., 2017; Davis & Sun, 2006; Eidhoff & Poelzl, 2014; Kind & zu Knyphausen-Aufseß, 2007; Lorenzi & Sørensen, 2014; Sørensen, 2012). Although, in micro firms business development growth is focussed on finding human and financial resources (Achtenhagen et al., 2017), the more general approach is concerned with filling the companies' pipeline with possible new products and innovations that have a strategic and (future) financial fit for the company (Davis & Sun, 2006; Eidhoff & Poelzl, 2014; Kind & zu Knyphausen-Aufseß, 2007; Lorenzi & Sørensen, 2014; Sørensen, 2012). Thus, business development focusses on the tasks and processes concerning the analytical preparations of growth opportunities and the monitoring and support of the implementation of these developments. To do so, it is essential for SMEs to become market oriented and foresee and anticipate on changes in the market and customer needs (Eidhoff & Poelzl, 2014; Sørensen, 2012). However, with the current overload of market intelligence that is available (Kohli, 2017), an important aspect of gathering market intelligence through market scanning is knowing on which essential forces to focus that fit with the strategy of the company. Therefore, a SME should be aware of the type of strategy they carry out in the form of *prospector*, *analyser* or one of the *defenders* (R. E. Miles et al., 1978; Olson et al., 2005; Slater et al., 2010) and which market intelligence it should collect in the form of current and future customer needs and consumer habits, product and market trends as well as the capabilities and strategies of competitors (Kohli & Jaworski, 1990; Slater et al., 2010).

2.2 SCANNING THE MARKET

As mentioned in the previous paragraph, market scanning is the method to obtain market intelligence by analysing critical issues based on the strategy of the firm (Kohli, 2017; Kohli & Jaworski, 1990; Slater et al., 2010). This paragraph further explains the market scanning concept and its relation to environmental scanning by answering the sub-question *"What is market-scanning and from which sources is the market-scanning intelligence obtained?"*. Furthermore, it is clarified how market scanning is and can be used by SMEs that are in the

process of developing new products and innovation. Lastly, the sources that are beneficial for firms to be used for market scanning is elaborated on.

2.2.1 Environmental Scanning and Sources

Market scanning is a concept which is part of the environmental scanning method. Environmental scanning involves the systematic and continuous evaluation of the key forces that drive change in the firms' external environment. These are the economic, regulatory, political, social, market/industry and technology forces (Aguilar, 1967; Albright, 2004; Hambrick, 1982; Paliokaitė, Pačėsa, & Sarpong, 2014). Because the environment is complex and interconnected, it is difficult to scan it as a whole (Yoo & Sawyerr, 2014). Therefore, it has been divided into two broad sectors, namely the task environment and general environment. The task environment, or also immediate or inner environment, consist of the aspects that directly influence a company on the short term, such as the technological and market/industry forces (Daft, Sormuren, & Parks, 1988; Duncan, 1972). The economic, regulatory, political and social forces are related to the general environment. Because of the rapid changes, greater uncertainty and the direct influence of the task environment on companies, it is considered more important than the general environment. The general environment influences a company, but in an indirect and less frequent manner (Daft et al., 1988).

This is also found in the context of technology-SMEs and the new product development process. Yoo and Sawyerr (2014) state that the task environment had a significant positive influence on the process of developing new products while the general environment did not. This is explained by the fact that the general environment in most developed countries is quite stable and does not constantly affect firms. While the direct market, with a focus on the competitors, customers and technology, does influence them (Yoo & Sawyerr, 2014).

However, obtaining the right information from the right sources is still difficult. As mentioned in the previous paragraphs, SMEs are confronted with resource constraints. Because of this, SMEs often miss the infrastructure to suitably and effectively search, collect and analyse information in a broad manner (Liao, Welsch, & Stoica, 2008). As a result, they often have to settle for an informal and unstructured scanning exercise of internal sources, such as its sales team, customers and suppliers (Robinson & Simmons, 2017). Because of the lack of infrastructure within the company, the scanning of these sources is often done intuitively by the managers of SMEs and not necessarily in a structured manner (Liao et al., 2008). As a consequence, the scanning capacity of SMEs and the ability to cover more available information sources is reduced (Franco et al., 2011; Haase & Franco, 2011), which not only

makes it likely for SMEs to miss out on new opportunities and more apt to fail at guarding themselves against possible external threats (Strandholm & Kumar, 2003). Because the broader the information search and more thorough its evaluation, the more insights about consumer and market needs are identified (Börjesson, Dahlsten, & Williander, 2006).

To do so, it is important to look into the sources that are used for the scanning method. Haase and Franco (2011) investigated this based on the industry and size of the company. They found that SMEs mostly obtain their scanning information from their own suppliers and customers, the internet and specialised publications, but they do not specify which internet sources exactly. Rajaniemi (2007) observed that news websites, online patent information and online company pages and their financial reports show the most potential for scanning efforts. This is confirmed Gök, Waterworth and Shapira (2015), who state that novel insights can be found with analysing and obtaining information from competitors' websites to detect new possible innovations. But, the authors also all recognise that this is still a big process. It is relatively time and resource demanding to find the relevant web pages, collect and analyse these different pages thoroughly and process the information into the company (Gök et al., 2015; Rajaniemi, 2007).

Nonetheless, uncharted opportunities can be found in combining the text and data mining of freely available online web content with environmental scanning (Asur & Huberman, 2010; Cachia, Compañó, & Da Costa, 2007; Gök et al., 2015; Kayser & Blind, 2017; Yoon, 2012). But instead of analysing several data sources on the web as Rajaniemi (2007) suggested, better results could be booked with the focus on one page that contains large amounts of relevant and useful information. For example, research shows that to obtain intelligence about the social forces, specific social media outlets such as Twitter, YouTube or Facebook can be used (Cvijikj & Michahelles, 2011; Kaplan & Haenlein, 2010; Kayser & Bierwisch, 2016) while in case of scanning the technological forces, online patent databases, scientific publications and standards are consulted and analysed (Jeong & Yoon, 2015; Kayser & Blind, 2017; S. Lee, Yoon, & Park, 2009).

Even though the abovenamed uncharted opportunities show great potential, it is not easily applied in SMEs which are in the business development process. As stated by Yoo and Sawyerr (2014), the social forces do not necessarily have a direct positive influence on SMEs which are in the process of finding new innovations or products. On the other hand, the scanning and analysis of patent and scientific data is a very advanced and resource demanding method. Although it can be customised to be useful for SMEs, as shown in the research of Y. Lee, Kim, Song, Park and Shin (2014), the whole process is still too complicated for most SMEs and most

likely too big of a resource burden as well. Moreover, their described method looks relatively far in the future, too far for most SMEs to be useful (Vishnevskiy & Egorova, 2015).

Be that as it may, the use of freely available web content in relation to the market forces has not been thoroughly researched or demonstrated in the literature. This could provide the missing piece that is necessary to provide SMEs with the benefit of market scanning of external sources. Therefore, a new external source of freely available web data should be analysed and used as the basis in the market scanning process to provide SMEs with a better potential of scanning the broad market forces. To specify for this research, the new source should be able to help answer the research question (Kayser & Blind, 2017), which is to provide German SMEs operating in the consumers good industry with a market scanning roadmap that will contribute to their business development. With this in mind and the lack of examples shown in the literature, it is appropriate to introduce a new external source that can be used for scanning the market forces.

On the whole, environmental scanning is an effective way to analyse the forces that influence a company, but because of resource constraints, SMEs are mainly restricted to scan information from internal company sources in a intuitively and unstructured manner (Franco et al., 2011; Haase & Franco, 2011; Liao et al., 2008). Whereas the broader the information search and its evaluation, the more insights a SME receives and the quicker it can react to threats and opportunities (Börjesson et al., 2006; Strandholm & Kumar, 2003). Research shows that for SMEs it is more relevant to scan the task environment because of the more direct and short term influence it has on firms (Daft et al., 1988). Specifically, when SMEs are looking to find new products or innovations, the technological and market forces can have a significant influence on the process (Yoo & Sawyerr, 2014).

Be that as it may, scanning external sources for SMEs is still a difficult procedure. Nonetheless, research shows that uncharted opportunities can be found with freely available online sources which can often be scanned easily and economically. However, the use of online sources has mainly been applied in relation to the social forces (e.g. Asur & Huberman, 2010) and the technological forces (e.g. S. Lee, Lee, Seol, & Park, 2008), for which both have been considered too much of a resource burden. Additionally, the social forces are mostly considered as irrelevant for SMEs because of the far in the future influence. Despite these findings, the scanning of online sources shows the best potential and has not been properly demonstrated in relation to the market forces. Therefore, opportunities lie with finding a new online external source that can be scanned to obtain information about the market forces.

Accordingly, an extra chapter will be added to further elaborate on a new source for the market scanning that helps with answering the research question of this research (Kayser & Blind, 2017).

2.3 SME FORESIGHT METHODS

Foreseeing changes in the market is an essential part of business development and enabling growth (Eidhoff & Poelzl, 2014; Sørensen, 2012) and it has been proven that knowing possible current and future customer and market needs has a positive effect on a firms performance (Kirca et al., 2005; Slater et al., 2010). As mentioned in the previous paragraph, market scanning is used to obtain this market intelligence. However, to obtain the intelligence about future customer and market needs another concept needs to be addressed, namely the concept of foresight. This chapter will answer the question "*which current foresight methods are available for SMEs and what are their advantages and limitations?"* in two parts. In the first part a short introduction into foresight is given and secondly what its implications are for SMEs.

2.3.1 FORESIGHT

Foresight is a concept that helps companies to be ready for the future based on current available information (Horton, 1999; Kayser & Blind, 2017; Martin, 2010; I. Miles, 2010; Voros, 2003). However, because it is related to future events, it is also a difficult concept to grasp. The paper of Liebl and Schwarz (2010) explains that the basis of foresight originates from earlier management tools and systems, such as environmental scanning, monitoring and early warning, for predicting the future. Today, it is most often referred to as strategic, corporate or organizational foresight. All these concepts have the same underlying principles in which the main goal is to detect those weak signals of change, which are presumably going to influence the (long-term) future of an organization and the environment in which it operates. Kayser and Blind (2017) define foresight in a similar way but instead of today's signals they look at today's decisions and actions to study the possible and plausible future of an organisation and its environment. Meaning, that the future cannot be predicted by itself but it is shaped by events that are happening today. Another key point of foresight is indicated by Gracht, Vennemann and Darkow (2010) who state that the concept has a significant contribution to (new) product development and the innovation pipeline of a corporation.

Different (semi-) quantitative and qualitative foresight methods are used depending on the focus or the scope of the foresight exercise (Popper, 2008). The more basic methods, among others, are brainstorming, literature reviews or S.W.O.T.-analyses which are relatively easy to

carry out while the more complicated ones, like the Delphi method, trend extrapolation or patents analysis, require significant time, human and financial investments (for a complete overview of foresight methods see Appendix 1) (Kayser & Blind, 2017; Popper, 2008).

Furthermore, Kayser and Blind (2017) observed that the methods of foresight are generally based on patent and publication data, literature analysis or expert opinions and not so much on other data sources. Other, often ignored, sources should be considered as input for the foresight method as well. For instance, the end consumers can have a substantial impact on the future of SMEs (Jannek & Burmeister, 2007), while web data is also rarely considered as input for a systematic analysis (Cachia et al., 2007; Kayser & Blind, 2017; Yoon, 2012).

Although, there are studies which combine Twitter with foresight (Kayser & Bierwisch, 2016) trend analysis with Google (Choi & Varian, 2012) and foresight with social media (Asur & Huberman, 2010), the current literature has not yet elaborated on the different possibilities when it comes to other information sources from websites and web content as an input for the foresight method (Kayser & Blind, 2017). Together with the findings in the previous paragraph, there are uncharted opportunities in combining foresight with text and data mining, especially in respect to the scanning of freely available online web content (Jin, Jeong, & Yoon, 2014; Kayser & Blind, 2017; Kayser, Goluchowicz, & Bierwisch, 2014).

2.3.2 FORESIGHT IN SMES

Although, foresight is an often-used tool for strategic, technology and innovation management, most of the above-mentioned methods by Popper (2008) and sources of input named by Kayser and Blind (2017) are limited to larger corporations. This is not only recognised by the literature but also noticeable through the lack of attention SME foresight has been given by the academic world (Jannek & Burmeister, 2007; Vishnevskiy & Egorova, 2015; Vishnevskiy et al., 2015; Will, 2008). Vishnevskiy and Meissner (2015) state that existing foresight methods have been extensively researched in the literature and despite that, based on solid theoretical grounds, they show great potential for larger companies, they are rarely available or applicable for SMEs. There are two main reasons for this. First, foresight methods are complex and companies need to invest considerably into this process. Not only financial capital, but also human and time investments are necessary, which SMEs often lack. (Vishnevskiy, Karasev, & Meissner, 2015; Vishnevskiy & Egorova, 2015; Will, 2008) Second, the time horizon of SMEs is smaller than that of larger companies. Larger companies have the resources and time to look further into the future and are able to align this with their R&D department to anticipate on the results of their foresight exercise. SMEs on the other hand need

more short-term predictions to be able to immediately react on their surroundings. Their required time horizon is between 6 months and two years while larger companies have one of several years or even decades (Ejdys, 2014; Vishnevskiy & Egorova, 2015; Will, 2008).

At the same time the available research does show that there is a substantial need for foresight methods that can be used by SMEs (Jannek & Burmeister, 2007; Vishnevskiy et al., 2015; Will, 2008). The researchers Jannek and Burmeister (2007) found that when SMEs are using foresight, that they are mostly systematic and basic activities to support their strategic planning and innovation management. Besides, this is not motivated by the need for long term planning cycles, but for the companies to be able to alternate their strategies to respond to the constantly changing market and business environment in which they operate or as tool to support new product launches (Jannek & Burmeister, 2007; Vishnevskiy & Egorova, 2015). Nonetheless, the range of methodologies for SME foresight is smaller and a simple but reliable methodological toolkit to create foresight in the market is therefore appreciated (Jannek & Burmeister, 2007; Vishnevskiy & Meissner, 2015; Will, 2008).

The paper of Vishnevskiy and Egorova (2015) assessed the foresight methods that could be adopted by SMEs based on the efficiency and costs of each method. They state that although traditional market analysis methods such as literature reviews, brainstorming, S.W.O.T. analyses, interviews, desk research and workshops can provide SMEs with a low-cost insight on how to respond to the challenges of a constantly changing market, they are also characterised by low efficiency and a fragmented view of the future and current environment of the market in which the SMEs operate (Vishnevskiy & Egorova, 2015; Vishnevskiy & Meissner, 2015). To provide SMEs with a more complete picture, they suggest a two-step approach in which the traditional market analysis tool is combined with a more sophisticated method, such as benchmarking, environmental scanning and stakeholder analysis. By combining two methods into a roadmap, a low-cost but highly informative integral foresight document can be provided to SMEs (Vishnevskiy & Egorova, 2015; Vishnevskiy & Meissner, 2015). This is confirmed by other scholars, who also stress that the best foresight result is created by combining two or more methods to establish a more thorough image of possible future market events (Kayser & Blind, 2017; Popper, 2008; Vishnevskiy & Meissner, 2015). In particular, the environmental scanning method is considered to be one of the most important methods in a foresight exercise (Vecchiato, 2015) while it has a significantly positive effect on the success of new product development and innovations. Not only in larger companies (Daft et al., 1988), but in SMEs as well (Yoo & Sawyerr, 2014). Moreover, Nyuur, Brecic, and Sobiesuo (2015) found that

when SMEs use environmental scanning as a foresight method, that it has a significant positive effect on their ability to change their strategy in relation to products as well as improving the reaction time on changing market and customer needs.

Thus, environmental scanning is applicable and available for SMEs as a foresight method. Although, this method requires additional resources, it provides SMEs with highly informative data that the other traditional market analysis tools cannot (Vishnevskiy & Egorova, 2015). Moreover, to find new products and innovations for the pipeline of SMEs by collecting market intelligence, the method of market scanning is most appropriate.

To summarise, foresight is a hard to grasp concept that can help companies be ready for the future based on current available information (Horton, 1999; Kayser & Blind, 2017; Voros, 2003). However, it is not always available or applicable for SMEs because of resource constraints of SMEs (Jannek & Burmeister, 2007; Vishnevskiy & Egorova, 2015). This is caused by the overall complexity of foresight exercises which make it a human, time and financial resource demanding process. Additionally, SMEs have a need for more short-term predictions to immediately react on their surroundings (Vishnevskiy & Meissner, 2015; Will, 2008).

Nonetheless, research does show that there is a need for a foresight method that is usable and applicable by SMEs (Jannek & Burmeister, 2007; Will, 2008) and that there are uncharted opportunities in the foresight process which could provide SMEs with this method. First, the use of the market scanning method is advisable and applicable for SMEs to use and when applied properly, it can provide the information that is needed for the business development (Yoo & Sawyerr, 2014) Second, information needed as input for the foresight method could be obtained from freely available web content retrieved though data or text mining. This is rarely considered as a source for foresight process but shows great potential, especially in combination with the concept of roadmapping (Jin et al., 2014; Kayser & Bierwisch, 2016; Kayser & Blind, 2017). Third, the end consumers have a big impact on SMEs as well and information gathered from their behaviour could give valuable insights (Jannek & Burmeister, 2007). Thus, when a SME foresight exercise is considered, it should provide a low resource demanding and short-term prediction through environment scanning methods while the information obtained should be provided by internet sources, the end consumers or both.

Lastly, when a foresight tool is applied, it is advised to process this into a roadmap to provide SMEs with a clear and understandable document. The following paragraph will

elaborate more on the concept of roadmapping and how it can provide SMEs with a clear and understandable manual to scan the market for future and current developments.

2.4 ROADMAPS AND EXTERNAL SOURCES

To provide SMEs with a complete foresight document and a focus for the market scanning (Robert Phaal et al., 2004), it is advised to combine the market scanning method with the development of a roadmap to provide the right direction (Vishnevskiy & Egorova, 2015). To elaborate more on this, the question *"How can roadmaps contribute to the implementation of a new market scanning method and its results?"* will be answered. To do so, this paragraph is divided into two parts. First, a general introduction into roadmapping is given and how they are designed and used in different contexts. Second, the combination of roadmaps, market scanning and the use of external sources is elaborated on. Special attention is given to the methods that are used to help implement information from external sources into the roadmapping process.

2.4.1 AN INTRODUCTION INTO ROADMAPS

By general definition, a roadmap demonstrates a method for pursuing the desired direction to successfully achieve a specific goal (Jun et al., 2013). The first roadmapping approach was developed by Motorola to improve the company's alignment between technology and innovation (Willyard & McClees, 1987) and was therefore called a technology roadmap. Since then, many companies, governments and institutions adopted the method (Phaal, Farrukh, & Probert, 2009). The approach is a flexible technique that provides a structured graphical representation of a plan or method which explores and communicates relationships between markets, products and technologies over time (Carvalho et al., 2013; Robert Phaal et al., 2004). The main benefit of roadmapping is that it provides companies with a clear overview to make better decisions by identifying gaps in the market and be able to align the companies technology to this (Garcia & Bray, 1997). Besides the technology alignment of firms, the approach is also used for many different other purposes. Not only in relation to company specific aspects such as marketing, strategy, business and innovation (Robert Phaal et al., 2004), but also to visualise relationships between processes for the implementation of new methods or concepts into firms (Kumar, Antony, & Tiwari, 2011; Rathore, 2009). Hence in this research it will be referred to as *roadmapping* instead of *technology roadmapping*.

Because roadmapping is a flexible technique, the graphical representation can differ depending on its indented use. Not only the shape and format of the roadmap can differ in form, but also the direction of the roadmap can be different (Phaal, Farrukh, & Probert, 2007; Robert

Phaal, 2004). The two main directions are the market pull approach, which considers market demand as the major driver of the roadmap, and the technology push approach, which starts with the most important technologies or innovations and tries to identify the needs in the market that could address the use of these new technologies (Phaal et al., 2004; Vishnevskiy et al., 2015). In the case of SMEs, the market pull direction is most appropriate because of their short-term planning and lack of resources. Therefore, it is more fitting to look at the market first and produce a product from the intelligence that is obtained from this (Arsher, Finch, & Bunduchi, 2012; Gindy, Cerit, & Hodgson, 2006).

The type of roadmap is dependent on its intended purpose while the format is more reliant on the company for which it is designed for. Phaal et al. (2004) provided an overview of the different types and formats of roadmaps that exist and for which purpose it has been used in the past. These can be relatively complex with different interacting layers as seen in *figure 1: generalised technology roadmap architecture obtained from Phaal et al. (2004)* or a roadmap can be quite uncomplicated as a single layer or simple written text with the steps that need to be taken to reach a specified goal.

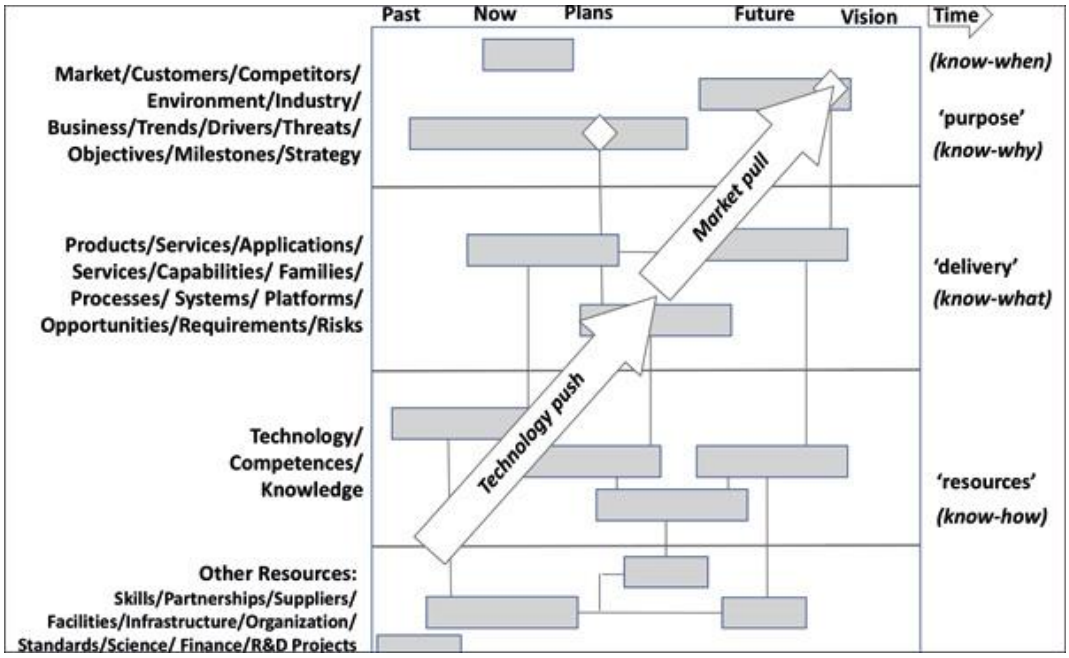


Figure 1: Generalised technology roadmap architecture obtained from Phaal et al. (2004)

In general, the structure of the roadmap is composed of layers, nodes and linkages between different elements or steps. These steps are designed to be taken over a period of time which is often indicated in the top of the roadmap. Regardless of the type and format of the roadmap, all have the same purpose, which is to answer three fundamental but simple questions: (1) "Where are we going?" which is the goal of the roadmap and the end point. (2) "Where are we now?"

is the start and the position of where the company is at the beginning of the roadmap and lastly, (3) "How can we get there?" is the process of going from the starting point to the stated goal and the answer are essentially the steps that are given in the roadmap (R. Phaal et al., 2007) Additionally, it should be clear what the input information is, what the processes are and what the intended output will be of a roadmap with the roadmap itself being the step by step explanation of how a company will get there (Arsher et al., 2012; Talonen & Hakkarainen, 2008).

Since roadmapping is an adaptable technique, it is also used to visually present a guideline for the implementation of certain methods or concepts. Rathore (2009) uses roadmapping to help biotechnology companies with successfully implementing the Quality by Design concept. They state that a successful implementation of Quality by Design in this industry requires a thorough understanding of the necessary steps as well as the relationships between different processes. By visualising this into a roadmap, it becomes apparent which processes and steps are involved.

In the same fashion, Kumar et al. (2011) used the roadmapping technique to successfully implement the business improvement methodology Six Sigma within SMEs. They created a guideline with five phases in which different steps are described that navigate a SME from start to finish through the entire implementation process. They visualised the guideline into a simplified roadmap to have a clear overview which step needs to be taken in which phase of the process (see figure 2: Step-by-Step guideline by Kumar et al. (2011)).

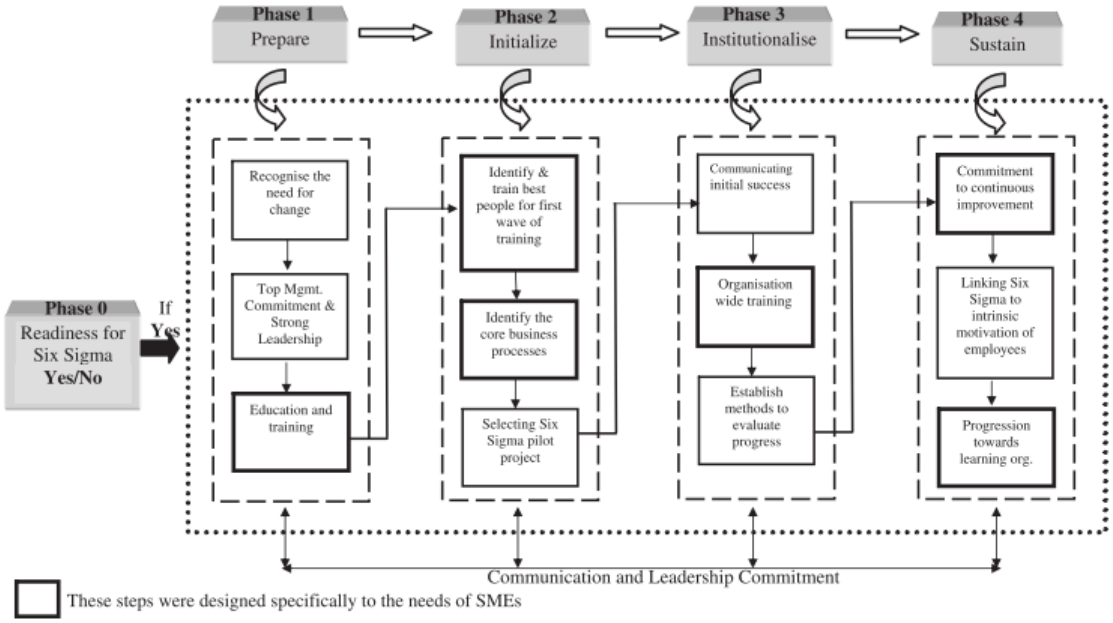


FIGURE 2: STEP-BY-STEP GUIDELINE OBTAINED FROM KUMAR ET AL. (2011)

By showing the different phases and steps that need to be taken within a SME and connecting them with arrows, the method becomes more understandable and has therefore a better chance of being successfully implemented (Kumar et al., 2011).

Different phases with corresponding steps are also found in earlier papers. Garcia and Bray (1997) defined the fundamentals of a technology roadmap to provide the basic steps for the creation of a roadmap. Although, the described phases in their paper are aimed at larger corporations or industries as a guideline to align technology with R&D, the writers state that the steps also fit within the business development context and have the additional benefit to align customer and market needs with the internal capabilities (Garcia & Bray, 1997).

They describe the roadmap process into three phases, (1) the *preliminary phase*, (2) the *development of the roadmap* and (3) the *follow up activity*, which all contain additional steps. The *preliminary phase* contains three steps in which the (a) essential conditions for the roadmap are satisfied, (b) leadership and sponsorship are arranged and the (c) scope and boundaries are set of the roadmap. When it is not possible to take these steps, the process should be broken off (Arsher et al., 2012; Garcia & Bray, 1997).

The second phase is the actual development of the roadmap itself. Here the (a) "product or market" focus will be defined, (b) what is required in the roadmap and what its target is. Additionally, the necessary (c) technology areas, (d) technology drivers and targets are specified. Lastly, the (e) technology alternatives and their timelines are identified and when recommended also (f) pursued. When all these steps are taken, the actual (g) roadmap report can be designed. The last phase, *the follow up activity*, contains three steps to (a) implement the roadmap in a firm and (b) how this should be planned as well as a (c) review and update of the roadmap and its outcomes.

After the design of a roadmap, it is important to provide evidence that an actual positive or negative outcome came from its implementation. This is emphasised by Carvalho et al. (2013), who state that although several papers have suggested that their roadmapping initiatives had been successfully implemented, they did not provide strong evidence regarding the application of the roadmap. The papers did not provide prove of the positive outcomes in the form of market share, new products or better performance of a company. Therefore, it is important to take the last step of reviewing the roadmap to show that the suggested steps that need to be taken are actually providing a firm with the intended outcome (Carvalho et al., 2013; Vatananan & Gerdsri, 2012).

2.4.2 ROADMAPPING AND THE METHODS FOR USING EXTERNAL SOURCES

Roadmaps in combination with market scanning methods can provide SMEs with a step-by-step direction to implement a new method and its results in a firm (Kumar et al., 2011; Robert Phaal et al., 2004; Vishnevskiy et al., 2015).

Different papers have used different sources and methods to implement external information into the process of roadmapping. Kayser et al. (2014) discussed roadmapping in combination with the text mining of literature to detect trends early and to be able to scan the environment. Abstracts as well as author keywords were used to gain insights in new and trending themes within specifically chosen literature. To compare abstract phrased and author keywords, a word cloud was created to visualise the most frequent occurring words. Below the word cloud a frequency table was put to give the size of each word a value. This provided a first glance into the most important keywords for their analysis and which they should take to the following steps in their roadmap. Eventually, the results from a keyword analysis, portfolio analysis and links and association analysis were added to provide an ongoing roadmap process with external information from the text mining techniques. They implemented the external information into the roadmap as an extra layer and connected this with the layers from figure 1: *generalised technology roadmap architecture by Phaal et al. (2004).* To create foresight in the above process, Kayser and Blind (2017) added the three stated questions of (1) "Where are we going?" (2) " Where are we now?" (3) "How can we get there?" (R. Phaal et al., 2007). However, this solution also has its limitations while it provides different future scenarios, while in this research future market and customer needs are required (Eidhoff & Poelzl, 2014).

A different approach was taken by Jeong and Yoon (2015), who instead of mining literature, analysed patent data to find structural and temporal patterns in relation to certain technological categories. They did not add an additional layer to the roadmap but integrated their results in the technology layer. However, their method gave an insight for a future period of 3 to 11 years which is for most SMEs too long.

The method used by S. Lee et al. (2008) is more related to the market pull direction. They used electronic patent databases and formed this into readily analysable keywords to find trends and relationships between products and technologies. The obtained keyword list was further developed into three different types of product-technology maps. First, the keywords were put into a *keyword portfolio map* to analyse the frequency of a keyword appearing in the patents. This was done with the assumption that the more frequent a technology keyword appeared, the more interest it got from innovators. Second, the relationship between keywords was analysed

in a *keyword relationship map* to visualise meaningful relationships within and between product features and technology characteristics. Lastly, they constructed a *keyword evolution map* to reveal evolutionary patterns in patents in relation to products and technologies. Their method of transforming large bodies of text into workable keywords made it possible to create these different types of keyword maps and use it for the decision making in new product development. Using keywords and its corresponding maps in practice provided the developers of the roadmap with more advantageous information and it improved time and costs by eliminating the need of reading all available patents. Lastly, the availability of objective information complemented the subjective judgment of the experts and therefore the development of the roadmap (S. Lee et al., 2008)

Although the above described methods of adding external data to a roadmap are, because of their complexity, most likely not applicable for most SMEs, they do show that external information can give a roadmap extra body. Kayser et al. (2014) emphasise that decisions by companies should not only be made on the basis of internal sources, but firms should also, from an early stage on, anticipate on external sources. Moreover, the keyword and portfolio analyses discussed by S. Lee et al. (2008) and Kayser et al. (2014) show that there are ways to reduce time and capital investments to obtain valuable external information, which are necessary to make the methods applicable for SMEs. Though the above described methods are in combination with scientific literature and patents, its usability could be applied with other data sources as well. Overall, they emphasise that external sources and the promising insights the above methods add to a roadmap will only benefit the company in the strategic and product decision making (Jeong & Yoon, 2015; Kayser & Blind, 2017; S. Lee et al., 2008).

In short, roadmaps are visual tools that help companies reach a certain goal over a period of time. The technique is flexible and can therefore consist of many shapes and forms. From simple written down steps a firm should follow, to a relatively complicated design with different interconnected layers. All designs and steps have the same fundamental purpose, namely to reach that certain goal (Jeong & Yoon, 2015). This goal can be related to a firm's technology alignment, innovation, marketing or business strategies but also to help with successfully implementing new methods or concepts.

When designing a roadmap it is important to keep the three fundamental questions of R. Phaal et al. (2007) in mind: (1) "Where are we going, (2) "Where are we now?" and (3) "How can we get there?". This will provide guidance to the design of the roadmap from the starting point to the stated goal. Additionally, the different phases and steps described by Garcia and

Bray (1997) provides a more detailed description of the roadmap process. Although the process is mainly designed for a technological or industry roadmap, it is often referred to in the case of business development or as a marketing tool. Roadmaps can therefore be applied to different sorts of company processes and have different purposes and goals.

This is clearly shown by Kumar et al. (2011) and Rathore (2009), who state that visual described guidelines help with successfully implementing new methods and concepts. Especially the Six Sigma implementation roadmap for SMEs shows how roadmap phases and corresponding steps help with understanding the process of implementing and sustaining a new method for the benefit of SMEs.

Lastly, roadmapping in combination with the scanning of external sources has shown great results (Jeong & Yoon, 2015; Kayser & Blind, 2017; Kayser et al., 2014; S. Lee et al., 2008). An often-used and successful method in these papers is to transcribe larger pieces of text into keywords. On these keywords, different methods are applied such as *keyword portfolio, relationship* and *evolution maps*. Not only did these methods provide more beneficial external information, but it also drastically reduced the time and costs of the roadmapping (S. Lee et al., 2008).

However, these methods were applied on patent or publication sources. And as stated before, these sources have not been shown to be beneficial for SMEs. As stated in paragraph 2.2, a new data source will be presented that provides the required external information for a successful market scanning roadmap. The following chapter will elaborate on this.

3. A NEW SOURCE FOR MARKET SCANNING: AMAZON.DE

For SMEs, finding the right external data source to use for scanning the market is not an easily accomplished matter. In the literature review different aspects in relation to SMEs, business development, market scanning, foresight and roadmaps have been discussed. From this, it became clear that a new source for the market scanning should be introduced that fulfils specific requirements related to these concepts and that addresses the lack of resources SMEs have.

First, (1) the data source should provide information relating to the consumer goods industry in Germany. Second, (2) the information needs to be available online and relatively easy and low cost accessible, preferably from a single website (Kayser & Blind, 2017; Rajaniemi, 2007). Third, (3) the source contains relevant information concerning the market forces, such as

competitors, products and customers (Yoo & Sawyerr, 2014). Ideally, information about specific products that fit a SMEs portfolio (Kind & zu Knyphausen-Aufseß, 2007), what these products are made of or which components it contains (Gök et al., 2015), how popular they are with the customers and how much they sell and who is selling them (Eidhoff & Poelzl, 2014). Fourth, (4) the data source should be conveniently analysable by SMEs to avoid the scanning of irrelevant information (Kohli, 2017) and lastly, (5) it should provide information about the current situation of the market which ideally can be used to provide ideas about close possible futures as well (Eidhoff & Poelzl, 2014; Vishnevskiy & Egorova, 2015).

Because the current literature does not provide a data source which upholds the above-mentioned requirements, a new online source needs to be presented. In line with the consumer goods market, it is evident to look at web sources that contain large amounts of information about consumer goods products. E-commerce websites offer this, while they provide consumers with a platform which offers a large number of products. In Germany, there are several E-commerce platforms that offer products to consumers (Statista.de, 2017b). However, the largest E-commerce platform in Germany, *Amazon.de*, shows great potential to meet the stated requirements. To see if this is actually the case, the webpage will be analysed based on its characteristics and past scientific research.

To begin with a short introduction into the web source, Amazon.de is by far the largest E-commerce platform in Germany in revenue and in the number of different products they offer. In 2016 the revenue of Amazon.de was over 8.1 billion euros and almost three times more as the second largest E-commerce platform (EHI Retail Institute & Statista, n.d.). Moreover, in the end of 2016 around 64.000 merchants and companies offered approximately 230 million different products on Amazon.de. Around 220-million of these products are offered in 20 main categories, from electronics devices, to beauty products to household supplies (see Appendix 2.2 and 2.3) (Marketplace Analytics, n.d.; Sistrix, n.d.; Statista.de, 2017a). This makes Amazon.de one of the most versatile and diverse E-commerce platforms in Germany, which attracted on average between 20 and 30 million unique users per month in 2015/2016 (Die Medienanstalten, n.d.). Additionally, 68% of the people older than 60 in Germany and 72-75% of the people over 16 years old indicated in 2016 that they at least occasionally use the services of Amazon.de. Not only makes this the platform a great indicator of what is being bought by consumers on the German consumer goods market but it also reduces selection bias in the demographic distribution of consumers who buy the products on Amazon.de (Cui, Lui, & Guo, 2012; Statista, n.d.).

In addition to the large amount and diversity of available products and unique users who visit the webpage, the platform also provides customers with a structured product page with detailed information about the product it offers. Mudambi and Schuff (2010) state that because products want to differentiate themselves from the competitors, the product descriptions are heavily emphasised on the benefits and functional features of the product. Additionally, there are bullet points with the products main characteristics. As an example, digital cameras most often state which the image resolution, display size and optical zoom are offered (Mudambi & Schuff, 2010). Additionally, the title of a product contains the main characteristics and features of the product in keywords to make it easier to find for consumers as well as the search algorithm of Amazon (Linden, Smith, & York, 2003).

Furthermore, every product page has a product detail part. Here, every product receives a 10 alphanumeric identification code or Amazon Standard Identification Numbers (ASIN), the selling price is shown, who is selling it and from which brand it is and how long it has been on the platform. Additionally, it is shown how well and how much people appreciate the product through writing and reading reviews and by assigning stars from 1, not satisfied to 5, very satisfied (Chevalier & Mayzlin, 2006; Chong et al., 2017). All this is provided for the consumers to make browsing products as easy and convenient as possible, which makes the collection of data from Amazon a straightforward process with low chances of errors being made (Cui et al., 2012). But, arguably the most important aspect of Amazon.de in relation to this research, is the fact that the data on the platform is virtually free to access for anyone who knows how to scrape the web (Schneider & Gupta, 2016).

Moreover, every product is assigned in a corresponding category and sub-categories to be able to search for products which match certain specifics. For example, when a customer is searching for a specific food supplement, e.g. Vitamin B12, it is possible to search for this on Amazon.de within the 230-million available products. However, in Amazon.de it is possible to assign the product to a category which fits the characteristics of the product. First, a main category is selected in which the product fits best, in the case of Vitamin B12 this is "*Drogerie & Körperpflege"* (drugstore and body care), a category which consists of around 2,35-million products (Marketplace Analytics, n.d.). To keep an overview of all available product, Amazon.de provides more detailed sub-categories and sub-sub-categories in which products can be placed. It is therefore possible to search in the 6th-level sub-category "vitamin B12" instead of the entire drugstore category (see figure 3: example of level of categories). This reduces the number of products to search in from around 2,35-million to circa 368 (Amazon.de,

n.d.; Marketplace Analytics, n.d.). From the level-2 category "*Nahrungsergänzung"* (nutritional supplements) the categories are then further divided into five level-3 categories, forty-seven level-4 categories, 148 level-5 categories and twenty-seven level-6 categories in which the higher the level, the more detailed the category.

FIGURE 3: EXAMPLE OF LEVELS OF CATEGORIES OBTAINED FROM AMAZON.DE, N.D.

Additionally, an important aspect of this division of products is that for every given category a top100 best-selling products is provided in which customers can search within a 100 (or less depending on the size of the category) most popular products of a specific category. Thus, in addition to the top100 best sellers in the main category, every sub-category has its own top100 best-selling products as well. A product on Amazon.de is therefore categorised in at least 2 categories, the main product category (level 1) and then in a more specific category based on the product's characteristics, features and intended use (level 2-6). A single product can then have a ranking in the level-1 category of 205 while in the level-6 it is on number 1 of the best seller rank in that specific category (see figure 3). Meaning, having a number 1 ranking in the lower category levels does not necessarily stipulates that the product is actually selling a lot. It just indicates that it sells more than the other products in the same low-ranking category.

The best seller ranks of Amazon.de have been used by past research as well and has often been analysed to measure the effect of online reviews on product sales (Chevalier & Mayzlin, 2006; Floyd, Freling, Alhoqail, Cho, & Freling, 2014; Mudambi & Schuff, 2010; Smith & Linden, 2017; Zhu & Zhang, 2010). The main reason why these papers used Amazon is the fact that the platform provides a proxy of sales in the form of the Best Seller Rank (BSR) (Amazon.com inc., 2017), which other platforms do not. The main difference is that other platforms give an indicator of the top-10 to top-100 of best-selling products while Amazon shows a BSR of all products that are listed and at least sold once on the platform (Amazon.com inc., 2017; Chevalier & Mayzlin, 2006). The sale rank is a number with 1 to 8 digits and is calculated by an algorithm of Amazon.de based on the amount of sales. Thus, the higher a

product appears in the ranking, the more it has been sold on Amazon.de in comparison with the other products in the same best seller category (Amazon.com inc., 2017; Floyd et al., 2014).

However, Amazon.de does not publish actual sales data of the products, but what makes the BSR interesting, is that it is possible to estimate the sales of a product using a logarithmic linear analysis based on the main category (level-1) in which the product is listed (Chevalier & Goolsbee, 2003; Chevalier & Mayzlin, 2006; Cui et al., 2012; Forman, Ghose, & Wiesenfeld, 2008). Though the calculation is similar for every category, the results are different based on the size of the category in number of products. Therefore, a product with a high rank in a large category will have more sales than a product with the same rank in a different category. With this variable it is then actually possible to measure an increase or decrease of sales for each single product that is offered on Amazon over a period of time (Chevalier & Mayzlin, 2006; Chong et al., 2017; Cui et al., 2012). Meaning, it is possible to estimate the number of sales of around 230-million products in the German consumer goods market.

Lastly, customers are able to write reviews for products on the platform. Not only does this provide customers with the possibility to state their enthusiasm or criticism about the product, but it also gives them the opportunity to read what the opinion is of other buyers. Each customer can give a rating from 1 to 5 stars to a product and the average of these reviews is shown by Amazon to other visitors of the product page. Additionally, the number of reviews is given as well as the exact date the review has been written. All this freely available information provided by Amazon can be used for different practical purposes such as a predictor for customer demand by manufacturers (Chong et al., 2017), how reviews actually affect sales (Floyd et al., 2014), consumer sentiment analysis by processing the written reviews (Fang & Zhan, 2015) or it can provide information about the pricing and its effect on sales of certain products (Li & Hitt, 2010). This shows that the freely available web data on Amazon provides insights into different aspects of organisations. However, as a source for market scanning and obtaining market intelligence it has not been used.

To summarise, the E-commerce platform Amazon.de meets all the requirements to be used as a source for the market scanning. First (1), it clearly provides information relating to the consumers good industry in Germany. It is by far the largest and most used consumer goods marketplace in Germany, providing customers with detailed information about the products they can buy. Second (2), as stated by Cui et al. (2012), the data from Amazon.de is easily accessible because of its structure. All products have their own, almost identical, product page and are divided into categories based on the products' characteristics and indented use. Third

(3), information is available about the forces that effect SMEs. Namely, it provides information about competitors, such as brands and sellers, the customers through reviews and how many times they buy a certain product through the BSR. Especially the BSR gives insights into the market that was not possible before, namely obtaining an estimation of how much the competitors' products are actually selling. Moreover, by providing a review section, it is possible to analyse if the customers are satisfied with the product, if the product does what the product descriptions state and the exact date when the review is written, which makes it possible to obtain an estimation when the product was approximately bought the first time. In addition, the product pages show detailed descriptions of the product to provide customers with as much information as possible to persuade them to actually purchase it. Fourth (4), the products on the website are divided into categories. This makes obtaining, scanning and analysing the source convenient since it can provide a focus by picking certain categories that fit with the portfolio or strategy of the firm. Therefore, it is not necessary to scan the entire platform or market since it is conveniently divided into the categories that fit a firm in accordance with their technological and financial capabilities. This reduces the amount of information that needs to be analysed significantly. Lastly (5), the BSR can show the estimation of sales at that moment in time when the page is viewed in comparison with the other products in the same category. This not only shows the current situation in a certain product category but could also provide information about the close possible future, when the data is obtained for a longer period of time and the changes in data can be analysed. All in all, this makes Amazon.de the chosen platform to be used as source for scanning the market.

4. METHODOLOGY

In this research, a new methodological toolkit to scan the market for the business development of SMEs will be created. The objective of this method is to create a pipeline of innovations and products for SMEs that have a strategic and (future) financial fit within the company. Specifically, for SMEs operating in the consumers good industry in Germany. As the research aims to design a new way of scanning the market as input for the roadmap, a design science study approach is most appropriate. Design science research can be perceived as three closely related cycles of activities that need to be carried out to assure that the new developed artefact, in this research being a new method, actually provides the solution of the given problem (Hevner, 2007; Hevner, March, Park, & Ram, 2004). The nature of design science research objectives is more of a pragmatic kind while it should make a clear contribution to the

application environment. Meaning that the new artefact can be used in practice (Hevner, 2007).

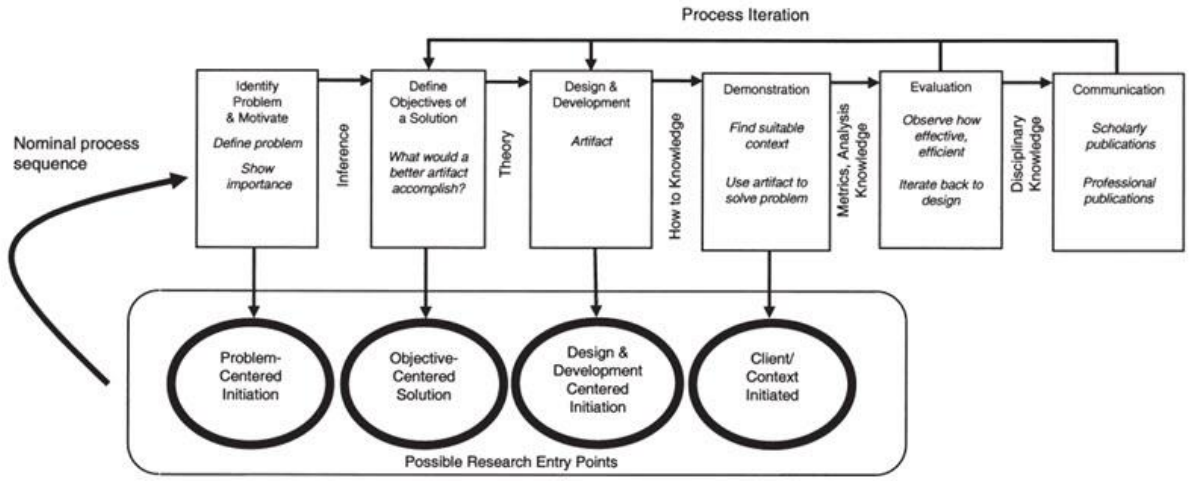


Figure 4: DSRM Process Model retrieved from Peffers et al. (2007)

Though many researchers have proposed a methodological approach for the design science research, Gregor and Hevner (2013) suggest to use one of the existing authorities, which in this research will be the design science research methodology (DSRM) framework described by Peffers et al. (2007). They found a consensus of combining the most relevant guidelines, design science cycles and rules from the literature and developed this into six activities or steps that should be taken to provide an easy to understand design science structure (Figure 4: DSRM process model). These are the (1) *problem identification and motivation*, (2) *definition of the objectives for a solution*, (3) *the design and development of the new method*, (4) *the demonstration of the method*, (5) *evaluating the results* and (6) *communicating* these results accordingly (Peffers et al., 2007). Although, the researchers indicate that there are four entry points to start the DSRM research, in this research the nominal process will be followed by starting with the problem identification and motivation. These six steps will be discussed in relation to this research in the following.

4.1 Problem Identification, Motivation and Solution

The first activity is (1) *the Problem identification and motivation* and second activity (2) *Define the objectives for a solution* have been mostly discussed in the introduction and theoretical framework. In these chapters it is described what the problem and its relevance are for SMEs to generate growth. Moreover, the current proposed solutions were discussed as well as their weaknesses. Besides the general objectives of the solution, such as feasibility and performance, additional criteria for the objectives of the solution were discussed.

To summarise the first two activities, SMEs have a lack of resources and have therefore less possibilities to create sustainable growth through developing possible new products and innovations. Although, business development helps with overcoming these challenges, the tools to scan the market for current and future developments are not easily available or applicable for SMEs. Therefore, the objective of the solution is "*to provide SMEs with an as cost-, time- and human-resource effective market scanning method to fill the SMEs' business development pipeline with potential new products that fit strategically but contribute financially to the company*".

The following paragraph will elaborate on the process of the design and development of the roadmap and how the market scanning exercise will be executed and implemented in the market scanning roadmap.

4.2 THE DESIGN AND DEVELOPMENT

The design of the roadmap is based on the results of the literature review in combination with the analysis of the obtained data from Amazon.de. Every step that needs to be taken in the analysis will be explained and related to other layers in the roadmap that represent time, company decisions and the required resources. In the following it will be described which data is being obtained from Amazon.de, which tools are used to analyse it and finally a short description is given concerning the actual design of the roadmap.

4.2.1 SCRAPING AMAZON.DE AND DATA COLLECTION

To scan Amazon.de, there are several web crawlers or specialised software available that can provide SMEs with the right tools to scrape the data (Mikut & Reischl, 2011) and calculate the estimation of sales based on the BSR (e.g. Jungle Scout (n.d.). In this research, a third-party Information Technology (IT) company crawls and obtains the variables and data from Amazon.de and places the collected information structured in a CSV data. The freely obtainable data from Amazon.de discussed in chapter 3 is put into variables. However, the IT-company itself estimates the number of sales based on the *BSR*, while they have compared this variable with actual sales on Amazon.de.

All variables are summarised in *Table 1: Variables obtained from Amazon.de.* The data is collected every first day of the week 14 times in a row from the top-100 of every selected category on Amazon.de that fits with the strategy and product portfolio of the firm. The *Asin* variable is the main unique identification code of every product on Amazon.de. For every found *Asin* in a top-100 category a new row is made and the values of the subsequent variables are

then collected for analysis. The *Asin* is a variable that is constant for every product and will not change over time. This is not the case for the *title* of a product. The title will provide the information about what kind of product it is but it is subject to change when sellers decide to do so on Amazon.de. Therefore, the *Asin* will be leading for in the analysis of the data (see table 1 for overview variables)

#	Variables	Description	Value	Source
1.	Asin	Unique product code to identify a product on Amazon.de	String value	(Amazon.com Inc., n.d.)
2.	Title	The title of the product showed by Amazon.de.	String value	
3.	Top100_Cat	Sub-category in which product is found	String value	
4.	Top100_Main	Main category in which product is found (level 1 category)	String value	
5.	Top100_Rank	Corresponding rank the product is listed in the sub-category of Top100_Cat (level 2,3,4… category)	String value	
6.	BSR	Best seller rank of main level 1 category Provided by Amazon.de and from this the sales are calculated	1 to 8-digit number	(Chevalier & Mayzlin, 2006; Chong et al., 2017; Cui et al., 2012; Forman et al., 2008)
7.	Created_at	Time point when the data is collected	Calendar date	
8.	First_off	Date point of first listing of product on Amazon.de	Calendar date	(Cui et al., 2012)
9.	First review	The date point on which the first review was written for a given product	Calendar date	(Cui et al., 2012)
10.	Price	Price of products in euros	Number in euros (€)	
11.	Customer review Rating (valence)	The Average Rating of the customers reviews of the product	Number from 1 – 5	(Chevalier & Mayzlin, 2006; Chong et al., 2017; Cui et al., 2012; Forman et al., 2008)
12.	Reviews (Volume)	The listed total number of customer reviews for a product	Number value	(Chevalier & Mayzlin, 2006; Chong et al., 2017; Cui et al., 2012; Forman et al., 2008)
13.	Sales	Estimated sales per month based on the BSR (30-day month)	Logarithmic calculation by IT company in numbers	(Chevalier & Mayzlin, 2006; Cui et al., 2012; Forman et al., 2008)

TABLE 1: VARIABLES OBTAINED FROM AMAZON.DE

Three variables are collected in relation to periods of time. These are the *First_Review* written, the exact date when the data was collected with *Created_At* and the first listing of the product on Amazon.de with *First_off*. Along these variables, it is possible to estimate the first time a product has been listed on Amazon.de, over how much time the product started to become popular and an increase of *Sales* over a period of time. By analysing these variables, it is expected that from the millions of the produces on Amazon.de a selection can be made in which the expected most popular future products come forward while simultaneously selection can be made for current possible products that fit the company strategically and financially. However, the actual implementation of these new-found products will not be discussed in the roadmap in accordance with the business development process described by Sørensen (2012).

4.2.2 DATA ANALYSIS

The data analysis is done in different steps with data cleaning and data visualisations as the main methods that will be applied. With the above listed variables and with the scraping of thousands of products, the database has over 30.000 rows of collected data over a period of three months. This can be considered a "large dataset" or "massive dataset". To make sense of this data, a visualisation software named Tableau Software (version 2018.1) is used. Tableau is a data visualisation program which has specialised in large- and big data sets. It helps communicate data through a visual query language named VizQL that converts drag-and-drop actions into visual representations (Jones, 2014). It is a formal language that allows you to explore very large datasets by describing tables, charts, graphs, time-series and tables of visualizations. This enables the possibility to quickly and efficiently visualise and analyse large amounts of data (Hanrahan, 2006). In addition, the software offers different statistical measures such as boxplots and descriptive statistics as well as linear- or logarithmic trend analysis (Szewrański, Kazak, Sylla, & Świąder, 2017).

These tools are put into an analytical panel called a worksheet (see Figure 5: *Overview of working in Tableau obtained from* Szewrański et al. (2017)). As with a normal table it has columns and rows in which different dimensions or measures can be dropped. Dimensions are variables that can be grouped or categorised such as names or titles while measures are fields with which can be calculated in summing, averaging and counting. The measures can be displayed in a discrete (separate measures) or continuous form (Murray & Chabot, 2013). The marks give the option to provide the view with colours, shapes, sizes, details or normal text.

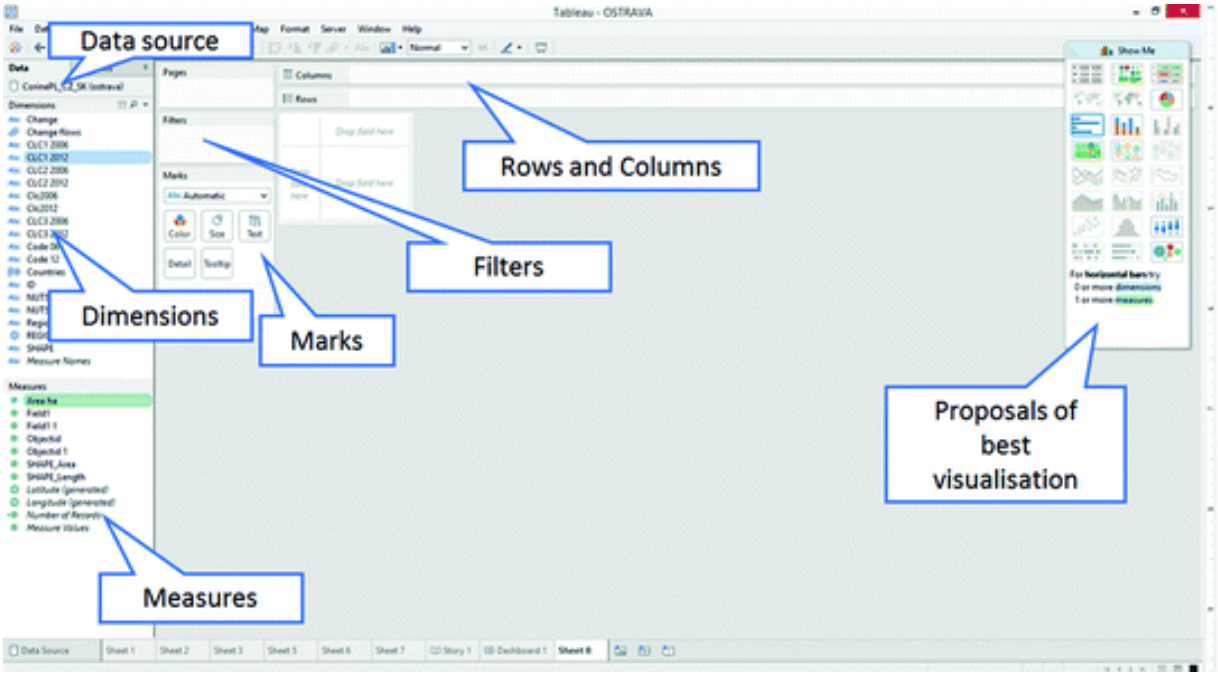


FIGURE 5: OVERVIEW OF WORKING IN TABLEAU OBTAINED FROM SZEWRAŃSKI ET AL. (2017)

Moreover, it is possible to set filters over a dataset which can include or exclude certain rows of *Asins* that meet the set filter. This enables the possibility to set a time frame in relation to the *first_review* variable to analyse products that have just been launched and show an increase in sales. It is therefore possible to include just the *Asins* which have been launched in the last months, analyse the *Asins* which have a revenue of 500 euros or higher or filter on the *Title* to analyse just the products containing a certain ingredient or technology (e.g. sugar) These filter options provide the research with the option to clean the data of *Asins* which are not fit for analysis or do not fit strategically or financially within the company.

Lastly, within Tableau software it is possible to use functions related to numbers and create new variables based on table calculations. These table calculations can provide new insights related to the dataset (e.g. The revenue of a product with *sales * price)* or related to the slope of a time-based trend line. Besides the numerical functions, there are also functions available related to textual data, calendar dates and statistics. It is therefore possible to just analyse products which contain a certain keyword in their title, which can help with analysing larger strings of text. Additional created variables and used functions are further elaborated on in the chapter of the development of the new method.

Tableau is therefore a versatile software in which many different analysis methods are possible with using just one program. This not only helps with reducing financial costs but also less human capital is required.

4.2.3 THE DESIGN OF THE ROADMAP

The roadmap is designed along three phases. The first phase, *the preliminary phase*, will describe all the steps that need to be taken before the start of the actual scanning of the market and initiating with the roadmap. The second phase is the *market scanning phase*. In this phase the data obtained from Amazon is analysed in a specific matter and put into a manual. The manual is designed in a similar matter as the method implementation roadmap of Kumar et al. (2011). Per step, a script of the process in Tableau is given to ensure the replicability of the data analysis. The scripts are put into tables with a precise description of the variables and where these need to be placed in the Tableau sheets. The different steps in this phase describe the method on how to analyse the data from Amazon.de and how this is connected with the processes within the company. Lastly, the *follow-up phase* is where the results of the manual are used and prepared to be implemented by the SME. However, the actual implementation of the new-found products is not discussed.

Thus, the goal of the roadmap is to create a business development or product pipeline with possible products that the SME can produce. The different steps in the roadmap guide the SME from the decision of actually analysing the market, to the data analysis steps in Tableau to the end result of a select number of products that fit the SME's portfolio and strategy. All the different processes and steps are connected through different layers that represent the moments in time, the steps in the manual, the company and management decisions and the required resources. The end result is then drawn into a roadmap to visualise the entire process into one figure.

4.3 DEMONSTRATION AND EVALUATION OF THE ROADMAP

In the following paragraphs the fourth and fifth activity of the DSRM process model are described and the company in which they are applied is introduced. These activities are concerned with the demonstration and evaluation of the roadmap. The new roadmap is demonstrated and evaluated within a SME operating in the consumer good market to assess the usefulness of the designed steps and to evaluate the support for the SME's business development.

4.3.1 DEMONSTRATION

The designed manual is demonstrated in a SME, in this research called "*Company V*". Therefore, the appropriate categories are chosen which fit with the portfolio and strategy of Company V. From these categories the variables of the top-100 best-selling products of each

category will be obtained and the steps of the roadmap will be taken. Company V is specialised in selling food supplements on the German market and has an intention to grow by finding new products they can add to their portfolio. They follow an *analyser* strategy in which it follows other companies into a new market or product category while trying to improve on these products by creating a better product in terms of quality or design. Simultaneously, Company V maintains a steady portfolio with 12 different products they are already selling. The SME has received a capital injection for their business development and are thus able to expand their product portfolio to generate growth.

4.3.2 EVALUATION

The fifth activity, the evaluation of the proposed roadmap, is the essential part of this research. Namely, to provide evidence that the new method is useful (Gregor & Hevner, 2013). Here it is observed how well the manual supports the solution to the given problem.

Two main criteria of the new method are set to evaluate its utility and quality. The first criterion is to obtain as many possible product ideas that fit the portfolio of the SME strategically and can therefore be added to the business development pipeline. In addition, the quality of the new-found products is asserted by the decision of Company V to actually decide for the product implementation because of a confirmed strategic and financial fit. To measure the success of an implemented product, a threshold was set based on the revenue. A successful product was defined as *a product that has at least 500 euros revenue per week three months after its launch.* With this definition the management of Company V aims to grow their revenue weekly revenue with 15 thousand euros using the new method.

4.4 COMMUNICATION

The sixth and last activity is the communication. This activity is concerned with being able to communicate the results. In this paper the main discussion points, conclusions, limitations and future research will be communicated in relation to the new method.

5. THE DESIGN AND DEVELOPMENT OF THE ROADMAP

In this chapter the design and development of the roadmap will be discussed. The roadmap is divided into three phases with reference to the suggested steps by Garcia and Bray (1997). However, the steps in their research are related to the actual design of a specific roadmap within a company or industry as a whole while in this research they are used as a basis to implement the market scanning and how to analyse the obtained data.

First, the *preliminary phase* will be discussed. This is the starting phase before taking off with the actual roadmap. The steps in the preliminary phase need to be taken to assure that the firm should actually proceed with the initial roadmap and to avoid initial investments in a market scanning exercise which might not be applicable to this firm (Garcia & Bray, 1997).

The second phase, *the market scanning phase*, will contain the proposed steps on how to scan the market by using Amazon.de as a source. It has the goal to provide a continuous stream of possible new products which fit strategically and could be added to the product pipeline of the firm. The manual provides the SMEs with a step-by-step approach on how to analyse the obtained data from Amazon.de in Tableau and use the data as input for further product development. In accordance with the business development literature, the actual implementation and strategies of implementation for the products will not be discussed while this is not part of the business development concept (Kind & zu Knyphausen-Aufseß, 2007; Sørensen, 2012).

The last phase, *the follow up phase*, contains the last step of the roadmap and the final business development product pipeline. In this phase the final product decisions are made and put into the product pipeline before it is presented to the management for possible implementation.

5.1 THE PRELIMINARY PHASE

The preliminary phase contains the first five steps in which the initial conditions must be satisfied before actually starting the roadmap. The five steps need to be checked off before continuing to the subsequent phases. In the preliminary phase the support, sponsoring or capital, necessary conditions and boundaries of the roadmap are set. Without being able to complete these steps, the roadmap can and should not be performed (Garcia & Bray, 1997).

The first step is to obtain the support from management and other departments of the SME and to set the internal goals of where they want to go. These goals can be in terms of revenue as well as finding specific products for new markets in which the company fits strategically. Because business development is concerned with both the horizontal as well as the vertical coordination within the company, it is essential that all departments and people are addressed in the growth process to assure support throughout the entire process (Sørensen, 2012).

The second step is concerned with the different market scanning approaches based on the strategy of the firm (R. E. Miles et al., 1978; Olson et al., 2005; Slater et al., 2010). This roadmap is most appropriate for SMEs who hold an *analyser* strategy in which the company

acts as a fast follower of the *prospector* or product leader. *Analysers* monitor the reaction of customers on product launches of the product leaders and then follows quickly with their own similar or improved product. This strategy is low-cost while the *prospectors* take the initial risk of launching a new product or market while the *analyser* follows (R. E. Miles et al., 1978). Because this roadmap does not necessarily provide information about new technologies, customer intimacy or operational excellence, it is best applicable for SMEs which are looking for an expansion of their product portfolio without having to invest heavily into their R&D.

The third step is to satisfy the essential conditions. Although the external data used for the market scanning is freely available on Amazon.de, it is advised to scrape the data and place the information in rows for it to be analysed by the Tableau Software. Ideally, the estimation of sales is also carried out based on the BSR of the main category. There are two options to obtain the data. First, as mentioned before, there are several paid or free-to-use tools available which can scrape the web and store the obtained data accordingly (Mikut & Reischl, 2011). However, a certain degree of data scraping knowledge is required to automatically obtain the data on a weekly basis of thousands of *Asins* from selected categories do this (Schneider & Gupta, 2016). The second option is to obtain the data through a third-party IT-company. Scraping experts of professional IT-companies are able to provide reliable data due to their experience with the structure and possibilities within the Amazon.de webpage. Additionally, they are likely to be able to provide a SME with the estimation of sales based on the BSR and main category they want to scan. Lastly, the available data is best analysed with Tableau Desktop software. This software offers many useful functions and is, with the help of the market scanning manual, relatively easy to use. The steps that need to be taken for the data analysis are further explained in the *market scanning phase*.

The fourth step is related to the scope and boundary of the market scanning. When the previous steps are successfully taken then the scope and boundary of the market scanning are set. This step is essential to assure the quality of the results. Naturally, the Amazon.de is an external source which allows SMEs to scan in a broader manner (Haase & Franco, 2011; Liao et al., 2008). However, when the scanning is too broad, there is a higher chance of "paralysis by analysis" in which the obtained data becomes too much to handle (Kohli, 2017). On the other hand, when the scanning is not broad enough, important insights about consumer and market needs cannot be identified (Börjesson et al., 2006).

The structure of the categories and the different category levels provide a solution for this problem. Because of the hierarchal structure of the categories on Amazon.de, the higher the

level of the chosen category, the broader the information and product selection becomes. Therefore, a level-1 main category contains the top-100 best-selling products of the thousands of sub-categories and millions of products below while a level-6 category shows the top-100 best-selling products of a couple of hundred very similar products. Additionally, the main (level 1) category can be used for the estimation of sales from the BSR (e.g. (Cui et al., 2012) . It is therefore important for a SME to first select the main category or categories which fits best with the capabilities of the company and desired market entry. From there the sub-categories can be chosen based on the same criteria. It is advised to pick categories which are not below level 4 and include the above lying levels 1 to 3. This establishes a balance between a broad market scanning exercise while retaining specificity. Every category and sub-category is listed on Amazon.de itself and can be picked for analysis. It is advised to set the boundary and scope of the market scanning properly while this will avoid obtaining information from products that are not of interest. Furthermore, it is important to keep in mind that every extra chosen category adds approximately an extra hundred *Asins* to the analysis. Meaning, when 40 categories are chosen, the variables and information of around 4000 *Asins* are obtained and need to be analysed. The more *Asins* are collected, the more information about products becomes available but also the more time consuming the data analysis will be.

The fourth step should be taken thoroughly because it not only ensures a better time management in the subsequent market scanning phase but also establishes the first measure to find products that fit the company strategically.

The fifth step and last step of the preliminary phase can be taken when the data has been scraped from Amazon.de. Thereupon, the data needs to be cleaned from possible unwanted categories and products. Although the data can be obtained relatively easy and accurately (Schneider & Gupta, 2016), Amazon.de itself is still a dynamic platform in which products constantly appear and disappear in the top100 of a category. Additionally, products are sometimes added in a sub-category in which they do not belong and it is therefore necessary to clean the data first. First, the main categories (level 1) for which an estimation of sales has not been made need to be filtered out to assure that all analysed products are listed in the same main category. In Tableau this is done by "editing' the data source extract and selecting the *Top100_Main* variable and filter this on the desired main category.

Next, it is important to set the criteria for the strategic fit for the company. In the subsequent phases there are several filtering steps wherein products that do not fit strategically in the company are filtered out. This is to assure that the quality of the results is highest and to avoid

the unnecessary analysis of non-fitting products. E.g. when a company is specialised in food supplements, it should filter out the products that have no relation to this industry or which the company is unable to produce themselves such as diapers, electronic toothbrushes. Although the "strategic fit"-criteria do not have to be set in stone, it is advised to have a direction in mind.

Subsequently, it is possible to already filter out products that do not fit strategically based on the prior set criteria. On Amazon.de, the higher the level of the category is, the more products are collected that do not fit the firm's portfolio or strategy. It is then advised to scan through these categories and collect all the *Asins* with a title that do not fit group these together as "*Non-fitting Asin group "* (see table 2: *Tableau script "Data cleaning"*).

	Database cleaning of non-fitting Asins
description	*The view is broken down by* **[Top100_Cat]** *vs.* **[Title]** *and* **[Asin].** *The view is filtered on* **[Top100 Cat]**, *which keeps "selected main category of firm".*
Marks:	*The mark type is Text*
Rows	*Title, Asin, Non_Fitting_Asins_group*
Columns	*Top100 Cat*
Filters:	*Top100 Cat → Filtered on main category*

TABLE 2: TABLEAU SCRIPT "DATA CLEANING"

By editing the Alias of the grouped together *Asins* to "*non-fitting Asins"* it is possible to filter these out of the dataset through 'editing' the data source extract. Select Asin Group 1 and exclude the *non-fitting Asins* member of this group. This initial step of data cleaning will make the visualisations more precise and in accordance with the SMEs portfolio and strategic fit.

When the five steps in the preliminary phase have been taken and the required data is obtained, it is possible to continue to the second phase, the market scanning phase. In this phase different steps will be explained in which the obtained data will be analysed.

5.2 THE MARKET SCANNING PHASE

This paragraph described the market scanning manual and how this can be done using the data from Amazon.de. The manual describes the different steps that should be taken. As stated in *Chapter 3: A New Source for Market Scanning: Amazon,de*, there are over 230-million different products available on Amazon.de (Marketplace Analytics, n.d.). Step four of the *preliminary phase* has reduced this number already by selecting the right categories for analysis to a maximum of 67-million (See appendix 2.3 category Elektronik & Fotos) and a further selection of categories reduces this number even further. However, scanning through tens of thousands of possible products is for SMEs still far too resource demanding (Haase & Franco, 2011). Therefore, the goal of the manual is to reduce the number of products to a workable, quick to

scan amount which then could be considered for the business development pipeline. Additionally, the products that are presented should have a high chance of actually being implemented as well as reach the 500 euros revenue per week per product threshold.

Each step in the manual is descriptively explained with a reference to the syntax of Tableau software as well. In the manual different new variables, functions and table calculations are used. These can be added in Tableau through *Analyse → create calculated field → Name + fill out calculation.* The newly created variables are presented in table 3 below. All used and newly created variables are presented as follows **[bold]**.

Description	Added variable	Table calculation and Functions
Estimated sales per day	**[Sales per day]**	**[Sales]**/30
Estimated sales per week	**[Sales per week]**	**[Sales]** / 30 * 7
Estimated revenue	**[Revenue per month]**	**[Sales]** * **[Price]**
Estimated revenue per week	**[Revenue per week}**	**[sales per week]** * **[Price]**
Slope of sales per week	**[Slope_Week]**	WINDOW_COVAR(INT(DATETRUNC('week',MIN(**[Created At]**))),(AVG(**[sales per week]**))) / WINDOW_VAR(INT(DATETRUNC('week',MIN(**[Created At]**))))
Slope of sales per month	**[Slope_Month]**	WINDOW_COVAR(INT(DATETRUNC('month',MIN**([Created At]**))),(AVG(**[Revenue]**))) / WINDOW_VAR(INT(DATETRUNC('month',MIN([**Created At]**))))
Include certain keywords		CONTAINS (**[Title]**, Product_Name') OR CONTAINS(**[Title]**, 'Product_Name')
Exclude certain Keywords		NOT CONTAINS ([**Title**], Product_Name') AND NOT CONTAINS([**Title**], Product_Name')
If a title contains a keyword then assign to category	**[Assign_Produkt_ Category]**	IF CONTAINS([Title],'Keyword 1) THEN 'Category 1' ELSEIF CONTAINS([Title],'Keyword 2) THEN 'Category 2' ELSEIF CONTAINS([Title],'Keyword 3') THEN 'Category 3' ……. END

TABLE 3: VARIABLES, FUNCTIONS & TABLE CALCULATIONS USED IN TABLEAU

All the used functions are standard integrated in Tableau and by copying directly from table 3 in the software it is possible to use these accordingly. Every above-named table calculation is further explained when applied in the steps of the market scanning manual.

5.3 THE MARKET SCANNING MANUAL

The manual has a main focus on creating a pipeline with products that have an increase of sales over time. The theory behind the manual is that it will provide a list with products that have increased their sales over a longer period of time and that there is a possible positive increase of demand for this specific product in the future as well. The manual is divided into three steps which all contain an additional three sub-steps. Every step represents a month, with four or five weeks, in which the sales of all collected *products* from that month are collected. Naturally, not all products actually sell on Amazon.de and by calculating a positive slope over time it is assumed that a large portion of the collected products will be filtered out to leave a manageable list of possible products for the company's business development pipeline.

STEP 1.1: FILTER POSITIVE SLOPES FIRST MONTH

In Tableau it is possible to show an average increase of sales over a certain sample period. In this manual the sample period consists of three parts in which for every month the products are filtered out who do not have an average increase of sales of one or more per product. The below script in table 4: *Manual, Month 1 plot of graph* describes the view of the visualisation, which variables are used and where they should be placed on the sheet. Additionally, the different filters and views are specified. Furthermore, the used dimensions and measures are defined while these have an effect on the outcome of newly created graphs and figures. Lastly, the different functions that are used in the manual are defined. This creates a clear manual on how to analyse the obtained data from Amazon.de.

Description of "Manual: First month"		
The plot of average of [sales_week] for 4/5 weeks [Created_At_Week] broken down by month 1 **[Created_At_Mo**nth]. vs. **[Top100_Sub_Categories]**. The Colour shelf shows details about Asins. The view is filtered to include **[Asins]** with a slope of an average increase of sales from values greater than or equal to 1.00 [Slope_week].		
Marks:	Line Stacked marks is off	Form of point in graph Lines are drawn independently along the axis
Shelves of the sheet		
Rows:	Avg.(**[sales_week]**)	
Columns:	**[Month of Created At], [Week of Created At]**	1 month per sheet 4/5 weeks in that month
Filters:	**[Slope_week]**	values greater than or equal to 1.00
Level of detail:	**[Slope_week]**	Showing trend lines
Colour:	**[Asin]**	Every Asin has a different colour
Dimension:		

Description of "Manual: First month"		
[Top100_Sub_Categories]	How many categories are left on the sheet	
[Created At Month]	Which month is analysed	
[Asins]	Amount of Asins left on the sheet	
[Created_At_Week]	How many weeks in the month	4/5 weeks per month
Measures:		
Average([sales_week]	**[Sales]** / 30 * 7	Ranges of sales per week
[Slope Week]	WINDOW_COVAR(INT (DATETRUNC ('week',MIN**([Created_At]**))) ,(AVG(**[sales_week]**))) / WINDOW_VAR (INT(DATETRUNC ('week',MIN**([Created At]**))))	Ranges of slopes

TABLE 4: MANUAL MONTH 1 PLOT OF GRAPH

This script creates a visualisation with an overview of all products that have an average positive slope greater than or equal to 1 and filters out all products that do not. Meaning that the filtered-out products are selling less products over a period of four to five weeks. As mentioned above, this view only leaves the Asins that are expected to sell more in the subsequent weeks. The slope filter assures that only the products with a positive slope are shown in the view.

Because the *Asin* is just an identification number, this view does not provide the information about the products itself to assess the strategic fit of the product. The following step will include the products' information.

STEP 1.2: DETERMINATION OF STRATEGIC FIT MONTH 1

In step 1.2 the plotted graph is duplicated into a crosstab in which all the measures and dimensions are written out. To see the information about the products, the variable *[title]* is added to the crosstab. The title of products often consists of keywords to with the main characteristics and features of the product to make it easier to find for the consumer as well as the search algorithm of Amazon.de (Linden et al., 2003)

As stated before, Amazon.de is a dynamic website with many products. The chosen categories often contain products that do not belong there or do not fit the strategy of the firm. Although the preliminary phase filtered out most non-fitting products, this step will exclude the ones that slipped through. Any *title* which does not fit strategically with the company or its product portfolio should then be filtered out. This can be easily achieved by adding a filter on the [title] variable with the formula NOT CONTAINS (**[Title]**, 'Product_keyword1') AND NOT CONTAINS (**[Title]**, 'Product_keyword2'). This formula can be repeated as often as necessary until all non-fitting product are taken out of the overview. Although this procedure is manually

and visually done, it does provide a secure filtering system for this as well as the subsequent steps.

Description of Manual: "First month – Crosstab with title"		
The plot of average of **[sales_week]** for 4 or 5 weeks **[Created_At_Week]** broken down by month 1 **[Created_At_Month]**. vs. **[Top100_Sub_Categories]**, **[Asin]** and **[Title]**. The view is filtered to include **[Asins]** with a slope of an average increase of sales from values greater than or equal to 1.00 **[Slope_week]** and exclude keyword in **[title]** that do not fit the strategy.		
Marks:	Text Stacked marks is on	All *Asins* and Titles are written in text
	Shelves of the sheet	
Rows:	**[Top100_Sub_Categories]** **[Asin]** **[Title]**	
Columns:	**[Month of Created At], [Week of Created At]**	
Filters:	**[Slope_week]** **[Title]** (by condition, Formula: NOT CONTAINS ([**Title**], 'Product_keyword1'…….)	≥ 1 Excludes the number of titles and Asins.
Text:	All variables used are written out	
	Dimension	
[Top100_Sub_Categories]	How many categories are left on the sheet	
[Created At Month]	Which month is analysed	1 month on the sheet
[Created_At_Week]	How many weeks in the month	4/5 weeks per month
[Asins]	Amount of Asins left on the sheet	Number of Asins
	Measures:	
Average(**[sales_week]**)	**[Sales]** / 30 * 7	Ranges of sales per week
[Slope Week]	WINDOW_COVAR(INT (DATETRUNC ('week',MIN(**[Created_At]**))) ,(AVG**([sales_week]**))) / WINDOW_VAR (INT(DATETRUNC ('week',MIN**([Created At]**))))	Ranges of slopes

TABLE 5:CROSSTAB AND TITLE EXCLUSION MONTH 1

The list of *Asins* that is then presented in this view will presumably provide product titles that strategically fit the company and could be used as input for the business development pipeline. To be able to create a better overview of these product step 1.3 is taken.

STEP 1.3: ASSIGN PRODUCT CATEGORIES MONTH 1

The list of titles from step 1.2 consists of long strings of text. These strings of text are not directly analysable by using it the way it is. To solve this, the main product keyword of a title is assigned into a category. By doing so it is possible to easily differentiate between the different offered products as well as obtain an understanding of the actual size of the market by counting

the amount of times the product type occurs. This enables the use of different keyword analysis tools in the following steps. To do so, a new variable, **[Assign_Produkt_Category]**, is created. This variable consists of a repeated function that makes it possible to assign certain keywords from the **[title]** to a product category. The function used is IF CONTAINS**([Title]**,'Keyword 1) THEN 'Category 1' ELSEIF CONTAINS**([Title]**,'Keyword 2) THEN 'Category 2' ELSEIF CONTAINS**([Title]**,'Keyword 3') THEN 'Category 3' ……. Etc. END until all different products are assigned into a category or type in which they belong. From these keywords it is then possible to create a word cloud. But instead of defining the size of each word in the word cloud on the keyword frequency, as is done in the research of Kayser et al. (2014), the number of Asins is used. Thus, in each of the above created categories the number of unique Asins is counted and based on the amount the size of the word in the word cloud is established. This is done by using the following manual.

Description of manual "Word cloud First month"		
[Assign_Produkt_Category]. Color shows details about **[Assign_Produkt category].** Size shows distinct count of **[Asin].** The data is filtered on **[Asin]** and keeps the members from step 1.2.		
Marks:	Text Stacked marks is on	All Produkt categories are written in text
	Shelves of the sheet:	
Filters:	**[Asin], [Month of Created At]** **[Month of Created At]**	Asins from step 1.2 1st month analysis
Text:	**[Assign_Produkt_Category]**	
Size:	CNTD**[Asin]**	
	Dimension	
[Created At Month]	Which month is analysed	1st month on the sheet
[Asins]	Amount of Asins left on the sheet from last analtsis	
[Assign_Produkt_Category]	Number of categories created	How many categories
	Measures:	
CNTD **([Asin])**	How many times a unique Asin is in a category type.	Range of Asins in categories

TABLE 6:WORD CLOUD MONTH 1

By duplicating the roadmap into a crosstab on an additional sheet, the corresponding frequency table will be shown as well. The created word cloud and frequency table clearly show which category is the largest with most available products and which types of products are not that much available on Amazon.de. However, an important aspect of this created word cloud is that all the product types have an increase of sales over a longer period of time. This means that

the products which are visible in the word cloud with a small number of products available can be seen as a market opportunity for the business development product pipeline.

STEP 2.1 - 3.3: MONTH 2 AND 3

The steps 1.1 to 1.3 can then repeated for the subsequent months in which the analysis is done. This will then be noted down as step 2.1 to 2.2 for the second month and step 3.1 to 3.3 for the third month. Furthermore, to ensure that the second and third month will provide new insides in relation to the product categories, the Asins found in the first month should be excluded from the view in the second month. In the same fashion this should be done in the third month in which the Asins from the first two months can be excluded. Naturally, this also counts for the strategic fit filters that have been created in step 1.2 and the later steps 2.2 and 3.2. All strategic fit exclusions should stay set in the entire process. This ensures the reliability as well as clarity of the upcoming steps in the manual.

STEP 4.1: THE PIPELINE LIST

The last step of the market scanning phase is to combine the results of the three months and corresponding steps into one pipeline. The collected categories should then be analysed by the company and not fitting ones are taken out. The result is a list with products that have a strategic fit as well as a positive slope of sales over time. In Tableau this is constructed as follows (see table 7: Script Wordcloud Pipeline)

Description of Manual: "Word cloud Pipeline list"		
[Assign_Produkt_Category]. Size shows distinct count of **[Asin].** The data is filtered on **[Asin]** and keeps members from month 1 - 3. The view is filtered on **[Assign_Produkt category]** and keeps # members.		
Marks:	Text Stacked marks is on	All product categories are written in text
	Shelves of the sheet:	
Filters:	**[Asin]** **[Assign_Produkt_Category]**	members from step 1 to 3 Exclude Non-fitting categories
Text:	**[Assign_Produkt_Category]**	
Size:	CNTD**[Asin]**	
	Dimension	
[Created At Month]	Which month is analysed	Month 1-3 on the sheet
[Asins]	Amount of Asins left on the sheet.	
[Assign_Produkt_Category]	Number of categories created	How many categories
	Measures:	
CNTD **([Asin])**	How many times a unique Asin appears in a category type.	Range of Asins in categories.

TABLE 7: SCRIPT WORD CLOUD PIPELINE

With this overview an extra assessment can be made to assess the strategic fit of the categories that are shown. The categories can then be filtered out before the last step of the market scanning phase.

Although the created word cloud will provide a clear overview of the products and their connected market size, it is still hard to put it into perspective. The following step 4.2 The Category Portfolio map will provide this perspective and makes the decision making for the SME more convenient.

STEP 4.2: THE CATEGORY PORTFOLIO MAP

For a SME to decide which product they should produce, it is essential to know the size of the market with the amount of product per product category. Equally important is knowing if the category actually makes enough revenue to be of value for the SME. To do so, the keyword portfolio map used by S. Lee et al. (2008) is applied in the context of this research with the keywords replaced by the created categories of Step 1.3. S. Lee et al. (2008) used two variables in which the increasing rate of keywords is related to the absolute size of the number of keywords in total. In relation to this research, the frequency of the products appearing in the categories in the word cloud is related to the average amount of revenue each individual category has been making over the fourteen weeks of obtaining the data. The average revenue can be related to any time period but for clarification reasons in this research it is shown for the average revenue per week.

Concerning the Asins, it is essential to include all that have been collected over the time period of scraping Amazon.de. The view will then visualise the actual market and not just the products that have a positive average slope. The following manual will provide this overview (See table 8: *Category Portfolio Map*).

Description of Manual: "Category Portfolio map"		
Distinct count of **[Asin]** vs average **[Revenue_week]** broken down by complete **[Created at Quarter]**. The marks are labelled by **[Assign_produkt_Category].** The data is filtered on **[title]** and exclude keywords in the **[title]** that do not fit the strategy. The view is filtered on **[Assign_Produkt_Category]** and keeps # members.		
Marks:	Mark type is Shape Marks are labelled by **Assign_Produkt_Category]** Stacked marks is off	All product categories are written in text and their location in the view is shown by a circle shape
	Shelves of the sheet:	
Rows:	Average (**[Revenue_week]**)	

Columns:	**[Created at Quarter]** CNTD**[Asin]**	All three months are combined in one Quarter
Filters:	**[Assign_Produkt_Category]** **[Title]**	All Asins are included Exclude Non-fitting categories
Text:	**[Assign_Produkt_Category]**	Every keyword is connected to a circle
	Dimension	
[Created At Quarter]	Which months are analysed	Month 1-3 are combined on the sheet in one quarter
[Asins]	Amount of Asins left on the sheet.	
[Assign_Produkt_Category]	Number of categories on the sheet	How many categories
	Measures:	
Average (**[Revenue_week]**)	**[Sales_week]*[Price]**	Range of average revenue of the categories in euros (€)
CNTD **([Asin])**	Range of the unique Asins appear in a category	Range of Asins in categories.

TABLE 8: CATEGORY PORTFOLIO MAP

The graph that will be drawn with this manual gives a clear insight in the market for every category. Essentially there are three main factors that can be taken from the graph. First of all, the categories that are shown have had Asins in there that have an average positive slope of 1 sale over 4/5 weeks in one of the three months. Second, for every category it is now clearly visible in its entirety how much their average revenue per week is over a period of three months. Third, the distinct count of unique Asins will be shown on x-axis. From this it can be observed how large the market is and how many products are offered in a single category. Presumably, the more Asins in a particular category, the more difficult it becomes to enter that market (see figure 6: Category Portfolio Map)

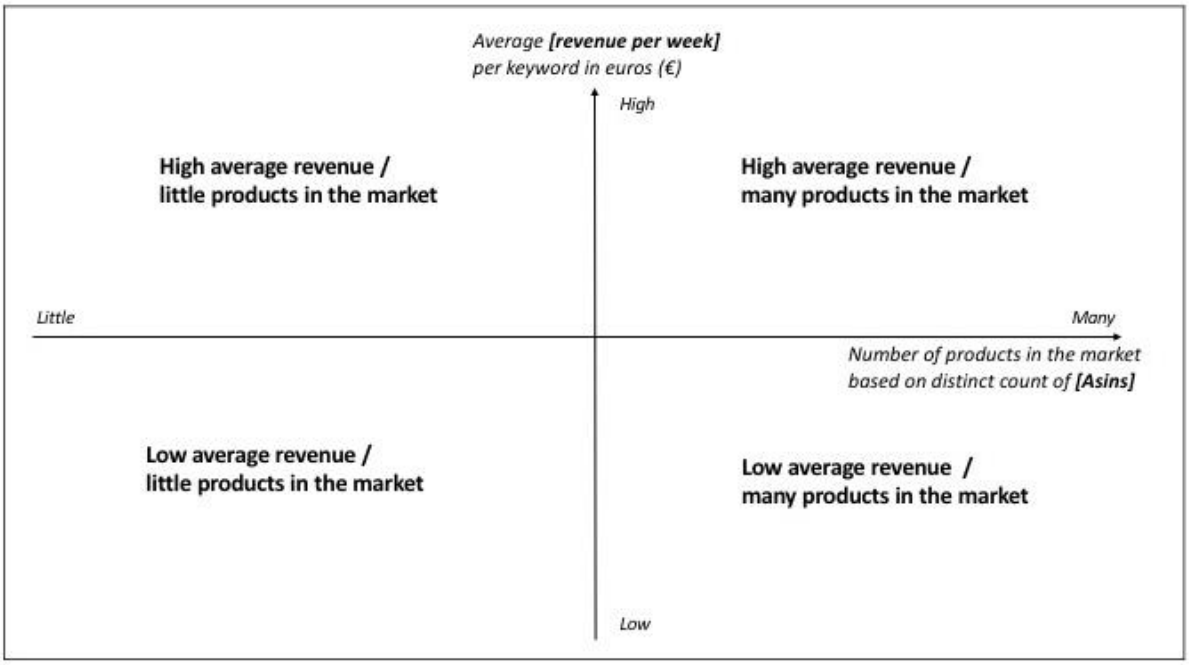


FIGURE 6: CATEGORY PORTFOLIO MAP

Thus, a category with many Asins and a low average revenue can be labelled as a product category with a low change of being a growth opportunity. This category has a large amount of options and it is likely to be saturated. The categories with a high average revenue and little amount of unique Asins can be seen as an opportunity to enter. In like manner, the categories with a low average revenue and little products can be marked as not interesting while there is no market. The products with a high average revenue and many products in the market can be marked as interesting but can be considered a costly market to enter because of the many competitors' products already available for the customers (see figure 6: *Category Portfolio Map).* The last step in the market scanning phase is to decide which category to look deeper into and which can be put on hold for the time being.

STEP 4.3 CATEGORY DECISION MAKING

The category portfolio map provides SMEs with a clear overview of the average revenues of the categories are and how many unique products are offered per category in the 3 months of collecting the data. Because there have already been five strategic fit filtering steps, the categories left should fit the company's product portfolio. The category decision can be made based on the two variables that are presented in step 4.2, namely the average revenue and the number of products that are already offered in a category. Thus, for a firm it is important to set the boundaries in this phase to decide for the product categories that fit for current implementation and which have a future financial fit. Meaning, it depends on the firms'

financial and human resource capacity to decide for the number of new categories they want to look deeper into in the final phase. As a rule of thumb, it can be assumed that the higher the revenue and the lower the number of Asins in a category, the more likely it is that the product will succeed. Of course, the newly designed products should then be a similar or improved version of the ones that are already available in the market. The *follow up phase* will provide the last steps to take the final decision on this matter.

5.4 THE FOLLOW-UP PHASE

To be able to present a relatively specific product or innovation to the management, one additional and final step in the manual needs to be taken. This step will provide the management with a more detailed growth proposition.

STEP 5: PRODUCT DECISION MAKING

After a decision has been made concerning the categories, the product pipeline needs to be filled with possible new products for current or future implementation. This can be achieved based on the collected data in Tableau in combination with the internal capabilities and resources of the company.

To obtain the specific collected information of the products within a category, the category can be opened up to show all variables that have been collected over the 14 weeks of analysis. This can be revealed by clicking on the specific category that has been chosen in step 4.3 and then *View Data*. This data provides an overview of the products' titles, selling price, average revenue and sales per time period as well as the number of written reviews and overall rating. Additionally, it can be found when the product was first offered on Amazon.de and when the first review was written. Meaning, it can be found for how long the product has been offered or if it is newly launched. Lastly, when vital product information is missing in the Tableau data, it is possible to copy a specific Asin into Amazon.de. This will show the product information on Amazon.de in a more detailed fashion.

Furthermore, additional input from the innovation, product and R&D teams is needed. Besides the general process of new product development within a SME, the following questions should be answered: *"Can we produce it?", Can we produce a similar or improved version?", "What will it cost?", "What are the prospective revenues"* and *"How much investment is required to reach these revenues?"*. When this step has been taken, the product pipeline can be filled with possible new product ideas that can be presented to the management for them to decide on the actual implementation.

5.5 THE MARKET SCANNING GUIDELINE AND ROADMAP

The three phases and corresponding steps are then be drawn into a roadmap with different nodes and linkages (See figure 7: The market scanning Roadmap). The *preliminary phase* is presented as an add-on to the actual roadmap to emphasise the need to first complete its five steps before initiating with the *market scanning* & subsequent *follow-up phase.*

The roadmap consists of four layers. The first layer represents the period of *Time* in the roadmap. In here the different months in which the steps need to be taken are written. These steps are described in the second layer, *the market scanning Manual*. The third layer represent the *Company & Management decisions* and represents the parts when input concerning the strategic or financial fit is required. The fourth layer *Resources & Capabilities* shows the resource, human and financial capital that is required during the different phases.

Furthermore, the three fundamental questions a roadmap should answer stated by R. Phaal et al. (2007) are written down to highlight where these are answered. Lastly, step 1 of the preliminary phase, in which the support is established, is shown throughout the entire process. After all, companywide continuous support for the business development process is key for its success (Sørensen, 2012).

All the above results are presented in a roadmap on the next page.

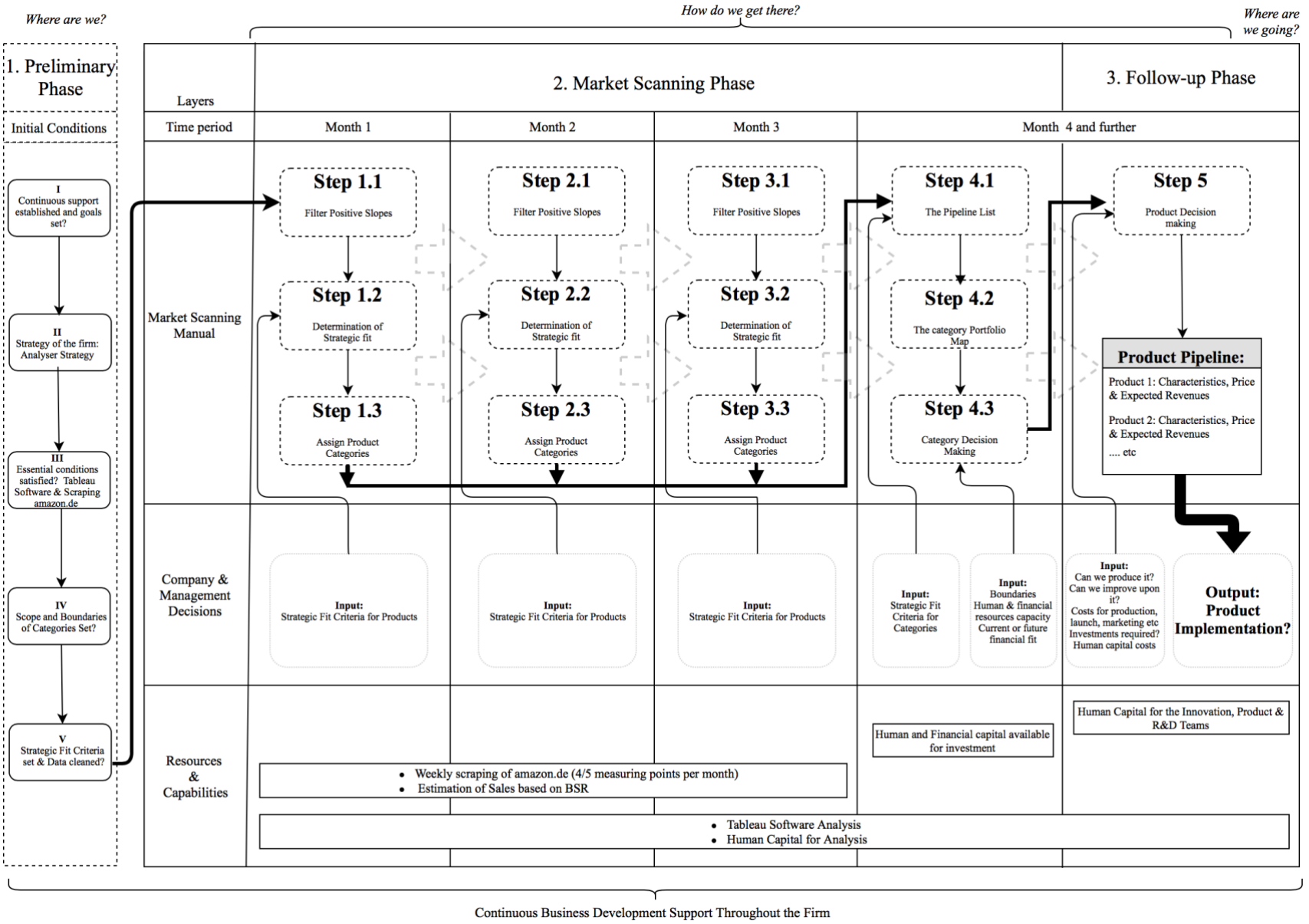


FIGURE 7: THE MARKET SCANNING ROADMAP

6. DEMONSTRATION OF THE ROADMAP

The roadmap is demonstrated in Company V. This firm operates in the consumer goods market, specifically the food supplement market. At the start of the roadmap it holds a steady base of twelve products which are mostly sold online to a loyal customer base. They are specialised in food supplements which contain different sort of ingredients intended for different uses. These ingredients are sold to consumers in the form of capsules, tablets, liquids and/or powders. The goal of Company V is to create sustainable growth by enlarging its product portfolio substantially. However, in addition to the over 140 different vitamins and minerals that are allowed to be sold in Germany, there are also hundreds of different natural ingredient supplements on the market (European Commission, 2008). These are all sold in different quantities, qualities and forms. For Company V it is therefore not clear which products should be produced and if they will contribute to firm growth. The market scanning roadmap should help with clarifying these issues.

6.1 DEMONSTRATION OF PRELIMINARY PHASE

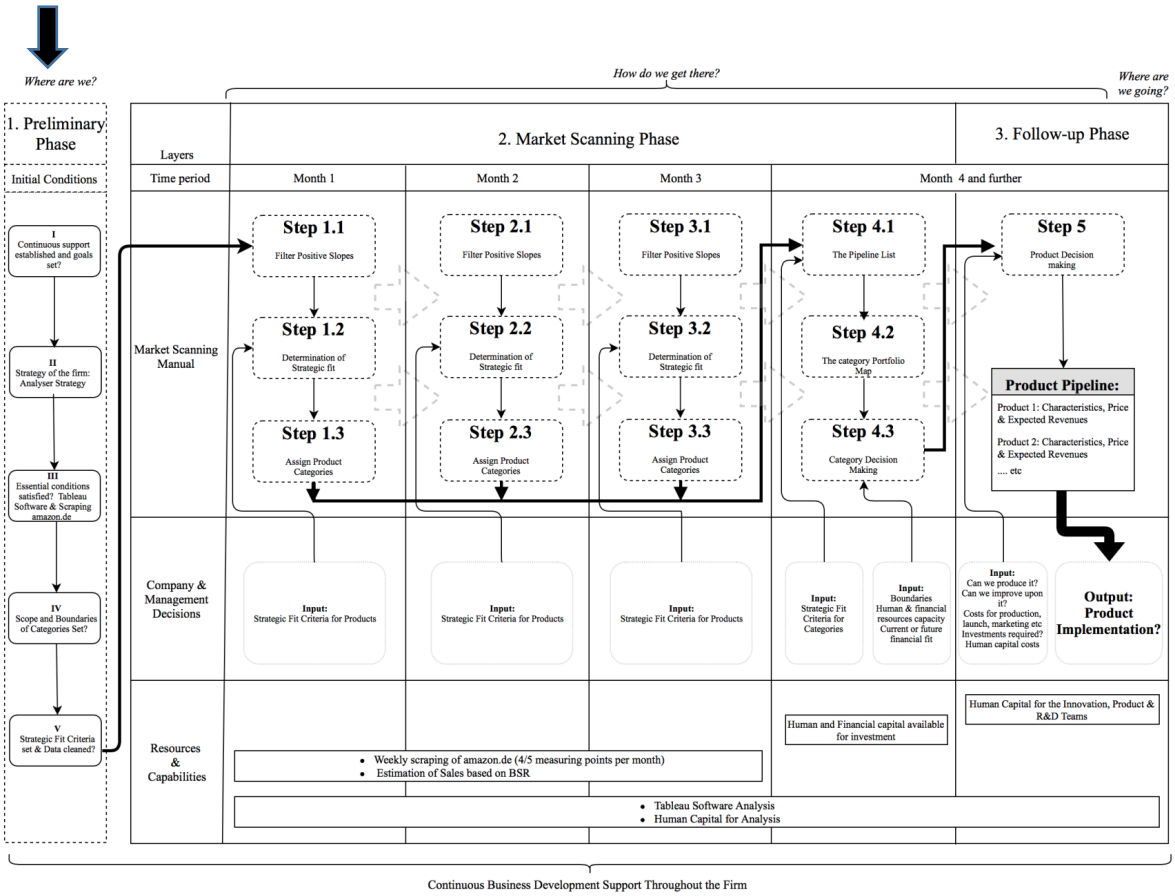


FIGURE 8: ROADMAP – PRELIMINARY PHASE

The first three steps of the preliminary phase have been successfully completed and the support, sponsorship and strategy are set. Company V is specialised in selling food supplements

on the German market and has an intention to grow by finding new products they can add to their portfolio. The company obtained human capital and financial support throughout the entire firm to realise this growth. At the moment Company V holds a steady base of twelve products they are already selling on the market. They occupy an *analyser* strategy by following other firms into a new market-product domains while trying to improve on these products by creating a better product in terms of quality or design (R. E. Miles et al., 1978; Slater et al., 2010). As a goal Company V wants to significantly increase their product portfolio with products that have a minimum revenue of 500 euros or more per week. The total increase of weekly revenue is set at €15 thousand euros.

In **step four** the scope and boundaries of the market scanning are decided. Because Company V is specialised in food supplements, the categories that fit the company best are connected with the main category *Drogerie & Körperpflege* (Drugstore and body care). Consequently, from this category the estimation of sales is made based on the number of products that are offered in this category (Appendix 2.3) and how much they sell compared with the other products (Amazon.com inc., 2017; Chevalier & Mayzlin, 2006). This already reduces the number of products to scan at from 230-million to 2.35-million. This is further reduced by selecting one of the thirteen level-2 categories to which Company V's strategy is related to, namely *Nahrungsergänzung* (Nutritional supplements). The three out of four level-3 categories, *Gewichtsmanagement* (Weight loss), *Sportnahrung* (Sport nutrition) and *Vitamine, Mineralien & Ergänzungsmittel* (Vitamins, minerals & supplements) are additionally chosen to be scanned.

However, as mentioned in chapter 3 *A New Source for Market Scanning: Amazon.de* there are forty-nine level four, 148 level five and twenty-seven level-6 categories. Choosing from these becomes too specific while most of these categories contain products with the same ingredients or purpose. To provide Company V with a broad market scan while at the same time not collect too much information, just the level-4 categories are chosen which contain additional level-5 and level-6 categories. Meaning that only the 100 best-selling products that are in the subsequent levels of the level-4 categories are collected. Lastly, eight level-4 categories are chosen which do not contain lower levels of categories but do fit the strategy of Company V or have a large number of products within this category, these have 0 in the *number of level 5 & 6 categories* column (See table 9 below).

Level 1	Level 2	Level 3	Level 4		Number of Level 5 & 6 categories
1. Drogerie & Körperpflege	2. Nahrungsergänzung	3. Gewichtsmanagement	6.	Diuretika	0
			7.	Entgiftung & Detox-Kur	0
			8.	Grüner Kaffee	0
			9.	Riegel	4
			10.	Snacks	0
		4. Sportnahrung	11.	7 Keto DHEA	
			12.	CLA	
		5. Vitamine, Mineralien & Ergänzungsmittel	13.	Aminosäuren	12
			14.	Antioxidantien	17
			15.	Apfelessig-Kapseln	0
			16.	Ballaststoffe	0
			17.	Bierhefe	0
			18.	Chondroitin & Glukosamine	3
			19.	Drüsenextrakte	4
			20.	Enzyme	4
			21.	Essentielle Fettsäuren	15
			22.	Lipide	3
			23.	Mineralien	17
			24.	Multivitamin & Mineralien	0
			25.	Pflanzliche Ergänzungsmittel	59
			26.	Probiotika	4
			27.	Vitamine	18

TABLE 9: AMAZON.DE CATEGORIES TO SCAN

Lastly, the first criteria need to be set for the strategic fit. Company V has several criteria for the products they want to produce and sell. At the moment, they are able to sell products in the form of capsules, tablets, powder or liquid. They are not interested in selling products which do not classify as a food supplement. Lastly, Company V only wants to sell products which are made of the best quality in the best possible form. When there is doubt if the product has a positive effect on people then they are considered as non-fitting.

Step five in the *preliminary phase* is done by a professional IT-company who obtains the data automatically for Company V. As seen in *figure 9: Estimation of Sales Based on BSR*, the lower the best seller rank, the higher the sales per day. Because most of the literature accepts the BSR as a proxy of sales (Floyd et al., 2014), this estimation can be accepted.

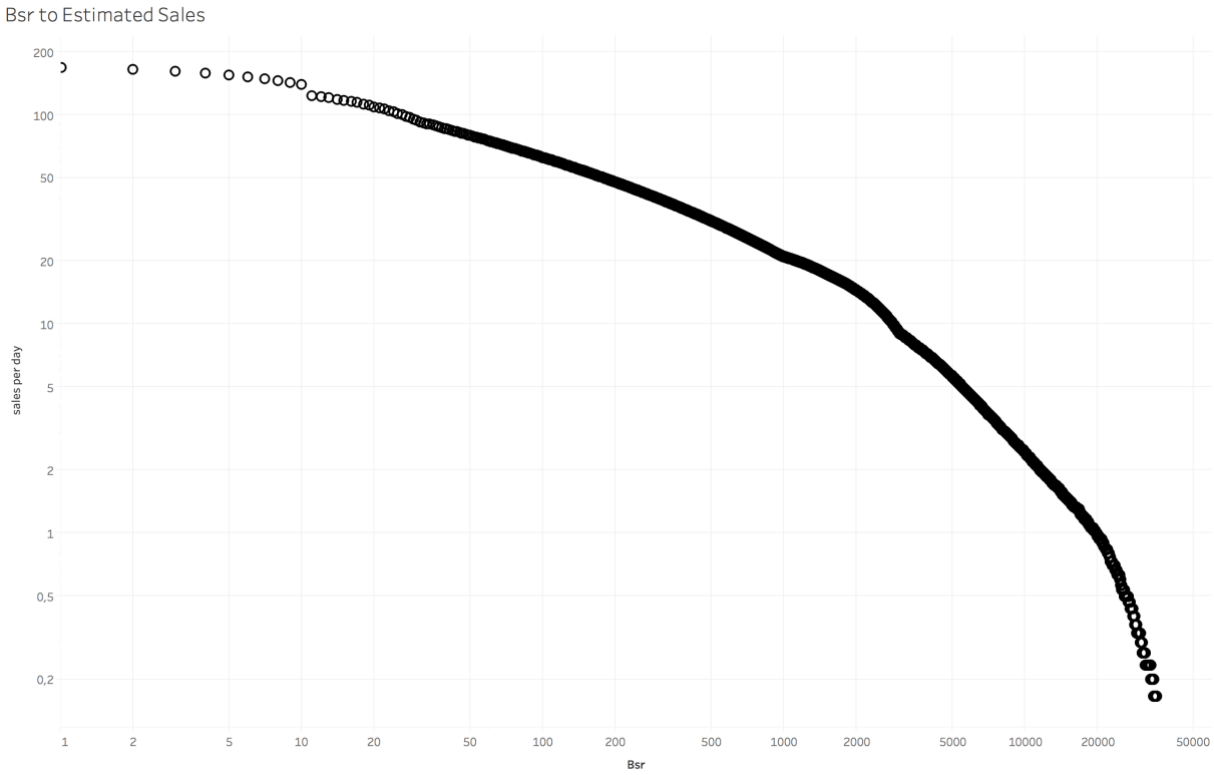


FIGURE 9: ESTIMATION OF SALES BASED ON THE BSR OF DROGERIE & KÖRPERPFLEGE

For fourteen weeks the data has been collected by the IT-company. Although the data has been obtained securely, Amazon.de itself is a dynamic platform in which products constantly appear and disappear in the top100 of a category. Additionally, products are sometimes added in a sub-category in which they do not belong and it is therefore necessary to clean the data first. Meaning, the main categories (level 1) for which an estimation of sales has not been made need to be filtered out to assure that all obtained products are listed in the same main category. In Tableau this is done by "editing' the data source extract and selecting the *Top100_Main* variable and filter this on *Drogerie & Körperpflege.*

In this period of fourteen weeks the data of 4172 distinct *Asins* and their subsequent variables have been collected from the 27 above selected categories. In these fourteen measurement points 33.769 unique rows of information about products has been collected (See figure 10*: Number of (unique) Asins collected*). It also shows that some categories have less than a hundred products in their top100 (E.g. 7 keto DHEA) and that other categories have a lot of interchanging products going in and out of the top100, which means that this category is very dynamic (E.g. Enzyme).

Total count of unique Asins in dataset

Top100_Sub_Categories	
7 Keto DHEA	41
Aminosäuren	203
Antioxidantien	179
Apfelessig-Kapseln	199
Ballaststoffe	128
Bierhefe	58
Chondroitin	236
CLA	124
Diuretika (Gewichtsmanagement)	146
Drogerie & Körperpflege	272
Drüsenextrakte	101
Entgiftung & Detox-Kur (Gewichtsmanagement)	242
Enzyme	244
Essentiellen Fettsäuren	217
Gewichtsmanagement	197
Grüner Kaffee (Gewichtsmanagement)	138
Lipide	193
Mineralien	186
Multivitamine & Mineralien	194
Nahrungsergänzung	227
Pflanzliche Ergänzungsmittel	201
Probiotika	228
Riegel (Gewichtsmanagement)	242
Snacks (Gewichtsmanagement)	269
Sportnahrung	236
Vitamine	195
Vitamine, Mineralien & Ergänzungsmittel	224
Grand Total	4.172

Total count of Asins collected in dataset

Top100_Sub_Categories	
7 Keto DHEA	402
Aminosäuren	1.397
Antioxidantien	1.380
Apfelessig-Kapseln	1.366
Ballaststoffe	723
Bierhefe	737
Chondroitin	1.318
CLA	1.232
Diuretika (Gewichtsmanagement)	1.331
Drogerie & Körperpflege	1.392
Drüsenextrakte	1.203
Entgiftung & Detox-Kur (Gewichtsmanagement)	1.306
Enzyme	1.313
Essentiellen Fettsäuren	1.331
Gewichtsmanagement	1.197
Grüner Kaffee (Gewichtsmanagement)	1.302
Lipide	1.271
Mineralien	1.392
Multivitamine & Mineralien	1.376
Nahrungsergänzung	1.363
Pflanzliche Ergänzungsmittel	1.307
Probiotika	1.314
Riegel (Gewichtsmanagement)	1.386
Snacks (Gewichtsmanagement)	1.266
Sportnahrung	1.388
Vitamine	1.398
Vitamine, Mineralien & Ergänzungsmittel	1.378
Grand Total	33.769

FIGURE 10: NUMBER OF (UNIQUE) ASINS COLLECTED PER CATEGORY

The next step is to clean the data of *Asins* that do not fit the company strategically (e.g. Electronics, baby supplies etc.). The 258 *Asins* are then grouped together and excluded from the market scanning process (see table 10: Data Cleaning Step in Tableau)

	Database cleaning of non-fitting Asins
description	The view is broken down by [Top100 Cat] vs. [Non_Fitting_Asins_group], [Title] and [Asin]. The view is filtered on [Top100 Cat], which keeps Drogerie & Körperpflege.
Marks:	The mark type is Text
Rows	Non_Fitting_Asins_group, Title, Asin
Columns	Top100 Cat
Filters:	Top100 Cat
Non_Fitting_Asins_group	has 258 members

TABLE 10: DATA CLEANING STEP TABLEAU

This group is further excluded from the process by "editing' the data source extract and selecting the *Non_Fitting_Asins_group* variable and exclude the member "Non fitting Asin group". This leaves 28 *Asins* in the category *Drogerie & Körperpflege* leaving the total distinct

amount of Asins to 3.914 in 31.964 separate rows as can be seen in figure 10: *Number of (unique) Asins after data cleaning.*

Top100_Sub_Categories	Distinct count of Asin	Count of Asin
7 Keto DHEA	41	402
Aminosäuren	201	1,379
Antioxidantien	173	1,309
Apfelessig-Kapseln	198	1,361
Ballaststoffe	127	721
Bierhefe	58	737
Chondroitin	236	1,318
CLA	124	1,232
Diuretika (Gewichtsmanagement)	146	1,331
Drogerie & Körperpflege	28	88
Drüsenextrakte	101	1,203
Entgiftung & Detox-Kur (Gewichtsman..	242	1,306
Enzyme	244	1,313
Essentiellen Fettsäuren	215	1,303
Gewichtsmanagement	195	1,169
Grüner Kaffee (Gewichtsmanagement)	137	1,294
Lipide	193	1,271
Mineralien	186	1,392
Multivitamine & Mineralien	193	1,375
Nahrungsergänzung	218	1,263
Pflanzliche Ergänzungsmittel	195	1,275
Probiotika	226	1,287
Riegel (Gewichtsmanagement)	242	1,386
Snacks (Gewichtsmanagement)	269	1,266
Sportnahrung	231	1,334
Vitamine	192	1,369
Vitamine, Mineralien & Ergänzungsmit..	215	1,280
Grand Total	3,914	31,964

FIGURE 11: NUMBER OF (UNIQUE) ASINS AFTER DATA CLEANING

The data is cleaned and the preliminary phase has been completed accordingly. It is then possible to go to the next phase and test the manual in the market scanning phase.

6.2 DEMONSTRATION OF THE MARKET SCANNING PHASE

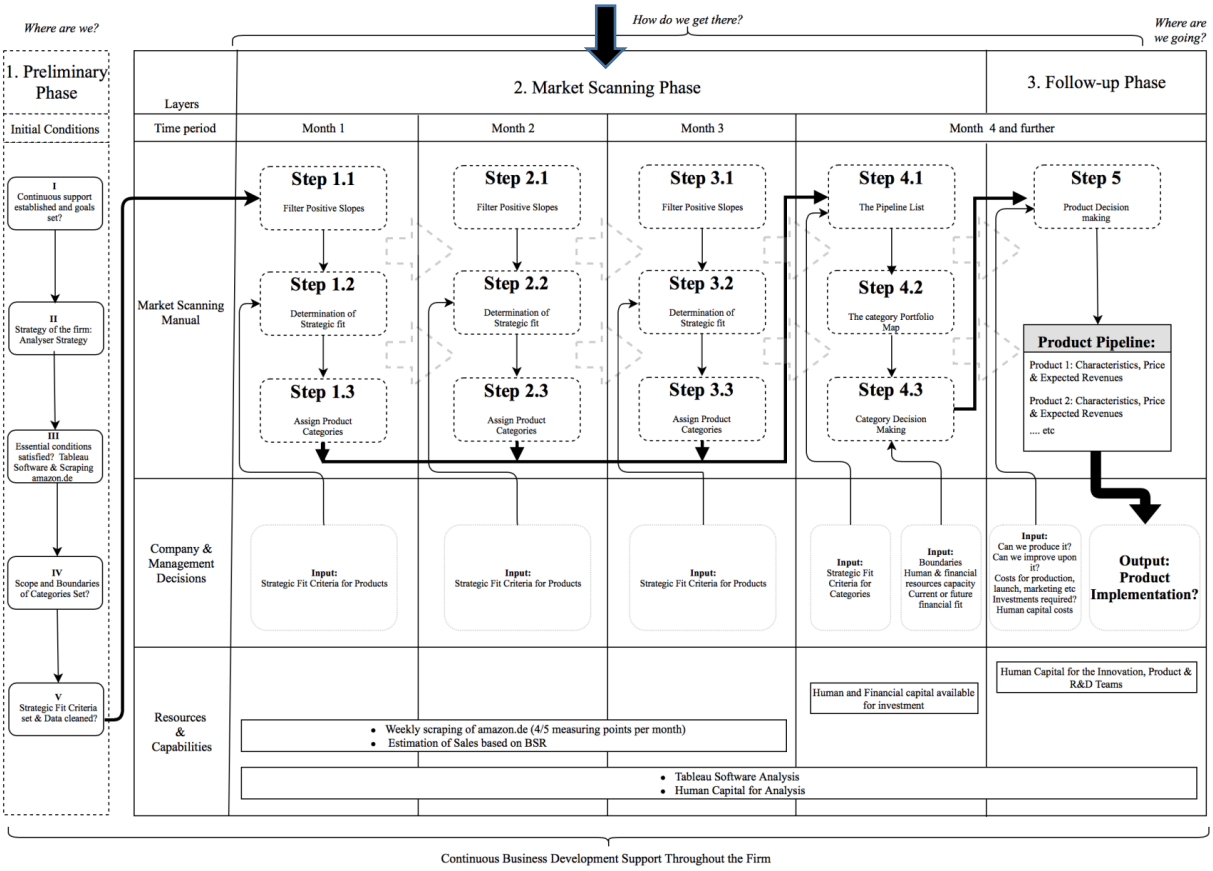


FIGURE 12: ROADMAP - MARKET SCANNING PHASE

Over a period of fourteen weeks the information of 3914 products has been collected from 27 different categories. However, this does not mean that all of these products have potential to be added to the business development pipeline of Company V. To make the scan feasible, the number of *Asins* is reduced by excluding all product that do not have an average increase of 1 sale over a period of 4 or 5 weeks. The reason for this filter is to ensure that all the products that are being scanned are presumably becoming more popular over time. Below in Table 11*: First Month Plot* the first step is taken.

STEP 1.1: FILTER POSITIVE SLOPES MONTH 1

Description of Manual: "First month plot"		
The plot of average of **[sales_week]** for 5 weeks **[Created_At_Week]** broken down by month 1 **[Created_At_Month].** vs. **[Top100_Sub_Categories]**. The colour shelf shows details about **[Asins]**. The view is filtered to include **[Asins]** with a slope of an average increase of sales from values greater than or equal to 1.00 **[Slope_week].**		
Marks:	Line Stacked marks is off	A line of sales from week to week.
	Shelves of the sheet	
Rows:	Avg.([**sales_week**]) **[Top100_Sub_Categories]**	

Description of Manual: "First month plot"		
Columns:	**[Month of Created At], [Week of Created At]**	
Filters:	**[Slope_week]**	≥ 1
	[Month of Created At]	Month 1
Level of detail:	**[Slope_week]**	*Showing trend lines*
Colour:	**[Asin]**	
	Dimension	
[Top100_Sub_Categories]	How many categories are left on the sheet	Leaves 24 out of 27 categories
[Created At Month]	Which month is analysed	1st month on the sheet
[Asins]	Amount of Asins left on the sheet	*Leaves **188*** Asins for analysis
[Created_At_Week]	How many weeks in the month	5 weeks in 1st month
	Measures:	
Average **([sales_week])**	**[Sales]** / 30 * 7	Ranges from 0 to 824 on this sheet
[Slope Week]	WINDOW_COVAR(INT (DATETRUNC ('week',MIN**([Created_At]**))) ,(AVG**([sales_week]**))) / WINDOW_VAR (INT(DATETRUNC ('week',MIN(**[Created At**]))))	Ranges from 1.00 to 15 on this sheet.

TABLE 11: FIRST MONTH PLOT

This leaves 188 unique products of which now is known that over a period of 5 weeks they have increased their sales. The view is further divided by **[Top100_Sub_Categories]** to show the products and in which categories they appear. Per category it then displays the lines as portraited in the example figure 13: *Multivitaminen & Mineralen* below.

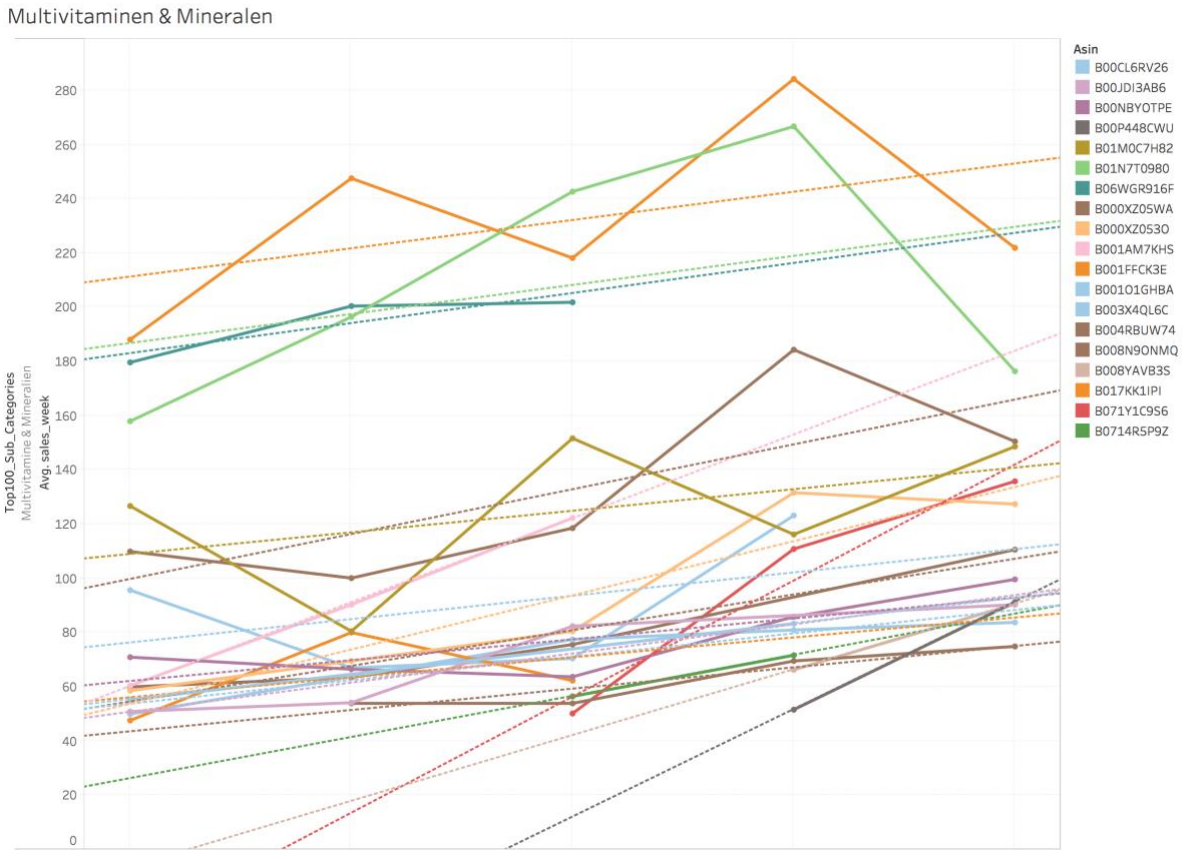


FIGURE 13: MULTIVITAMINEN & MINERALEN CATEGORY

Each *Asin* has its own colour and the dotted line represents the trend line of sales for each product. For every category the same view appears containing only the *Asins* that have a positive slope of an average of 1 sale over time.

STEP 1.2: DETERMINATION OF STRATEGIC FIT MONTH 1

To further specify on the 188 products and determine the first strategic fit for Company V, the data from the charts is duplicated into a crosstab in Tableau and the variable *[title]* is added to the crosstab to analyse the different product that became visual. Products that do not fit the strategy of Company V include the ones that are not in the form of a liquid, capsule, tablets or powder (tropfen, flüssig, Kapsel & Pulver). Products that do appear in the view but do not fit the portfolio of Company V are, among others, muesli bars, pharmaceutical products, sport accessories, drinks and food products. These are filtered out with the excluding keyword function "NOT CONTAINS ([**Title**], 'keyword'). This function can be added into the title filter as seen below in Table 12: *Crosstab and title exclusion.* For every keyword that needs to be excluded an extra line of the function can be added in Tableau with AND in between (e.g. NOT CONTAINS ([Title], 'shaker') AND NOT CONTAINS ([Title], 'dmso') (See Appendix 3: Used tableau functions).

Description of Manual: "First month – Crosstab with title"		
The plot of average of **[sales_week]** for 5 weeks **[Created_At_Week]** broken down by month 1 **[Created_At_Month]**. vs. **[Top100_Sub_Categories]**, **[Asin]** and **[Title].** The view is filtered to include [**Asins]** with a slope of an average increase of sales from values greater than or equal to 1.00 **[Slope_week]**and exclude **[title]** with keyword that do not fit the strategy of Company V.		
Marks:	Text Stacked marks is on	All *Asins* and Titles are written in text
	Shelves of the sheet	
Rows:	**[Top100_Sub_Categories]** **[Asin]** **[Title]**	
Columns:	**[Month of Created At], [Week of Created At]**	
Filters:	**[Slope_week]** **[Title]** (by condition, Formula)	≥ 1 Excludes 43 Asins.
Text:	All variables used are written out	
	Dimension	
[Top100_Sub_Categories]	How many Amazon categories are left on the sheet	Leaves 19 out of 27 Amazon categories
[Created At Month]	Which month is analysed	1st month on the sheet
[Created_At_Week]	How many weeks in the month	5 weeks in 1st month
[Asins]	Amount of Asins left on the sheet	Leaves **147** Asins for analysis
	Measures:	
Average(**[sales_week]**)	**[Sales]** / 30 * 7	Ranges from 0 to **481** on this sheet
[Slope Week]	WINDOW_COVAR(INT (DATETRUNC ('week',MIN(**[Created_At]**))) ,(AVG**([sales_week]**))) /	Ranges from **1** to **9** on this sheet.

Description of Manual: "First month – Crosstab with title"
WINDOW_VAR (INT(DATETRUNC ('week',MIN**([Created At])**)))

TABLE 12: CROSSTAB AND TITLE EXCLUSION MONTH 1

The excluding keyword function has excluded forty-three uninteresting Asins which leaves 147 *Asins* that can be considered for further analysis.

STEP 1.3: ASSIGN PRODUCT CATEGORIES MONTH 1

By using the 'assign category' function in Tableau, each product with a particular product keyword, in this case ingredient, is assigned to a specific category. The ingredient defines the assigned category for each product (See Appendix 3: Used tableau functions).

By doing so it is possible to actually differentiate easily between the different offered products as well as obtain an understanding of the actual size of the market. To fill this out in Tableau this looks like the table 13 below.

Description of Manual: "Word cloud First month"		
[Assign_Produkt_Category].]. Size shows distinct count of **[Asin].** The data is filtered on **[Asin]** and keeps **147** members		
Marks:	Text Stacked marks is on	All product categories are written in text
	Shelves of the sheet:	
Filters:	**[Asin], [Month of Created At]**	**147** Asins from step 1.2
	[Month of Created At]	1st month analysis
Text:	**[Assign_Produkt_Category]**	
Size:	CNTD**[Asin]**	
	Dimension	
[Created At Month]	Which month is analysed	1st month on the sheet
[Asins]	Number of Asins left on the sheet from last analysis	Leaves 147 Asins for analysis
[Assign_Produkt_Category]	Number of categories created	57 different types
	Measures:	
CNTD **([Asin])**	How many times a unique Asin is in a category type.	1 to 11 Asins per group counted

TABLE 13: WORD CLOUD MONTH 1

However, in Tableau the overview becomes clearer in the form of a word cloud to see which products are most present on the market in the first month. The size indicates how many unique Asins are in the category and the text are the 57 types itself. Furthermore, products of which it is unknown what their purpose is or do not have a specific characteristic are placed in the "other" category (see figure 14: *Word cloud first month*).

Product Type and Asin Count in market									
Vitamin D3	10	Spirulina Chlorella	3	Ashwagandha	2	MSM	1	Gelenke Mix	1
Other	10	MCT öl	3	Zink	1	Lactase	1	Bor	1
Magnesium	10	L-tryptophan	3	Zeolith	1	L-glutathion	1	Biotin	1
Omega-3	8	Flohsamen	3	Weihrauch	1	Detox	1	Ballaststof	1
Abnehmen	6	D-mannose	3	Vitamin c	1	Gemüse extrakt	1	BCAA	1
Probiotika	5	Sango Meereskoral	3	Sägepalmen extrakt	1	Chromium Picolinat	1	Pinienrinden extrakt OPC	1
Kurkuma	5	L-glutamin	2	Vitamin B3	1	Folsäure	1	Obst Extrakt	1
L-arginin	5	Kreatine	2	Vitamin B12	1	Eisen	1	Maca	1
Traubenkernextrakt OPC	4	Hyaluronsäure	2	Vitamin A	1	Grapefruitkerne extrakt	1		
Coenzym Q10	4	Cranberry	2	Vitamin B5	1	Cordyceps	1		
Biotin Mix	4	Calcium	2	Selen	1	Colon	1		
Vitamin k2	3	Bockshornklee	2	Multivitamin	1	Aminosäuren	1		
Sportnahrung	3	Basen Protekt	2	Mariendistel	1	CBD öl	1		

FIGURE 14: WORD CLOUD FIRST MONTH

From this view it is clearly visible that the "Magnesium" and "Vitamin D3 categories are the largest with 10 unique available products. The category "other" is not usable for further analysis because of undefined or unknown ingredients. But, from this view it becomes relatively clear which type of products are the largest on the platform and which types of products are less available on Amazon.de. However, all the above types are products that increase their sales over time.

STEP 2.1: FILTER POSITIVE SLOPES MONTH 2

In the second month of the analysis, the steps are equal to the first month analysis. However, because the products from the first month have already been found, they can be filtered out for the second month. Therefore, the 188 Asins that have been collected in Step 1.1 can be excluded.

Description of "Manual: "Second Month plot"		
The plot of average of **[sales_week]** for 4 weeks **[Created_At_Week]** broken down by month 2 **[Created_At_Month].** vs. **[Top100_Sub_Categories]**. The colour shelf shows details about **[Asins]**. The view is filtered to include **[Asins]** with a slope of an average increase of sales from values greater than or equal to 1.00 **[Slope_week]** and exclude the 188 **[Asins]** from month 1.		
Marks:	Line Stacked marks is off	A line of sales from week to week.
	Shelves of the sheet	
Rows:	Avg.([**sales_week]**)	
	[Top100_Sub_Categories]	
Columns:	**[Month of Created At], [Week of Created At]**	
Filters:	**[Slope_week]** **[Asin]**	≥ 1 188 Asins excluded from step 1.1
	[Month of Created At]	Month 2
Level of detail:	**[Slope_week]**	Showing trend lines
Colour:	**[Asin]**	
	Dimension:	
[Top100_Sub_Categories]	How many Amazon categories are left on the sheet	Leaves **26** out of **27** Amazon categories
[Created At Month]	Which month is analysed	2nd month on the sheet
[Asins]	Amount of Asins left on the sheet	Leaves **150** Asins for analysis
[Created_At_Week]	How many weeks in the month	4 weeks
	Measures:	
Average**([sales_week]**	**[Sales]** / 30 * 7	Ranges from **0** to **532** on this sheet
[Slope Week]	WINDOW_COVAR(INT (DATETRUNC ('week',MIN**([Created_At]**))) ,(AVG**([sales_week]**))) / WINDOW_VAR (INT(DATETRUNC ('week',MIN(**[Created At**]))))	Ranges from **1.00** to **29** on this sheet.

TABLE 14: SECOND MONTH PLOT

This leaves 150 new Asins that can be considered for further analysis. Again, these are put into a crosstab with the titles added.

STEP 2.2: DETERMINATION OF STRATEGIC FIT MONTH 2

Because the steps are the same for every month and the strategic fit of products has not changed, the same filters can be copies and added from step 1.2 (See Appendix 3: Used tableau functions).

Description of Manual: "Second month – Crosstab with title"		
The plot of average of **[sales_week]** for 4 weeks **[Created_At_Week]** broken down by month 2 **[Created_At_Month]**. vs. **[Top100_Sub_Categories]**, **[Asin]** and **[Title]**. The view is filtered to include **[Asins]** with a slope of an average increase of sales from values greater than or equal to 1.00 **[Slope_week]**and the exclude keyword function in **[title]** excludes **61 [Asins]** that do not fit the strategy of Company V.		
Marks:	Text Stacked marks is on	All *Asins* and Titles are written in text

Description of Manual: "Second month – Crosstab with title"		
	Shelves of the sheet	
Rows:	**[Top100_Sub_Categories]** **[Asin]** **[Title]**	
Columns:	**[Month of Created At], [Week of Created At]**	
Filters:	**[Slope_week]** **[Title]** (by condition, Formula) **[Asin]** **[Month of Created At]**	≥ 1 Excludes **61** Asins. 188 Asins excluded Month 2
Text:	All variables used are written out	
	Dimension	
[Top100_Sub_Categories]	How many Amazon categories are left on the sheet	Leaves **24** out of **27** Amazon categories
[Created At Month]	Which month is analysed	**2nd** month on the sheet
[Created_At_Week]	How many weeks in the month	**4** weeks
[Asins]	Amount of Asins left on the sheet	Leaves **89** Asins for analysis
	Measures:	
Average(**[sales_week]**)	**[Sales]** / 30 * 7	Ranges from **0** to **532** on this sheet
[Slope Week]	WINDOW_COVAR(INT (DATETRUNC ('week',MIN(**[Created_At]**))) ,(AVG(**[sales_week]**))) / WINDOW_VAR (INT(DATETRUNC ('week',MIN(**[Created At]**))))	Ranges from **1** to **15** on this sheet.

TABLE 15: CROSSTAB AND TITLE EXCLUSION MONTH 2

The excluding keywords function excluded **61** uninteresting Asins which leaves **89** *Asins* that can be considered for further analysis. The 61 excluded Asins are on top of the 188 already excluded Asins from month 1.

STEP 2.3: ASSIGN PRODUCT CATEGORIES MONTH 2

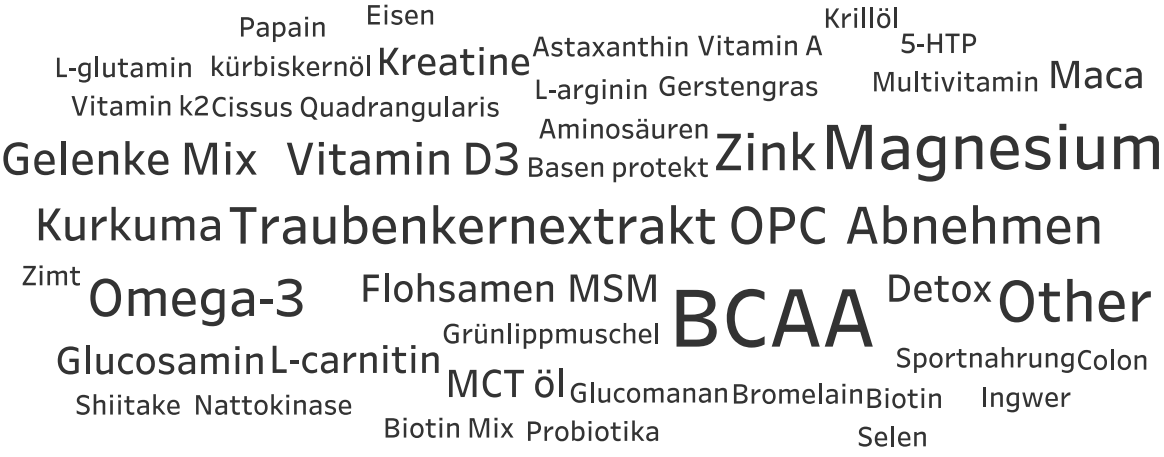
As with the first month, the main ingredient is given a label and the results are put into a word cloud. The same method as with month 1 is applied in which the distinct count of Asins defines the size of the word clouds members (See Appendix 3: Used tableau functions).

Description of Manual: "Word cloud Second Month"		
[Assign_Produkt_Category]. Size shows distinct count of **[Asin].** The data is filtered on **[Asin]** and keeps **89** members		
Marks:	Text Stacked marks is on	All product categories are written in text
	Shelves of the sheet:	
Filters:	**[Asin]**	Asins from last sheet + 1st month analysis
Text:	**[Assign_Produkt_Category]**	
Size:	CNTD**[Asin]**	
	Dimension	
[Created At Month]	Which month is analysed	2nd month on the sheet
[Asins]	Amount of Asins left on the sheet from last analysis	Leaves **89** Asins for analysis

Description of Manual: "Word cloud Second Month"		
[Assign_Produkt_Category]	Number of categories created	**46** different types
	Measures:	
CNTD **([Asin])**	How many times a unique Asin is in a category type.	**1** to **10** Asins per group counted

TABLE 16: WORD CLOUD MONTH 2

As with the previous month, this script creates the following word cloud for the second month. In the table below the amount of distinct *Asins* stated from the largest amount to the smallest.



Product Type and Asin Count in market									
BCAA	10	Maca	2	Vitamin k2	1	L-arginin	1	Biotin Mix	1
Magnesium	6	MSM	2	Vitamin A	1	Krillöl	1	Biotin	1
Other	5	MCT öl	2	Sportnahrung	1	Ingwer	1	Basen protekt	1
Zink	4	L-carnitin	2	Shiitake	1	Grünlippmuschel	1	Astaxanthin	1
Traubenkernextrakt OPC	4	Kreatine	2	kürbiskernöl	1	Cissus Quadrangularis	1	Aminosäuren	1
Omega-3	4	Glucosamin	2	Probiotika	1	Gerstengras	1	5-HTP	1
Abnehmen	4	Flohsamen	2	Papain	1	Eisen	1		
Vitamin D3	3	Detox	2	Nattokinase	1	Colon	1		
Kurkuma	3	Selen	1	Multivitamin	1	Glucomanan	1		
Gelenke Mix	3	Zimt	1	L-glutamin	1	Bromelain	1		

FIGURE 15: WORD CLOUD SECOND MONTH

In the second month 46 different product types are shown. The smaller product types have 1 or 2 Asins in the group while the largest product type, BCCAA, has 10 different products in the word cloud. Other products who were the largest in the first month are now smaller. This is an expected outcome while the Asins from the first month have not been included in this analysis. Additionally, new products have shown up in this analysis that did not show up in the first month (e.g. Zimt and 5-HTP).

STEP 3.1: FILTER POSITIVE SLOPES MONTH 3

In the third month of the analysis, the steps are equal to the other two months except that now both from the first and second month the Asins are taken out. Therefore, the 188 Asins that have been collected in Step 1.1 and the 150 Asins from Step 2.1 can be excluded.

Description of "Manual: "Third Month plot"		
The plot of average of **[sales_week]** for **5** weeks **[Created_At_Week]** broken down by month **3 [Created_At_Month].** vs. **[Top100_Sub_Categories]**. The colour shelf shows details about **[Asins]**. The view is filtered to include **[Asins]** with a slope of an average increase of sales from values greater than or equal to 1.00 **[Slope_week]** and exclude the **188 [Asins]** from month 1 and **150 [Asins]** from month 2.		
Marks:	Line Stacked marks is off	A line of sales from week to week.
	Shelves of the sheet	
Rows:	Avg.([**sales_week]**)	
	[Top100_Sub_Categories]	
Columns:	**[Month of Created At], [Week of Created At]**	
Filters:	**[Slope_week]**	≥ 1
	[Asin	188 + 150 = **332** Asins excluded
	[Month of Created At]	Month 3
Level of detail:	**[Slope_week]**	Showing trend lines
Colour:	**[Asin]**	
	Dimension:	
[Top100_Sub_Categories]	How many Amazon categories are left on the sheet	Leaves **23** out of **27** Amazon categories
[Created At Month]	Which month is analysed	3rd month on the sheet
[Asins]	Amount of Asins left on the sheet	Leaves **258** Asins for analysis
[Created_At_Week]	How many weeks in the month	5 weeks
	Measures:	
Average**([sales_week]**	**[Sales]** / 30 * 7	Ranges from **0** to **450** on this sheet
[Slope Week]	WINDOW_COVAR(INT (DATETRUNC ('week',MIN**([Created_At]**))) ,(AVG**([sales_week]**))) / WINDOW_VAR (INT(DATETRUNC ('week',MIN(**[Created At**]))))	Ranges from **1.00** to **24** on this sheet.

TABLE 17: THIRD MONTH PLOT

This leaves **258** new Asins that can be considered for further analysis. Again, these are put into a crosstab with the titles added to determine the strategic fit.

STEP 3.2: DETERMINATION OF STRATEGIC FIT MONTH 3

Because the steps are the same for every month and the strategic fit of products has not changed, the same filters can be copied and added from step 2.2 as can be seen below in Table 18: *Crosstab and Title exclusion Month 3* (See Appendix 3: Used tableau functions).

Description of Manual: "Third month – Crosstab with title"		
The plot of average of **[sales_week]** for 4 weeks **[Created_At_Week]** broken down by month 2 **[Created_At_Month]**. vs. **[Top100_Sub_Categories]**, **[Asin]** and **[Title]**. The view is filtered to include **[Asins]** with a slope of an average increase of sales from values greater than or equal to 1.00 **Slope_week** and exclude the **188 [Asins]** from month 1 and **150 [Asins]** from month 2 and the exclude keyword function in **[title]** excludes 58 **[Asins]** that do not fit the strategy of Company V.		
Marks:	Text Stacked marks is on	All *Asins* and Titles are written in text
	Shelves of the sheet	
Rows:	**[Top100_Sub_Categories]** **[Asin]** **[Title]**	
Columns:	**[Month of Created At], [Week of Created At]**	
Filters:	**[Slope_week]** **[Title]** (by condition, Formula) **[Month of Created At]**	≥ 1 Excludes **58** Asins. Month 3
Text:	All variables used are written out **[Asin**	188 + 150 = **332** Asins excluded
	Dimension	
[Top100_Sub_Categories]	How many Amazon categories are left on the sheet	Leaves **21** out of **27** Amazon categories
[Created At Month]	Which month is analysed	**3nd** month on the sheet
[Created_At_Week]	How many weeks in the month	**5** weeks
[Asins]	Amount of Asins left on the sheet	Leaves **200** Asins for analysis
	Measures:	
Average(**[sales_week]**)	**[Sales]** / 30 * 7	Ranges from **0** to **450** on this sheet
[Slope Week]	WINDOW_COVAR(INT (DATETRUNC ('week',MIN**([Created_At]**))) ,(AVG**([sales_week]**))) / WINDOW_VAR (INT(DATETRUNC ('week',MIN**([Created At]**))))	Ranges from **1** to 20 on this sheet.

TABLE 18:CROSSTAB AND TITLE EXCLUSION MONTH 3

The excluding keywords function excluded **58** uninteresting Asins which leaves **200** *Asins* that can be considered for further analysis. The 58 excluded Asins are on top of the 332 already excluded Asins from month one and two. With these 200 *Asins* step 3.3 is taken.

STEP 3.3: ASSIGN PRODUCT CATEGORIES MONTH 3

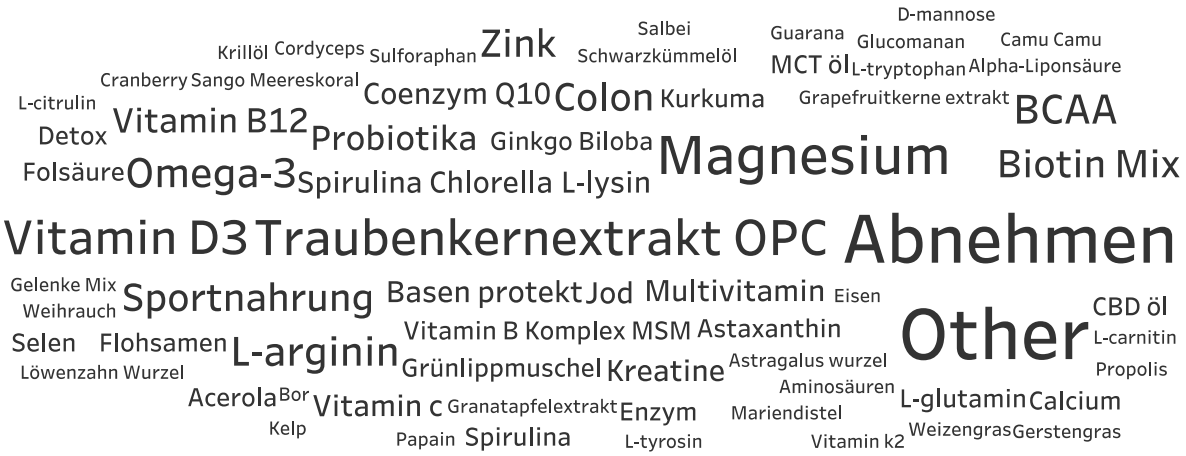
As with the other two months, the main ingredient is given a label and the results are put into a word cloud. The labels for the last two word clouds are used and additional labels are made for new product types. The same method as with month 1 is applied in which the distinct count of Asins defines the size of the word cloud members (See Appendix 3: Used tableau functions).

Description of Manual: "Word cloud Third Month"		
[Assign_Produkt_Category]. Size shows distinct count of **[Asin].** The data is filtered on **[Asin]** and keeps 200 members.		
Marks:	Text Stacked marks is on	All product categories are written in text
	Shelves of the sheet:	

Filters:	**[Asin]**	200 Asins obtained from step 3.2
Text:	**[Assign_Produkt_Category]**	
Size:	CNTD**[Asin]**	
	Dimension	
[Created At Month]	Which month is analysed	3rd month on the sheet
[Asins]	Amount of Asins left on the sheet.	Has 200 Asins
[Assign_Produkt_Category]	Number of categories created	71 different types
	Measures:	
CNTD **([Asin])**	How many times a unique Asin is in a category type.	1 to 19 Asins per group counted

TABLE 19: SCRIPT WORD CLOUD MONTH 3

As with the other months, the following word cloud is created with 71 different product types.



Product Type and Asin Count in market									
Other	19	Multivitamin	3	Ginkgo Biloba	2	Salbei	1	Gerstengras	1
Abnehmen	17	Spirulina Chlorella	3	Folsäure	2	Propolis	1	Gelenke Mix	1
Magnesium	11	L-lysin	3	Flohsamen	2	Aminosäuren	1	Eisen	1
Traubenkern extrakt OPC	9	Kreatine	3	Enzym	2	Löwenzahn Wurzel	1	Alpha-Liponsäure	1
Vitamin D3	8	Jod	3	Detox	2	L-citrulin	1	Cranberry	1
Omega-3	6	Coenzym Q10	3	Calcium	2	L-tyrosin	1	Cordyceps	1
L-arginin	6	Basen protekt	3	CBD öl	2	L-tryptophan	1	Bor	1
BCAA	6	Grünlippmuschel	2	Astaxanthin	2	Astragalus wurzel	1	Camu Camu	1
Zink	5	Spirulina	2	Acerola	2	L-carnitin	1	Mariendistel	1
Sportnahrung	5	Selen	2	Weizengras	1	Krillöl	1	Papain	1
Colon	5	MSM	2	Weihrauch	1	Kelp	1	D-mannose	1
Biotin Mix	5	MCT öl	2	Vitamin k2	1	Guarana	1		
Vitamin B12	4	L-glutamin	2	Sulforaphan	1	Glucomanan	1		
Probiotika	4	Kurkuma	2	Schwarzkümmelöl	1	Granatapfelextrakt	1		
Vitamin c	3	Vitamin B Komplex	2	Sango Meereskoral	1	Grapefruitkerne extrakt	1		

FIGURE 16: WORD CLOUD THIRD MONTH

In the third month 71 product types are shown, which is more than in the previous months. Additionally, there is a large amount of small product types in this view who have 1 Asin per

type. The product type abnehmen (losing weight) is the largest in month three with 17 Asins connected to it. Additional new products show up in this view as well, such as Sulforaphan, Kelp and L-tyrosine.

STEP 4.1: THE CATEGORY PIPELINE LIST

The results of the three created word clouds are combined into one. This leaves an overview of the possible product types that Company V could consider for implementation. A further input of the strategic fit excludes categories that are not specific enough with the ingredients or do not fit the company. These are "other", "Abnehmen", "Detox", "Gelenke Mix and "Sport". To do this, a similar script in Tableau is used but with the exclusion of these categories in the filter of the view (See table 20: Script Category pipeline word cloud)

Description of Manual: "Word cloud Pipeline list"		
[Assign_Produkt_Category]. Size shows distinct count of **[Asin].** The data is filtered on **[Asin]** and keeps 433 members from month 1 - 3. The view is filtered on **[Assign_Produkt category]** and keeps 92 members.		
Marks:	Text Stacked marks is on	All product categories are written in text
	Shelves of the sheet:	
Filters:	**[Asin]** **[Assign_Produkt_Category]**	433 members from step 1 to 3 Exclude Other, Abnehmen, Detox, gelenke Mix & Sport
Text:	**[Assign_Produkt_Category]**	
Size:	CNTD**[Asin]**	
	Dimension	
[Created At Month]	Which month is analysed	Month 1-3 on the sheet
[Asins]	Amount of Asins left on the sheet.	Has 433 Asins
[Assign_Produkt_Category]	Number of categories created	92 different types
	Measures:	
CNTD **([Asin])**	How many times a unique Asin is in a category type.	1 to 27 Asins per group counted

TABLE 20: SCRIPT WORD CLOUD CATEGORY PIPELINE

This leaves 92 different types of products that Company V could consider to produce and are, without extensive research, considered a strategic fit to the company. This produces the following word cloud in figure 13: The Category Pipeline List.

Product Type and Asin Count in market									
Magnesium	27	Multivitamin	5	Eisen	3	Ashwagandha	2	L-glutathion	1
Vitamin D3	21	L-glutamin	5	Cranberry	3	Acerola	2	L-citrulin	1
Omega-3	18	Gelenke Mix	5	CBD öl	3	Papain	2	Ingwer	1
Traubenkerne xtrakt OPC	17	Vitamin c	4	Astaxanthin	3	Zimt	1	Chromium Picolinat	1
BCAA	17	Selen	4	Aminosäuren	3	Zeolith	1	Guarana	1
L-arginin	12	MSM	4	Weihrauch	2	Weizengras	1	Camu Camu	1
Zink	10	L-tryptophan	4	Cordyceps	2	Vitamin B5	1	Gemüse extrakt	1
Probiotika	10	D-mannose	4	Vitamin A	2	Vitamin B3	1	Kelp	1
Kurkuma	10	Calcium	4	Spirulina	2	Sägepalmenextrakt	1	Bromelain	1
Biotin Mix	10	Hyaluronsäure	3	Gerstengras	2	Granatapfelextrakt	1	Sulforaphan	1
MCT öl	7	Maca	3	Krillöl	2	Shiitake	1	Bor	1
Kreatine	7	L-lysin	3	Mariendistel	2	Schwarzkümmelöl	1	Ballaststof	1
Flohsamen	7	L-carnitin	3	Glucomanan	2	Salbei	1	Astragalus wurzel	1
Colon	7	Jod	3	Ginkgo Biloba	2	Propolis	1	Alpha-Liponsäure	1
Coenzym Q10	7	Sango Meereskoral	3	Grapefruitkern extract	2	Pinienrindextrakt OPC	1	5-HTP	1
Spirulina Chlorella	6	Grünlippmusch el	3	Vitamin B Komplex	2	Nattokinase	1	kürbiskernöl	1
Basen protekt	6	Folsäure	3	Cissus Quadrangularis	2	Löwenzahn Wurzel	1		
Vitamin k2	5	Glucosamin	3	Bockshornklee	2	Lactase	1		
Vitamin B12	5	Enzym	3	Biotin	2	L-tyrosin	1		

FIGURE 17: THE CATEGORY PIPELINE LIST

Thus, 92 different product categories could be considered by Company V. To create a more specific idea of what the firm should choose to produce, the following step 4.2 The Category Portfolio Map should be taken. This will provide a clear overview to decide between relatively easy to enter markets and markets which can be considered too competitive.

STEP 4.2: THE CATEGORY PORTFOLIO MAP

From step 4.1 all the designed categories are put into a graph that has the average revenue per category per week on the Y-axis and the distinct count of Asins per category on the X-axis. In this view the average revenue per week has been chosen while the goal of Company V is to create a pipeline with products that have a minimum revenue of 500 euros per week 3 months

after implementation. This view will then provide a straightforward graph that can be used with the category portfolio map. To do so, all three months of data are combined and the filter on the Asins from the previous step will be taken out of the overview. This will give the exact amount of unique Asins that have been collected over 3 months of obtaining the data and their respective average revenue per category per week. This can be created with the following manual in table 21.

Description of Manual: "Category Portfolio map"		
Distinct count of **[Asin]** vs average **[Revenue_week]** broken down by complete **[Created at Quarter]**. The marks are labelled by **[Assign_produkt_Category].** The data is filtered on **[title]** and exclude keywords in the **[title]** that do not fit the strategy. The view is filtered on **[Assign_Produkt_Category]** and keeps 92 members.		
Marks:	Mark type is Shape Marks are labelled by **Assign_Produkt_Category]** Stacked marks is off	All product categories are written in text and their location in the view is shown by a circle shape
	Shelves of the sheet:	
Rows:	Average (**[Revenue_week]**)	
Columns:	**[Created at Quarter]** CNTD**[Asin]**	All three months are combined in one quarter and view
Filters:	**[Assign_Produkt_Category]** **[Title]**	All Asins are included Exclude Non-fitting categories
Text:	**[Assign_Produkt_Category]**	Every keyword is connected to a circle
	Dimension	
[Created at Quarter]	Month 1 to 3, 14 weeks in total	Month 1-3 are combined on the sheet and shown as quarter
[Asins]	Amount of Asins left on the sheet.	
[Assign_Produkt_Category]	Number of categories on the sheet	92 categories
	Measures:	
Average (**[Revenue_week]**)	**[Sales_week]*[Price]**	€162,- to €5000,- of average revenue per week
CNTD **([Asin])**	Range of the unique Asins appear in a category	1 to 169 Asins per category

TABLE 21: THE CATEGORY PORTFOLIO MAP

This manual creates a graph in Tableau comparing the distinct count of Asins on the x-axis with their respective weekly revenue on the y-axis from all 92 categories that were collected in step 4.1. The following graph will then be created (see figure 18).

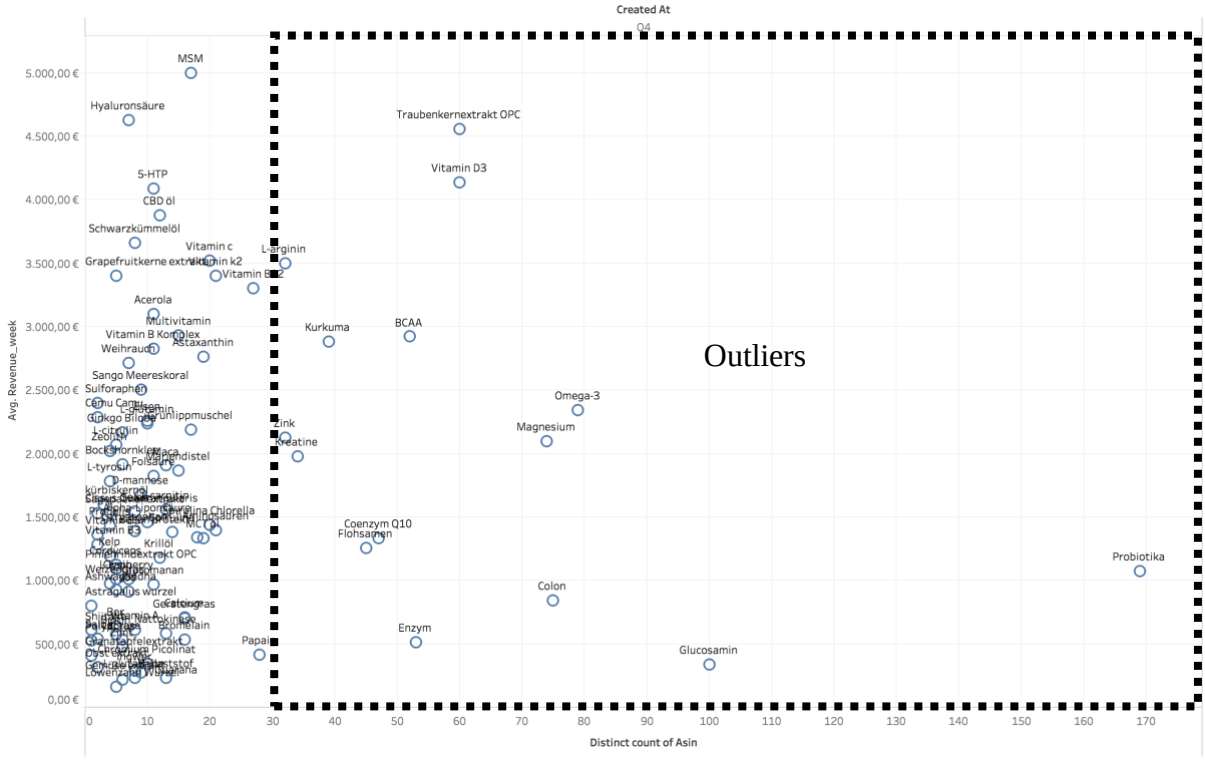


FIGURE 18: KEYWORD PORTFOLIO MAP IN TABLEAU

The view shows clear outliers concerning the distinct count of Asins. To make the graph more comprehensible, the categories who have 30 distinct Asins or less are selected and left in the view. This can be done by adding an extra filter to the view as follow: *The distinct count of **[Asin]** filter includes values less than or equal to 30.* This creates the following graph below with 80 categories left. (see figure 19).

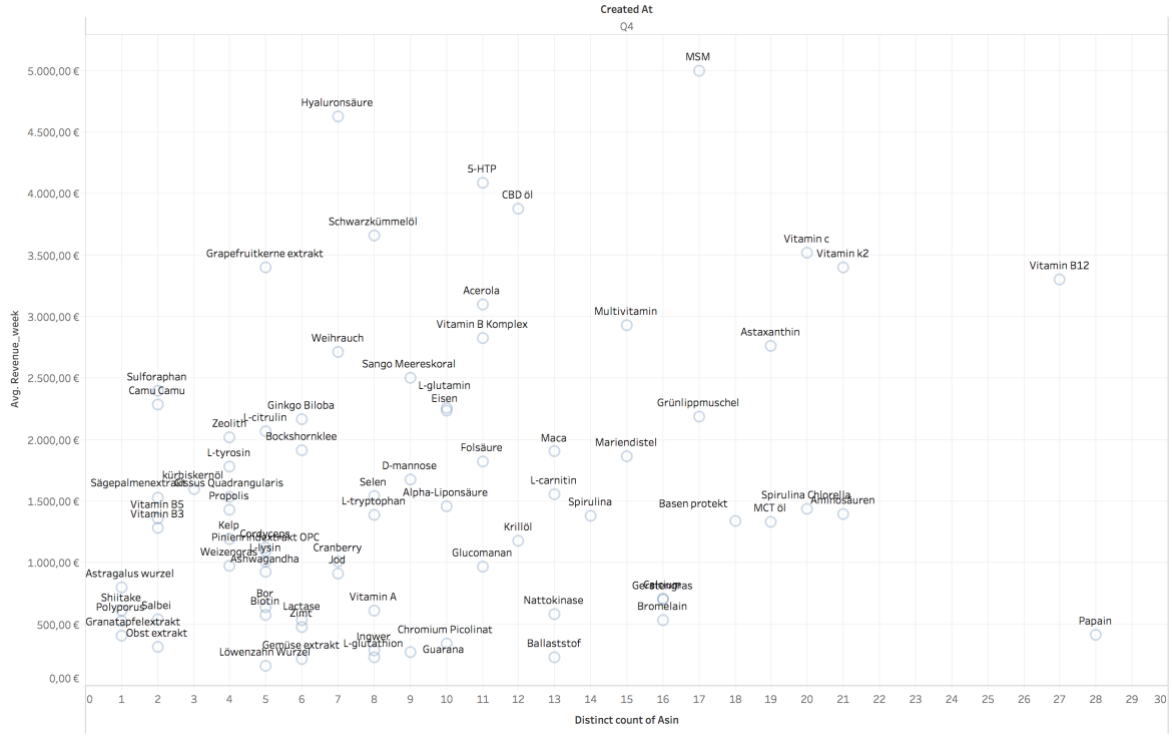


FIGURE 19: CROPPED KEYWORD PORTFOLIO MAP IN TABLEAU

From this view the category decision could be made. To clarify how the keyword portfolio map relates to his graph, the above figure is processed into the designed figure 7: Category Portfolio Map of paragraph 5.2. This is shown in figure 20: Demonstration Keyword Portfolio Map for Company V.

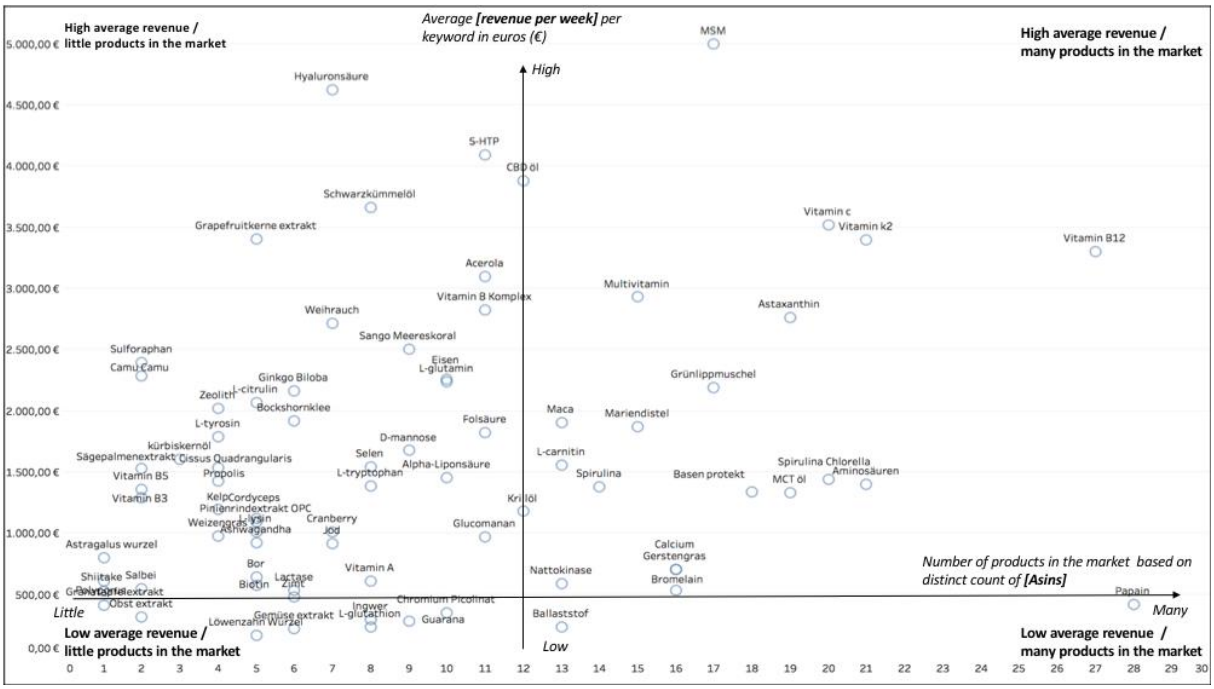


FIGURE 20: DEMONSTRATION KEYWORD PORTFOLIO MAP

This creates a coherent and understandable view that can be used for the last step of the *market scanning phase* of the roadmap to decide for the specific categories for the *follow-up phase.*

STEP 4.3: CATEGORY DECISION MAKING

In this step additional input is required from the company concerning the boundaries of the average revenue and distinct number of Asins, the available human and financial resources and the current financial fit. Depending on the resources the number of categories is chosen for further analysis in the *follow-up phase.* First, the categories that have a low revenue per week are decided against. These categories have a lower chance of reaching 500 euros goal while the products inside these categories do not reach this number. This is shown in figure 20 in the previous step. The outliers that contain a large amount of Asins but do have the required average revenue per week are labelled as *future financial fit*. For these categories it is expected that a larger investment is necessary because of the number of competitors already in the market.

Because of the thorough strategic fit analysis in the previous steps and available human and financial resources within Company V, all categories in the "*high average revenue/little products in the market"* area can be chosen for further analysis. Thus, in this step 47 categories are decided for and are taken to the *follow-up phase.*

6.3 DEMONSTRATION OF THE FOLLOW-UP PHASE

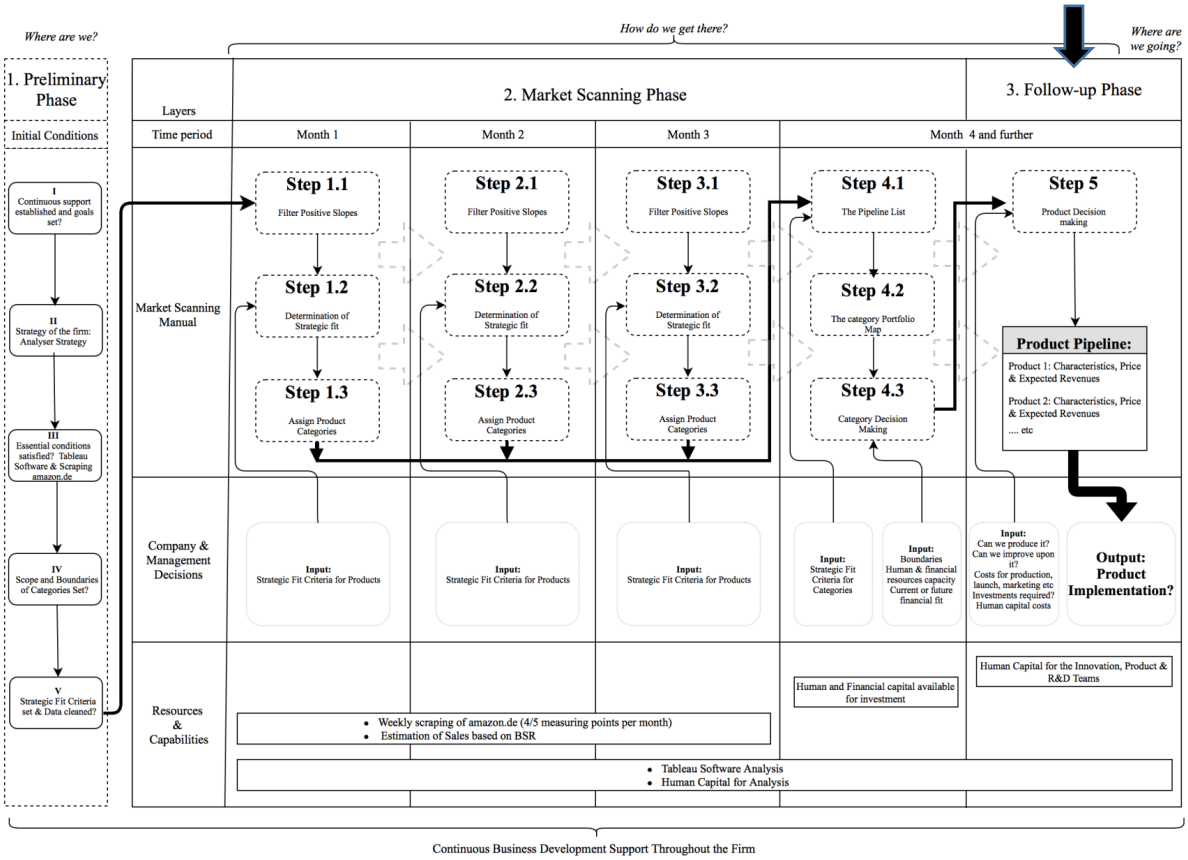


FIGURE 21: ROADMAP - FOLLOW-UP PHASE

In the follow-up phase the 47 categories from step 4.3 are further analysed and put into a product pipeline when results seem positive. Products from the product pipeline can then be presented for implementation to the management of the SME.

STEP 5: PRODUCT DECISION MAKING

Because of the large number of categories in this last step, a short summary will be given on how the data is used to make a product decision. Every category contains a number of Asins for which all variables have been collected over the past 3 months. Meaning that for all the products within these categories an overview can be created containing their titles, selling price, average revenue and sales per time period as well as the number of written reviews and overall rating. Furthermore, it can be seen how long the product has been offered on the webpage.

To make a product decision, the top-3 best-selling products of each of the 47 categories was reviewed. To do so, an overview was made with information including the above-named variables and other relevant specific product characteristics. Based on the information from these three products, a suggestion for a similar or improved-upon product idea was made towards the relevant teams in the company. This detailed suggestion contained information

concerning the ingredients, number of capsules and other, for food supplements, relevant NPD related subjects.

When the relevant company teams confirmed that the products could be produced in a similar or improved upon form, a production price was established and margins calculated. Next, the data of the top-3 products was again analysed to confirm the right product characteristics and to decide for a selling price of the new product. Lastly, an estimation was made on the prospective revenues that the future product is likely to make and how much needs to be invested to reach this revenue.

THE PRODUCT PIPELINE

As a result, of the 47 products that were researched in the above described manner, 32 were placed in the *product pipeline* for the management to asses implementation. The other 15 were decided against because of too high production prices, inability to produce a similar or improved upon product or restrictions by government food laws.

7. THE EVALUATION OF THE MARKET SCANNING ROADMAP

After the design and implementation of a roadmap, it is important to provide evidence that the roadmap had an actual positive or negative outcome in the form of new products, market share or better performance (Carvalho et al., 2013). In this research, two main criteria have been set to provide evidence that the roadmap is useful in practice and that it supports the solution to the problem (Peffers et al., 2007). The first criterion, to assess the utility of the roadmap, is to provide Company V with as many new product ideas to add to their product pipeline for the business development. The second criterion, to assess the quality of the roadmap, was set on the actual implementation of the products in the pipeline by the management. Additionally, these products were required to have at least 500 euros revenue per week per product with an aimed total growth of 15-thousand weekly revenue. To evaluate if these numbers have been reached, the results of the roadmap are put into numbers and when possible, a growth percentage is given. Furthermore, the single and combined revenues of the launched products are discussed.

First, the result of the product decision step. Of the thirty-two products that have been added to the product pipeline in the *follow-up phase,* twenty-seven products have been confirmed for implementation by the management. This means that over 84 percent of the decided for products was actually implemented as a potential new growth opportunity for the business

development of Company V. This means that Company V more than tripled their product portfolio size to thirty-nine products, which is a growth of 225%.

Currently, seventeen products have been launched in months after the demonstration of the roadmap and its results and are selling on different platforms throughout Germany. Of the seventeen products, fourteen have reached the goal of generating 500 euros revenue per week and three haven't. Notably, the fourteen products that have reached the 500 euros goal far exceeded the aimed total revenue of 15-thousand euros revenue per week. In total the products that have been launched are generating over €20-thousand euros revenue per week which means that the average revenue per launched product currently lies with approximately 1200 euros per week per product. (see table 22 for the entire overview)

Evaluation of the Market Scanning Roadmap in Numbers		
Subject:	**Number:**	**In %**
Starting size of product portfolio	12 products	
Prospected size of product portfolio	39 products	
Added to product pipeline	32	-
Implemented by management	27	225%
Launched and selling	17	142%
Having a revenue of 500 euros or more	14	-
Having a revenue of less than 500 euros	3	
Total growth in revenue per week	More than €20.000	-
Average revenue per launched product	Approximately €1200 per week	

TABLE 22: OVERVIEW EVALUATION IN NUMBERS

The results of the roadmap have reached the beforehand stated goals. Based on the demonstration and evaluation of the roadmap in Company V, it is not necessary to iterate back to the design to adjust certain steps.

8. DISCUSSION AND CONCLUSION

The goal of this paper was to create a new resource effective scanning method for the business development of German SMEs operating in the consumer goods industry. By creating a roadmap and methodological toolkit for scanning the market forces with Amazon.de as a source, it was possible to create a product pipeline with new potential products that contributed to the business development of a SME.

With a literature review a reliable foundation and motivation was established for the development of this method. Four different but interrelated concepts were discussed to help with the design of the roadmap and the toolkit for scanning the market. First, the goal of the roadmap had to be established. Therefore, the concept of business development was elaborated

on. It was found that business development is not a straight forward process, but rather consists of different concepts and a consensus among researchers about its definition is therefore still lacking. Nevertheless, the studies agreed that the main aspect of business development is the identification and realisation of sustainable growth and that this is generally accomplished by filling up a firms pipeline with possible new products or innovation that have a strategic and (future) financial fit (Davis & Sun, 2006; Eidhoff & Poelzl, 2014; Kind & zu Knyphausen-Aufseß, 2007; Sørensen, 2012). Furthermore, the business development literature stressed that it is important to have continuous business development support throughout the company (Sørensen, 2012). In the roadmap this was emphasised by making the obtainment of support the first step of the preliminary phase and by giving it a prominent place in the bottom to emphasise the continuality of it throughout the entire process of the roadmap.

To reach the goal of filling up the pipeline with new products or innovations, a SME needs to become market oriented by scanning the market for relevant intelligence to anticipate on current and future market and customer needs (Eidhoff & Poelzl, 2014; Sørensen, 2012). This brought forward the other three concepts that the roadmap had to address, namely market orientation, market scanning and creating foresight in the market. Although the literature concerning these concepts gave interesting insights, it also brought forward a major factor that influenced the design of the roadmap. Namely, the reoccurring observation that SMEs lack time, human and financial resources and that most methods and sources, to scan for the current and future market changes, are not applicable or usable by SMEs. Despite that the literature was clear about the benefits of using online external sources, a proposed source that could be used by SMEs was not available. Even though Y. Lee, Kim, Song, Park and Shin (2014) proposed a scanning method of online patent databases in the context of SMEs, they concluded that it is still too complicated and resource demanding to be used. Basically, SMEs could scan their internal sources in an unstructured and intuitive manner, but would therefore miss out on important findings that could come from the scanning of the external market forces.

Two novel factors were implemented in the roadmap that addressed these restrictions. First, the introduction of the new market scanning source Amazon.de, to obtain external market information and second, the new way of analysing the obtained data by using a single visualisation software Tableau.

Concerning the new source, it was found that Amazon.de is designed in such a way that it makes it very convenient for consumers to search, compare and buy products. They not only provide detailed information about the characteristics of the products in almost identical

looking products pages, the platform also groups the products in categories based on their characteristics. This made the obtainment and analysis of the information a reliable, convenient but also an efficient process. In contrast with the suggestion of Rajaniemi (2007) to scan and analyse the distinct competitors' websites for the market forces, obtaining information from Amazon.de enables SMEs to only focus on one webpage. Moreover, what the competitor' websites do not provide and Amazon.de does, is the possibility of estimating the amount of sales of a specific product over a period of time. This provided forms of market analyses that were not possible before. For instance, it allowed the market scanning manual to focus only on products in the market that increased their sales over a period of time by using a linear trend analysis. Additionally, it enabled the estimation of the revenue of a single product or the average revenue of a group of products by multiplying the amount of sales with the price of the product. This not only allows SMEs to shift their focus on products that were expected to sell more in the future but it also helped envision the expected revenues these products would make if the product category would fit the strategy of the SMEs.

Although foresight tools are for SMEs difficult to use and implement (Vishnevskiy & Egorova, 2015), the positive slope filter in the manual did provide a way to have a focus on possible future product trends. Past research mainly focussed on the reviews that were written and connected this with the sales of the product to analyse the buying behaviour of consumers (Chevalier & Mayzlin, 2006; Zhu & Zhang, 2010) This research approached the buying behaviour in a more basic but effective way by just looking at the estimation of sales. It could be argued that just analysing the frequency a product is bought over a time period does not provide the motivation behind the purchase. Nonetheless, in relation to foreseeing changes in the market it makes more sense to also identify newly launched products which do not contain (many) reviews, but that are selling well. By just focussing on the reviews, these products could have been overlooked.

Another key aspect that made Amazon.de an ideal market scanning source for SMEs are the titles that are given to the products. On Amazon.de the product titles that are given by its sellers are designed to give a short summary to the consumer of what they are looking at. Very detailed descriptions are left out, but the basic important information to persuade a consumer to click on a product is provided. By analysing the titles rather than the entire detailed product description improved the process in time and costs. The criteria of the strategic fit as well as assigning the products into categories could be done much quicker by analysing short strings of text. Especially grouping the product titles into keyword categories based on the main

product characteristic made the further analysis of the market scanning even more comprehensible. This allowed the use of the keyword analysis methods such as word clouds and keyword portfolio maps to be able to visually show the size of the market and the estimated average revenue a category makes. While Kayser et al. (2014) and S. Lee et al. (2008) used these methods to analyse the frequency of keywords in literature and patents, this paper used them to analyse the actual amount of products in the market. By doing so it became visually clear what the size of the market was, how much revenue could be made and which competitors were present in this category.

All the above described analysis methods from the steps in the roadmap could be executed by using just one tool, namely Tableau Software. Because of the versatility of the software, it is possible to provide the visual representations of the positive slopes, word clouds and the category portfolio graph. Furthermore, by duplicating the results into crosstabs, the actual data can be analysed as well. This enabled both quick to analyse visualisations as well as more thorough analyses of the obtained data and variables. More importantly, by using just one kind of software there are less resources required in relation to human and financial capital. One Tableau licence is needed and the steps described in the manual can be executed by a single person who has basic knowledge of the software.

By visually drawing the market scanning manual steps and integrating this into a larger roadmap, the connections between the manual, input and resources from the company and time-horizon are visualised. Although in the research of Kumar et al. (2011) their method implementation manual was a roadmap by itself, in this paper it seemed more appropriate to integrate the manual in a roadmap with additional layers to present their linkages.

Although this research being of a pragmatic kind, the newly designed roadmap does contribute to several aspects of the theory. First, it provided evidence that the different but interrelated concepts of market scanning, foresight and roadmaps do indeed contribute to the business development of SMEs. By carefully selecting easy to use methods found in the prior literature, it was possible to achieve high quality results with (very) limited resources. Existing research often ignored SMEs in relation to the more advanced methods in foresight (Jannek & Burmeister, 2007; Will, 2008) and with the scanning of external sources (Y. Lee, Kim, Song, Park and Shin, 2014). This research provided proof that this should not always be the case and that by using novel data sources and analysis tools, it can also be applied within SMEs.

Additionally, the use of Amazon.de as a source provided proof that SMEs are also able to scan and analyse external information in a structured and broad manner. The intelligence that

was obtained from this had a significant influence on the development of new products for the SME's business development pipeline. It provided the SME with an insight in the market that was considered impossible before. Thus, giving SMEs access to previously unreachable market and foresight intelligence.

Ultimately, by using a novel approach, the newly designed market scanning roadmap contributes to the business development of SMEs.

8.1 CONCLUSION

The research aim was to find a resource effective market scanning method to fill the SMEs business development pipeline with potential new products. The goal was to create sustainable growth for SMEs operating in the consumer goods industry. By scanning the market forces with Amazon.de as a source and analysing the data with Tableau it was possible to create a product pipeline with thirty-two new potential products. To provide the SMEs with a clear overview of the steps that need to be taken before, during and after the scanning, a roadmap was drawn. The evaluation of the roadmap within Company V showed that twenty-seven out of thirty-two products are actually implemented. This more than tripled the product portfolio size of Company V from twelve to thirty-nine products, which is a portfolio growth of 225 percent. Moreover, the seventeen already launched and selling products have been performing well on the market. On average these products generate around 1200 euros per product which is notably higher than the beforehand stated goal of generating 500 euros per product. Additionally, this increased the weekly revenue of Company V with over 20 thousand euros. From these numbers it can be concluded that the roadmap with the market scanning manual has a positive influence on the business development of Company V. Finally, with this roadmap the gap in both theory and practice was filled by providing a simple but reliable methodological toolkit to efficiently scan the market for the business development of SMEs operating in the consumer goods industry.

8.2 LIMITATIONS

Naturally, this research and the designed roadmap have its limitations. In relation to the method used in the research, it is common practice to compare a new method with a different or prior used one to be able to evaluate and compare the results of both. In this research one specific market scanning method is tested and evaluated within a SME based on the growth numbers of the company. Because there was no data available of a previous used market scanning method of the SME, a comparison of methods could not be made in this research.

Although the method had a positive influence on the business development of Company V, future research could provide evidence that the created roadmap has also a better outcome than regular used market scanning methods.

Furthermore, the method is demonstrated within a company that is specialised in food supplements. These products do not require extensive technological research and development for it to be produced. Although, the method provided the Company V with a product pipeline for their business development, it cannot be assured that method also has a positive outcome for SMEs operating in more technological advanced industries. An additional demonstration of the roadmap in a different industry could have provided additional evidence for the quality of the method.

This also reflects on the use of the category portfolio map. By grouping products with the same ingredients into a category it became far more convenient to analyse the data. Although it is possible to analyse single products on Amazon.de or get a general direction of what is popular at the moment or near future, the keyword portfolio map might not be sufficient for analysing technological products. Additional keyword analysis tools such as a keyword relationship and evolution map mentioned by S. Lee et al. (2008) and Kayser et al. (2014) could provide the extra information necessary. In Tableau it is possible to create additional variables with different keywords levels or variables that specify the possible technology and product layers, however this has not been demonstrated in this paper.

Moreover, in the whole process of analysing the data, no statistical methods have been used to prove statements in relation to the market size and the significance of the average positive slope of sales of the specific products. Although in practice these methods are unlikely to have been used, it could have provided extra body to the research.

In relation to the used web source Amazon.de, the data is collected on one day in the beginning of the week and from this the results are shown. However, the day of the week and time when the data is collected could have an influence on the best seller rank of products. This could affect the estimation of sales and therefore the results of this research. Future research or practitioners should consider scraping the data on a daily or two daily bases. However, the more data is obtained the costlier the method will become because of the additional required server capacity. Additionally, other elements that can influence the sales of products are neither considered. Factors such as promotions, marketing, free shipping, brand loyalty and seasonal factors have not been considered in the design of the method. In particular the results in the

used food categories could have been influenced by seasonal factors. Carrying out the proposed method over a longer period of time could minimise these effects.

Additionally, Amazon.de is an active platform which is constantly updating and changing its features. It should be considered that some features could change over time or that product categories change names as well. Furthermore, sellers on Amazon.de have the freedom to write product information on the platform themselves. Not all sellers use honest product descriptions and even though Amazon.de tries to regulate dishonest product information, they are not always able to do so for millions of products they offer on their webpage.

Considering the lack of time resources SMEs have and to react quicker on changes, it could be argued to speed up the roadmap process by taking step 4.1 to 5.2 after every month. This would provide the company with a monthly suggestion for new products and a more continuous stream of potential new products and innovations. However, the data is collected on a weekly basis. The more data points available to calculate the average revenue of each category in *step 4.2 Category Portfolio Map* and onward, the more accurate the average will be. In this research it is therefore chosen to take the measurement of fourteen weeks in a row. This could of course be extended or made shorter. When decisions need to be made faster it is suggested to collect fourteen measurement points in a period of a month instead of the 4/5 that have been demonstrated in this paper and to analyse the data in a similar manner.

Although carefully discussed in the preliminary phase of the roadmap, it should be considered that some of the data collection and analysis methods are still out of reach for certain SMEs. A certain degree of knowledge in relation to scraping Amazon data is required to obtain the data whilst beforehand it should also be known to the SME which data they need for their business development. Additionally, Tableau Software is designed to be used by all kinds of researchers, some skills are required to actually accomplish the described steps of the roadmap.

Lastly, an important factor that could influence the replicability of this research is the estimation of sales based on the BSR. In this research this is done by an IT company who has been analysing the data of Amazon.de for some time. Additionally, it limits SMEs from directly copying the used method while they need to provide themselves with the actual sales. Although, many web based companies offer this estimation for free (E.g. Jungle Scout, n.d.), there is not a straight forward way to estimate the sales without professional companies that are experienced with this. Although not shown in this research, it is possible to instead of using the direct sales to use the best seller rank (BSR) as a proxy of sales (Chevalier & Mayzlin, 2006; Chong et al., 2017; Cui et al., 2012).

8.3 FUTURE RESEARCH

Despite the positive results that came out of the roadmap, the manual could be further tested by comparing it with a similar manual or an already existing method. Additionally, Amazon.de provides different variables that could be further analysed to help with the business development of SMEs or other related business concepts. By comparing the two methods even more convincing evidence can be collected to confirm its results.

In addition, because Amazon has platforms all over the world, this new method could be tested for different market places to confirm that it is applicable in more countries. Additionally, it could be tested in other parts of the world to detect new trends that happen in other parts of the world that could blow over to Germany to prepare SMEs even more on future trends.

The discussed literature often excludes SMEs in their analysis because of their limited resources. This research has shown that with little but sufficient resources it is actually possible to provide SMEs with valuable insights in the market. Therefore, it should be considered to use other, not used before, online sources to answer research questions related to SMEs. Freely available online data shows great potential to do so. Additionally, the analysis of this data could be done with tools such as Tableau Software. Tableau can provide interesting insights that other conventional software-tools might not be able to.

Furthermore, the E-commerce platform Amazon.de is used for the first time in relation to market scanning, foresight and SMEs. As a source, Amazon.de provided large amounts of information about products that could be obtained in a structured manner. Other research should consider using Amazon.de as a data source as well. It could provide future research with essential data for answering different types of research questions. For example, a research with a focus on solely foresight could analyse the behaviour of products on Amazon.de in relation to other environmental forces.

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APPENDICES

APPENDIX 1: OVERVIEW FORESIGHT METHODS:

Method name	Short description:
Backcasting	Involves working back from an imagined future, to establish what path might take us there from the present
Brainstorming	A creative and interactive method used in face-to-face and online group working sessions to generate new ideas around a specific area of interest
Citizens panels	A method that brings together groups of citizens (members of a polity and/or residents of a particular geographic area) dedicated to providing views on relevant issues, often for a regional or national government)
Environmental scanning	*A method that involves observation, examination, monitoring and systematic description of the social, technological, economic, environmental, political and ethical contexts of a country, industry, organisation, etc.*
Essays	A method focused on one or a small set of images of the future, with a detailed description of some major trends promoting the evolution of a particular scenario, and/or of stakeholders' roles in helping to bring these about)
Expert panels	A method that brings together groups of people dedicated to analysing and combining their knowledge concerning a given area of interest. They can be local, regional, national or international
Futures workshops	A method that involves the organisation of events or meetings lasting from a few hours to a few days, in which there is typically a mix of talks, presentations, and discussions and debates on a particular subject
Gaming	One of the oldest forecasting and planning techniques, in that war gaming has long been used by military strategists. It is a form of role-playing in which an extensive ''script'' outlines the context of action and the actors involved
Interviews	Often described as ''structured conversations'' and are a fundamental tool of social research. In foresight they are often used as formal consultation instruments, intended to gather knowledge that is distributed across the range of interviewees
Literature review	Often part of environmental scanning processes. Reviews generally use a discursive writing style and are structured around themes and related theories. Occasionally the review may seek to explicate the views and future visions of different authors
Morphological analysis	A method used to map promising solutions to a given problem and to determine possible futures accordingly. It is generally used to suggest new products or developments and to build multi-dimensional scenarios
Questionnaires/surveys	A fundamental tool of social research and a commonly used method in foresight

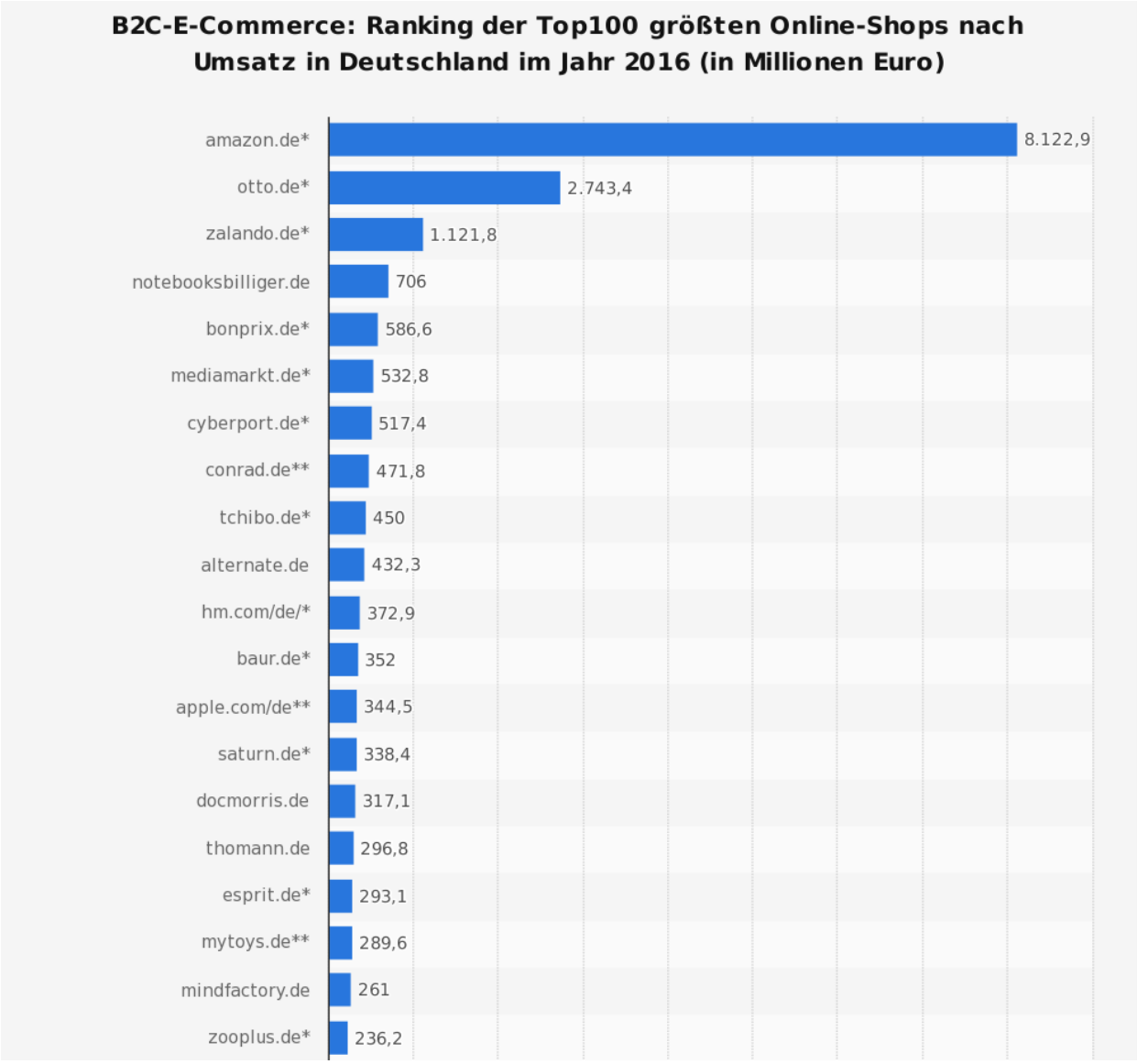
Relevance trees	A method in which the topic of research is approached in a hierarchical way. It normally begins with a general description of the subject, and continues with a disaggregated exploration of its different components and elements, examining particularly the interdependencies between them
Scenarios	A method that involves the construction and use of more or less systematic and internally consistent visions of plausible future states of affairs
SWOT analysis	A method which first identifies factors internal to the organisation or geopolitical unit in question and classifies them in terms of strengths and weaknesses. It similarly examines and classifies external factors (broader socio-economic and environmental changes, for example, or the behaviour of competitors, neighbouring regions, etc.) and presents them in terms of opportunities and threats
Cross-impact/structural analysis	A method that works systematically through the relations between a set of variables, rather than examining each one as if it is relatively independent of the others. Usually, expert judgement is used to examine the influence of each variable within a given system, in terms of the reciprocal influences of each variable on each other – thus a matrix is produced whose cells represent the effect of each variable on the others
Delphi	A method that involves repeated polling of the same individuals, feeding back (occasionally) anonymised responses from earlier rounds of polling, with the idea that this will allow for better judgements to be made without undue influence from forceful or high-status advocates
Key technologies	A method that involves the elaboration of a list of key technologies for a specific industry, country or region. A technology is said to be ‘‘key’’ if it contributes to wealth creation or if it helps to increase quality of life of citizens, is critical to corporate competitiveness, or is an underpinning technology that influences many other technologies
Multi-criteria analysis	A method used as prioritisation and decision-support technique, especially in complex situations and problems, where there are multiple criteria in which to weigh up the effect of a particular intervention
Stakeholder mapping	A traditional strategic planning technique which takes into account the interests and strengths of different stakeholders, in order to identify key objectives in a system and recognise potential alliances, conflicts and strategies. This method is more commonly used in business and political affairs
Technology roadmapping	*A method which outlines the future of a field of technology, generating a timeline for development of various interrelated technologies and (often) including factors like regulatory and market structures*
Bibliometrics	A method based on quantitative and statistical analysis of publications. This may involve simply charting the number of publications emerging in an area, perhaps focusing on the

	outputs from different countries in different fields and how they are evolving over time
Modelling and simulation	A method that refers to the use of computer-based models that relate together the values achieved by particular variables. Simple models may be based on statistical relations between two or three variables only. More complex models may use hundreds, thousands, or even more variables (e.g. econometric models used in economic policy-making)
Trend extrapolation/megatrend analysis	Among the longest-established tools of forecasting. They provide a rough idea of how past and present developments may look like in the future – assuming, to some extent, that the future is a continuation of the past

OVERVIEW FORESIGHT METHOD RETRIEVED FROM POPPER (2008)

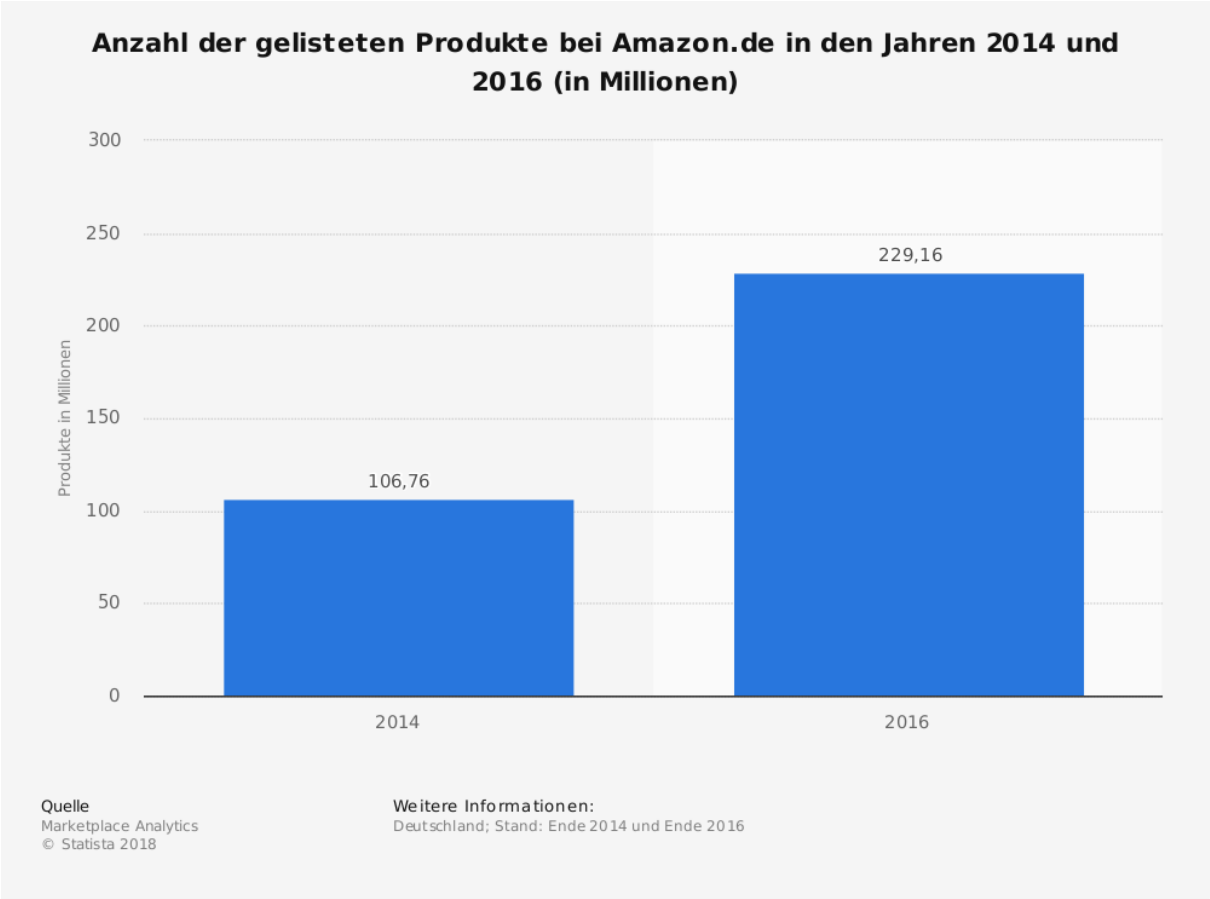
APPENDIX 2: INFORMATION ABOUT AMAZON.DE

APPENDIX 2.1 REVENUE ONLINE SHOPS IN GERMANY IN MILLIONS €



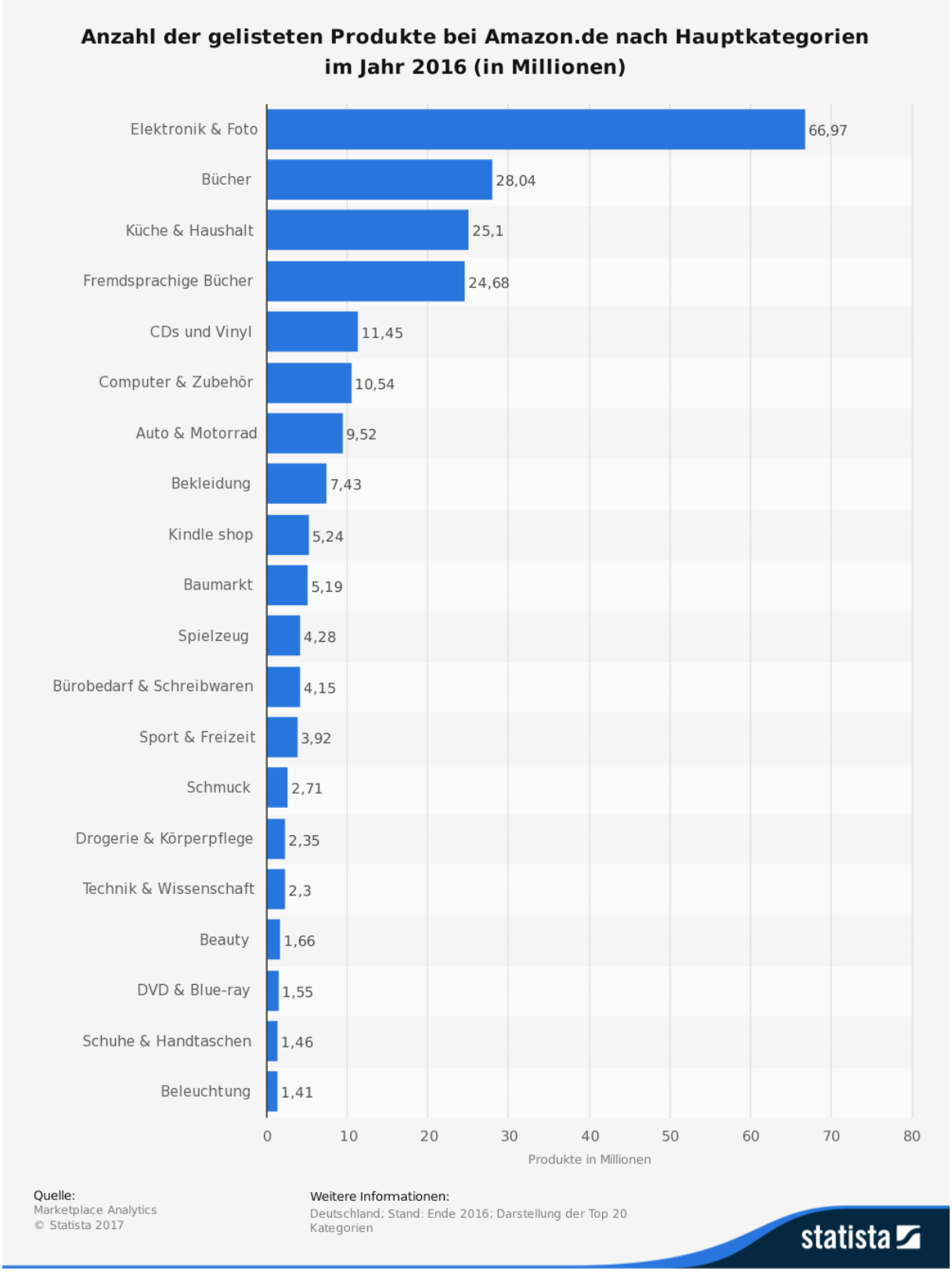
HIGHEST SELLING E-COMMERCE PLATFORMS IN GERMANY OBTAINED FROM STATISTA.DE (2017B)

APPENDIX 2.2 NUMBER OF LISTED PRODUCTS ON AMAZON.DE 2014 VS 2016



GROWTH OF AMAZON.DE IN 2 YEARS BASED ON LISTED PRODUCTS OBTAINED FROM STATISTA.DE, (2017A)

APPENDIX 2.3 NUMBER OF LISTED PRODUCTS PER MAIN CATEGORY AMAZON.DE



AMOUNT OF PRODUCTS IN MILLIONS PER MAIN CATEGORY (TOP 20) ON AMAZON.DE STATISTA.DE (2017A)

APPENDIX 2.4 NUMBER OF ACTIVE SELLERS ON AMAZON.DE IN 2016

APPENDIX 3: USED TABLEAU FUNCTIONS

ASSIGNED PRODUCT CATEGORIES

Assign_Produkt_Category	
IF CONTAINS([Title],'Arginin') THEN 'L-arginin'	ELSEIF CONTAINS([Title],'fett') THEN 'Abnehmen'
ELSEIF CONTAINS([Title],'Pinienrinde') THEN 'Pinienrindextrakt OPC'	ELSEIF CONTAINS([Title],'F-brn') THEN 'Abnehmen'
	ELSEIF CONTAINS([Title],'F-burn') THEN 'Abnehmen'
ELSEIF CONTAINS([Title],'Pinienri') THEN 'Pinienrindextrakt OPC'	ELSEIF CONTAINS([Title],'himbeer') THEN 'Abnehmen'
	ELSEIF CONTAINS([Title],'abnehme') THEN 'Abnehmen'
ELSEIF CONTAINS([Title],'Traubenkerne') THEN 'Traubenkernextrakt OPC'	ELSEIF CONTAINS([Title],'creatin') THEN 'Kreatine'
	ELSEIF CONTAINS([Title],'kreatin') THEN 'Kreatine'
ELSEIF CONTAINS([Title],'Sango') THEN 'Sango Meereskoral'	ELSEIF CONTAINS([Title],'alkalyn') THEN 'Kreatine'
ELSEIF CONTAINS([Title],'grüner kaffee') THEN 'Abnehmen'	ELSEIF CONTAINS([Title],'gemüse') THEN 'Gemüse extrakt'
ELSEIF CONTAINS([Title],'Rosenwurz') THEN 'Rosenwurz'	ELSEIF CONTAINS([Title],'Gelenke') THEN 'Gelenke'
ELSEIF CONTAINS([Title],'Rodiola') THEN 'Rosenwurz'	ELSEIF CONTAINS([Title],'Flohsamen') THEN 'Flohsamen'
ELSEIF CONTAINS([Title],'Quercetin') THEN 'Quercetin'	ELSEIF CONTAINS([Title],'Colon') THEN 'Colon'
ELSEIF CONTAINS([Title],'maca') THEN 'Maca'	ELSEIF CONTAINS([Title],'Darm') THEN 'Colon'
ELSEIF CONTAINS([Title],'Papain') THEN 'Papain'	ELSEIF CONTAINS([Title],'D3') THEN 'Vitamin D3'
ELSEIF CONTAINS([Title],'Papay') THEN 'Papain'	ELSEIF CONTAINS([Title],'Papaya') THEN 'Enzym'
ELSEIF CONTAINS([Title],'Bromelain') THEN 'Bromelain'	ELSEIF CONTAINS([Title],'multivitamin') THEN 'Multivitamin'
ELSEIF CONTAINS([Title],'Acidophil') THEN 'Probiotika'	ELSEIF CONTAINS([Title],'multi vitamin') THEN 'Multivitamin'
ELSEIF CONTAINS([Title],'Camu') THEN 'Camu Camu'	ELSEIF CONTAINS([Title],'Vitamins A-Z') THEN 'Multivitamin'
ELSEIF CONTAINS([Title],'Obst') THEN 'Obst extrakt'	ELSEIF CONTAINS([Title],'sulforaphan') THEN 'Sulforaphan'
ELSEIF CONTAINS([Title],'Acerola') THEN 'Acerola'	ELSEIF CONTAINS([Title],'Hyaluron') THEN 'Hyaluronsäure'
ELSEIF CONTAINS([Title],'Cranberry') THEN 'Cranberry'	ELSEIF CONTAINS([Title],'mannose') THEN 'D-mannose'

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ELSEIF CONTAINS([Title],'Joint') THEN 'Gelenke Mix'
ELSEIF CONTAINS([Title],'Gelenk') THEN 'Gelenke Mix'
ELSEIF CONTAINS([Title],'multivitamin') THEN 'Multivitamin'
ELSEIF CONTAINS([Title],'multi vitamin') THEN 'Multivitamin'
ELSEIF CONTAINS([Title],'Glutathion') THEN 'L-glutathion'
ELSEIF CONTAINS([Title],'Glucosamin') THEN 'Glucosamin'
ELSEIF CONTAINS([Title],'MSM') THEN 'MSM'
ELSEIF CONTAINS([Title],'Ginkgo') THEN 'Ginkgo Biloba'
ELSEIF CONTAINS([Title],'Haut') THEN 'Biotin Mix'
ELSEIF CONTAINS([Title],'Haar') THEN 'Biotin Mix'
ELSEIF CONTAINS([Title],'vitamin A') THEN 'Vitamin A'
ELSEIF CONTAINS([Title],'bierhefe') THEN 'Bierhefe'
ELSEIF CONTAINS([Title],'Kelp') THEN 'Kelp'
ELSEIF CONTAINS([Title],'Vitamin B komplex') THEN
'Vitamin B Komplex'
ELSEIF CONTAINS([Title],'B-komplex') THEN 'Vitamin B
Komplex'
ELSEIF CONTAINS([Title],'5htp') THEN '5-HTP'
ELSEIF CONTAINS([Title],'5-htp') THEN '5-HTP'
ELSEIF CONTAINS([Title],'krill') THEN 'Krillöl'
ELSEIF CONTAINS([Title],'Folsäure') THEN 'Folsäure'
ELSEIF CONTAINS([Title],'kinderwunsch') THEN 'Folsäure'
ELSEIF CONTAINS([Title],'probiot') THEN 'Probiotika'
ELSEIF CONTAINS([Title],'Astaxanthin') THEN 'Astaxanthin'
ELSEIF CONTAINS([Title],'Grünlipp') THEN 'Grünlippmuschel'
ELSEIF CONTAINS([Title],'Reishi') THEN 'Reishi Pilz'
ELSEIF CONTAINS([Title],'eisen') THEN 'Eisen'
ELSEIF CONTAINS([Title],'lysin') THEN 'L-lysin'
ELSEIF CONTAINS([Title],'l-citrullin') THEN 'L-citrulin'
ELSEIF CONTAINS([Title],'Acurmin') THEN 'Kurkuma'
ELSEIF CONTAINS([Title],'Vitamin d') THEN 'Vitamin D3'
ELSEIF CONTAINS([Title],'Vitamin-d3') THEN 'Vitamin D3'
ELSEIF CONTAINS([Title],'Vitamin k') THEN 'Vitamin k2'
ELSEIF CONTAINS([Title],'Zimt') THEN 'Zimt'
ELSEIF CONTAINS([Title],'MCT') THEN 'MCT öl'
ELSEIF CONTAINS([Title],'Konjac') THEN 'Glucomanan'
ELSEIF CONTAINS([Title],'Konjak') THEN 'Glucomanan'
ELSEIF CONTAINS([Title],'Glucomanan') THEN 'Glucomanan'
ELSEIF CONTAINS([Title],'tryptophan') THEN 'L-tryptophan'
ELSEIF CONTAINS([Title],'Arginin') THEN 'L-arginin'
ELSEIF CONTAINS([Title],'Q10') THEN 'Coenzym Q10'
ELSEIF CONTAINS([Title],'Curcumin') THEN 'Kurkuma'
ELSEIF CONTAINS([Title],'Kurkuma') THEN 'Kurkuma'
ELSEIF CONTAINS([Title],'Cordyceps') THEN 'Cordyceps'
ELSEIF CONTAINS([Title],'Omega') THEN 'Omega-3'
ELSEIF CONTAINS([Title],'Biotin') THEN 'Biotin'
ELSEIF CONTAINS([Title],'Selen') THEN 'Selen'
ELSEIF CONTAINS([Title],'Calcium') THEN 'Calcium'
ELSEIF CONTAINS([Title],'Jod') THEN 'Jod'
ELSEIF CONTAINS([Title],'L-theanin') THEN 'L-theanin'
ELSEIF CONTAINS([Title],'agaricus bla') THEN 'Agaricus
blazei'
ELSEIF CONTAINS([Title],'Nattokinase') THEN 'Nattokinase'
ELSEIF CONTAINS([Title],'knochen') THEN 'Gelenke Mix'
ELSEIF CONTAINS([Title],'Detox') THEN 'Detox'
ELSEIF CONTAINS([Title],'Ingwer') THEN 'Ingwer'
ELSEIF CONTAINS([Title],'fatburner') THEN 'Abnehmen'
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ELSEIF CONTAINS([Title],'Carnitin') THEN 'L-carnitin'
ELSEIF CONTAINS([Title],'OPC') THEN 'Traubenkernextrakt OPC'
ELSEIF CONTAINS([Title],'Vitamin B12') THEN 'Vitamin B12'
ELSEIF CONTAINS([Title],'Polyporus') THEN 'Polyporus'
ELSEIF CONTAINS([Title],'magnesium') THEN 'Magnesium'
ELSEIF CONTAINS([Title],'beta-alanin') THEN 'Aminosäuren'
ELSEIF CONTAINS([Title],'Chlorella') THEN 'Spirulina Chlorella'
ELSEIF CONTAINS([Title],'Mariendistel') THEN 'Mariendistel'
ELSEIF CONTAINS([Title],'CBD') THEN 'CBD öl'
ELSEIF CONTAINS([Title],'Ashwa') THEN 'Ashwagandha'
ELSEIF CONTAINS([Title],'bcaa') THEN 'BCAA'
ELSEIF CONTAINS([Title],'Amino') THEN 'Aminosäuren'
ELSEIF CONTAINS([Title],'Vitamin B komplex') THEN 'Vitamin B
Komplex'
ELSEIF CONTAINS([Title],'B-komplex') THEN 'Vitamin B Komplex'
ELSEIF CONTAINS([Title],'Vitamin B3') THEN 'Vitamin B3'
ELSEIF CONTAINS([Title],'Niacin') THEN 'Vitamin B3'
ELSEIF CONTAINS([Title],'B12') THEN 'Vitamin B12'
ELSEIF CONTAINS([Title],'Vitamin c') THEN 'Vitamin c'
ELSEIF CONTAINS([Title],'tyrosin') THEN 'L-tyrosin'
ELSEIF CONTAINS([Title],'AAKG') THEN 'Sportnahrung'
ELSEIF CONTAINS([Title],'zinc') THEN 'Zink'
ELSEIF CONTAINS([Title],'Bockshorn') THEN 'Bockshornklee'
ELSEIF CONTAINS([Title],'Cranberry') THEN 'Cranberry'
ELSEIF CONTAINS([Title],'Sägepalm') THEN 'Sägepalmenextrakt'
ELSEIF CONTAINS([Title],'Grapefruit') THEN 'Grapefruitkerne extrakt'
ELSEIF CONTAINS([Title],'Pantothen') THEN 'Vitamin B5'
ELSEIF CONTAINS([Title],'Diät') THEN 'Abnehmen'
ELSEIF CONTAINS([Title],'Basen') THEN 'Basen protekt'
ELSEIF CONTAINS([Title],'DHA') THEN 'Omega-3'
ELSEIF CONTAINS([Title],'Basica') THEN 'Basen protekt'
ELSEIF CONTAINS([Title],'zink') THEN 'Zink'
ELSEIF CONTAINS([Title],'zinc') THEN 'Zink'
ELSEIF CONTAINS([Title],'chrom') THEN 'Chromium Picolinat'
ELSEIF CONTAINS([Title],'Cissus') THEN 'Cissus Quadrangularis'
ELSEIF CONTAINS([Title],'Ephe') THEN 'Abnehmen'
ELSEIF CONTAINS([Title],'Lactase') THEN 'Lactase'
ELSEIF CONTAINS([Title],'Schwarzkümmel') THEN 'Schwarzkümmelöl'
ELSEIF CONTAINS([Title],'enzym') THEN 'Enzym'
ELSEIF CONTAINS([Title],'Bromelain') THEN 'Bromelain'
ELSEIF CONTAINS([Title],'Glucosa') THEN 'Glucosamin'
ELSEIF CONTAINS([Title],'Guarana') THEN 'Guarana'
ELSEIF CONTAINS([Title],'ballast') THEN 'Ballaststof'
ELSEIF CONTAINS([Title],'Weihrauch') THEN 'Weihrauch'
ELSEIF CONTAINS([Title],'Glutamin') THEN 'L-glutamin'
ELSEIF CONTAINS([Title],'Obst') THEN 'Obst extrakt'
ELSEIF CONTAINS([Title],'gemüse') THEN 'Gemüse extrakt'
ELSEIF CONTAINS([Title],'Obst') THEN 'Obst extrakt'
ELSEIF CONTAINS([Title],'Weizengras') THEN 'Weizengras'
ELSEIF CONTAINS([Title],'augen') THEN 'Vitamin A'
ELSEIF CONTAINS([Title],'Propolis') THEN 'Propolis'
ELSEIF CONTAINS([Title],'sport') THEN 'Sportnahrung'
ELSEIF CONTAINS([Title],'Astragalus') THEN 'Astragalus wurzel'
ELSEIF CONTAINS([Title],'Salbei') THEN 'Salbei'
ELSEIF CONTAINS([Title],'Booster') THEN 'Sportnahrung'
ELSEIF CONTAINS([Title],'Stoffwechsel') THEN 'Abnehmen'
ELSEIF CONTAINS([Title],'Grüner Kaffee') THEN 'Abnehmen'
ELSEIF CONTAINS([Title],'Burn') THEN 'Abnehmen'
ELSEIF CONTAINS([Title],'Formoline') THEN 'Abnehmen'
ELSEIF CONTAINS([Title],'silicea') THEN 'Biotin'
ELSEIF CONTAINS([Title],'Löwenzahn') THEN 'Löwenzahn Wurzel'
ELSEIF CONTAINS([Title],'haar') THEN 'Biotin Mix'
ELSEIF CONTAINS([Title],'Gerstengras') THEN 'Gerstengras'
ELSEIF CONTAINS([Title],'Shiitake') THEN 'Shiitake'
ELSEIF CONTAINS([Title],'Bor') THEN 'Bor'
ELSEIF CONTAINS([Title],'Vitamin stack') THEN 'Multivitamin'
ELSEIF CONTAINS([Title],'OPC') THEN 'Traubenkernextrakt OPC'
ELSEIF CONTAINS([Title],'kürbiskernöl') THEN 'kürbiskernöl'
ELSEIF CONTAINS([Title],'kraftformel') THEN 'Detox'
ELSEIF CONTAINS([Title],'Zeolith') THEN 'Zeolith'
ELSEIF CONTAINS([Title],'Granatapfel') THEN 'Granatapfelextrakt'
ELSEIF CONTAINS([Title],'Pre-workout') THEN 'Sportnahrung'
ELSEIF CONTAINS([Title],'Alpha-lipon') THEN 'Alpha-Liponsäure'
ELSEIF CONTAINS([Title],'Spirulina') THEN 'Spirulina'
ELSEIF CONTAINS([Title],'bierhefe') THEN 'Bierhefe'
ELSEIF CONTAINS([Title],'e') THEN 'Other'
ELSEIF CONTAINS([Title],'a') THEN 'Other'

END
```

DETERMINATION OF STRATEGIC FIT

Determination of strategic fit	
NOT CONTAINS ([Title], 'protein')	AND NOT CONTAINS ([Title], 'drink')
AND NOT CONTAINS ([Title], 'shaker')	AND NOT CONTAINS ([Title], 'Yokebe')
AND NOT CONTAINS ([Title], 'dmso')	AND NOT CONTAINS ([Title], 'choko')
AND NOT CONTAINS ([Title], 'cola')	AND NOT CONTAINS ([Title], 'cake')
AND NOT CONTAINS ([Title], 'vigantol')	AND NOT CONTAINS ([Title], 'kakaonibs')
AND NOT CONTAINS ([Title], 'chia')	AND NOT CONTAINS ([Title], 'kakaobohnen')
AND NOT CONTAINS ([Title], 'advents')	AND NOT CONTAINS ([Title], 'bleaching')
AND NOT CONTAINS ([Title], 'bürst')	AND NOT CONTAINS ([Title], 'powerbar')
AND NOT CONTAINS ([Title], '6er pack')	AND NOT CONTAINS ([Title], 'daosin')
AND NOT CONTAINS ([Title], '32er pack')	AND NOT CONTAINS ([Title], 'Carb Bar')
AND NOT CONTAINS ([Title], 'ibu')	AND NOT CONTAINS ([Title], 'Spoon')
AND NOT CONTAINS ([Title], 'inhalation')	AND NOT CONTAINS ([Title], 'Orlistat')
AND NOT CONTAINS ([Title], 'riegel')	AND NOT CONTAINS ([Title], 'Rescue')
AND NOT CONTAINS ([Title], 'apothek')	AND NOT CONTAINS ([Title], 'mahlzeitersatz')
AND NOT CONTAINS ([Title], 'gym')	AND NOT CONTAINS ([Title], 'Joghurt')
AND NOT CONTAINS ([Title], 'crank')	AND NOT CONTAINS ([Title], 'orthomol')
AND NOT CONTAINS ([Title], 'balsam')	AND NOT CONTAINS ([Title], 'Aromatropfen')
AND NOT CONTAINS ([Title], 'soda')	