FIELD MOBILITY

Competitor analysis and market entry mode decision

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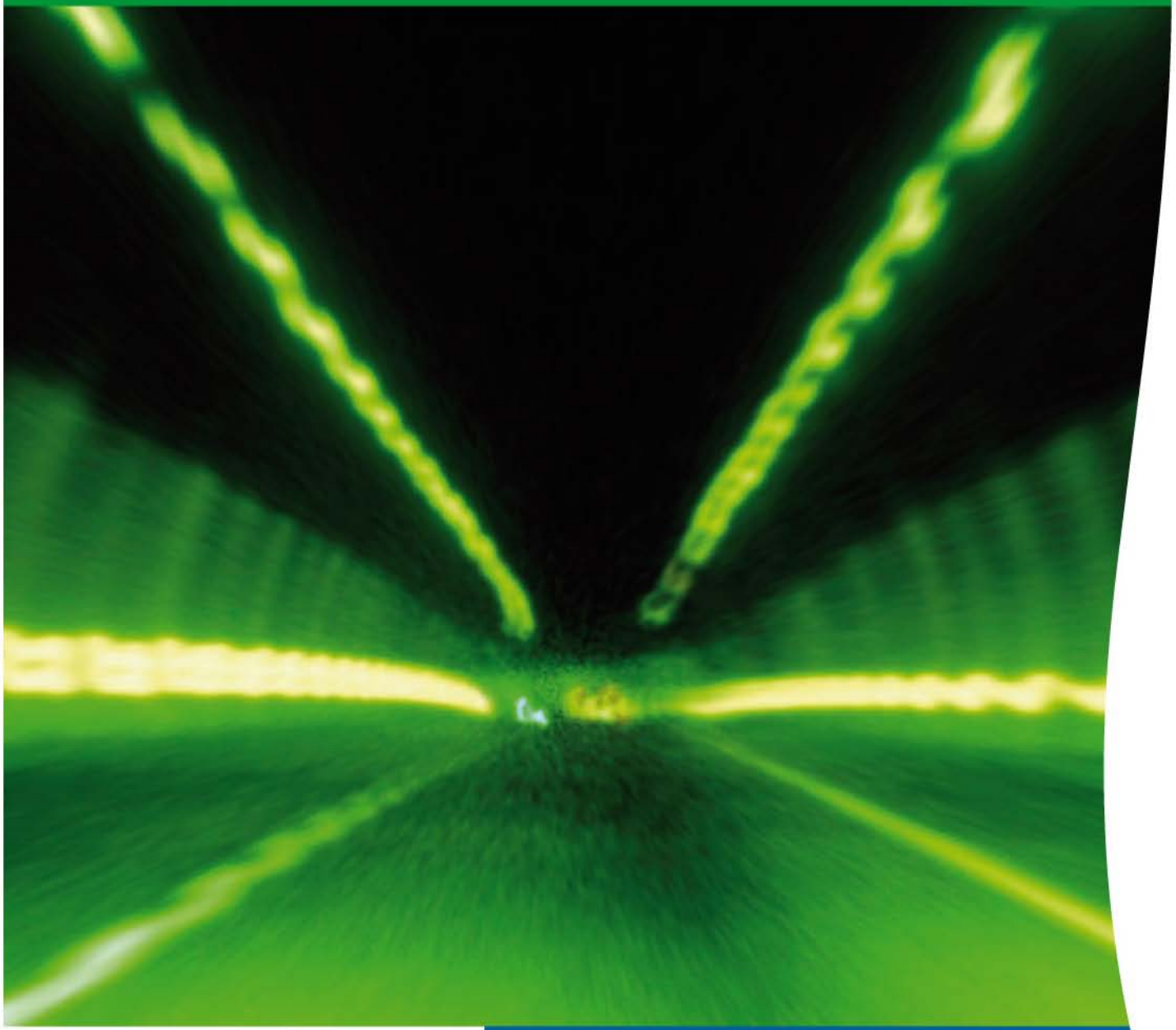

SMART MOVE

Management summary / abstract

Het voor u liggende bachelor script behandelt de meest geschikte *market entry mode* keuze voor het MK software bedrijf Sigmax. Sigmax is gevestigd in Enschede en is primair bezig met het ontwikkelen van software voor handheld computers in de B2B en B2G context. Daarnaast is er in dit verslag ook naar de competitie in Duitsland gekeken.

De uiteindelijke keuze is gebaseerd op Root's market entry mode model, dat geworteld is in de productie context. Echter is dit model significant veranderd om het voor de service context toepasbaar te maken. Het nieuwe model kijkt naar de interne factoren *international experience*, *product factors*, en *resource commitment*, en naar de externe factoren *target country market factors*, *target country environmental factors*, *network relationships*, en *home country factors*.

Bergen & Peteraf's model is gebruikt om naar Duitse concurrenten te kijken. Aan de hand van de scores die aan een concurrent aan de variabelen *market commonality* (de gelijkheid van de vraag/behoefte, aan die twee concurrenten proberen te voldoen) en *resource similarity* (de gelijkheid van technologie/resources tussen twee concurrenten) worden toegekend, onderscheidt dit model de concurrenten in de drie verschillende categorieën *directe concurrenten*, *indirecte concurrenten*, en *potentiële concurrenten*.

In totaal zijn 38 Duitse concurrenten geïdentificeerd, waarvan 26 directe concurrenten, en 12 potentiele concurrenten. De meeste concurrenten (32) zijn MKBs en hebben minder dan 100 medewerkers. Voor het management is extra een Excel bestand meegegeven, waar meer informatie over de individuele concurrenten in te zien is.

Qua market entry mode is dit onderzoek op Equity Joint Venture (EJV) als de meest geschikte entry mode uitgekomen. Het betreden van de Duitse markt met een *equity entry mode* (*sole* – of *joint venture*) heeft bepaalde voordelen vergeleken met *export* of *licensing*. Zo worden *equity modes of entry* bijvoorbeeld door het uitgebreide aanbod aan financiële ondersteuning (voor het opbouwen van een nieuwe rechtsvorm) in Duitsland bevoordeeld. Ook resulteert het opereren met een Duitse rechtsvorm voor meer handelszekerheden voor zowel de klant als ook de leverancier. Daarnaast rechtvaardigt de enorme grootte van de Duitse markt (ongeveer zes keer groter dan de Nederlandse markt, de grootste markt binnen Europa) de relatief hoge kosten die geassocieerd worden met *equity entry modes*, omdat deze entry modes de hoge potentie van deze markt het best kunnen exploiteren. Verder zijn er marketing voordelen. Duitsers zijn qua cultuur eerder geneigd om zaken met zelfde landslieden te doen. Een imago als Duits bedrijf zou daarom erg behulpzaam zijn. Bovendien profiteren equity modes van het feit, dat hun relatief hoog risico in deze case door een aantal factoren (hoog differentiatievermogen, relatief laag cultureel verschil, etc.) wordt verzacht. De keuze is uiteindelijk op EJV gevallen, omdat financiële resources en internationale ervaring op dit moment schaars zijn. Ook al mocht men de Duitse markt eerst met export betreden om zo voorlopige ervaring te verzamelen, zo ben ik overtuigd, dat het voor de lange termijn noodzakelijk is, om de Duitse markt met een Duitse rechtsvorm te benaderen.

Preface

After months of work I can finally present my thesis, carried out to finalize my bachelor in business administration. It was the 22nd of March 2011 that Reinier Morra gave a guest lecture at our university of Twente about the international business development at Sigmax. The company made an interesting impression, so I said to myself: “Why not give it a shot?” So I walked down to Reinier at the end of that very lecture and asked him whether he’d see any possibilities of me writing my bachelor thesis for Sigmax. And I was and still am incredibly glad that he approved, because what followed was a highly interesting, inspiring, and instructive internship at Sigmax Field Mobility. That internship constitutes so much more than just the medium for collecting the last missing piece for my bachelor graduation. It was a period that substantially contributed to my professional as well as personal development.

At this point, I want to gratefully thank a number of people. I want to thank the whole workforce of Sigmax, who made it such a comfortable place to work for. It was really unique to see how friendly, positive and helpful every single employee was at that place.
Patrick Bliek, my first examiner, also deserves special mention, as he provided valuable feedback and proved to be helpful at any time. I’d also like to thank Jann Benthem, my second examiner, for taking the extra workload of reading/evaluating my thesis.
Credits also go to all the companies that participated in the survey. I know that service managers by nature are pretty busy, so I really appreciate that.
Moreover, I’d like to thank my family and friends (especially my roommates) who supported me during my progress through the bachelor education.

Most of the credit, however, goes to Reinier, who was so much more than just an external tutor to me. I really want to thank him for all the critical feedback he gave me (not just concerning my bachelor thesis, but also as concerns my personality), and for all the time he devoted to me even when it was obvious to see that he had much more important things to do in the first place. Most of all, however, I’d like to thank him for all the trust he put in me, and all the responsibility he gave to me. At times, it seemed, he believed more in me than I did.

So for all of this I gratefully want to thank him and hope that I can (at least partly) return the favor by means of this bachelor thesis. I’ve invested a lot of time in writing and finalizing this paper, which I hope is acknowledged by the extent and breadth of this thesis. Given that quantity doesn’t necessarily equal quality, I moreover hope that this script adds value for Sigmax.

Table of Contents

1 Introduction

1.1 Introduction Sigmax and Mobile Solutions

Sigmax, founded in 1998 by Walter Rijk en Leo van den Ende, is a software company located in Enschede, Netherlands, that offers mobile solutions for municipalities and businesses.

Now the term mobile solution in general is a fairly broad one, including a variety of technologies which enhance the mobility of persons, not just in the business environment. In the remotest sense, this for example also includes electronic pens, which are equipped with the feature to trace their movement on a paper so as to simultaneously electronically store what has been written on the paper.
When narrowing the term mobile solutions (abbreviated MS) to mobile enterprise solutions, one usually refers to either mobile technologies used to enhance interorganizational communication, or to mobile technologies used to optimized organizational processes. The latter business is the one in which Sigmax, and Sigmax Field Mobility in particular, is active in. Thus, whenever the term mobile solution is used throughout this thesis, the author refers to applications developed to enhance organizational processes.

Specifically, the mobile applications developed by Sigmax are used to make the work of a variety of field staff more effective and efficient. The whole workflow is streamlined by establishing an electronic link between front – and back office which allows them to exchange data in a real time manner.

Sigmax not only develops the software for the end user's mobility devices (think of handhelds as PDAs or tablets) but also offers consulting services by informing the customer about the most suitable context contingent mobile solution, implements the solution together with the customer organization, trains the organization in using the solution, and offers technical support. Sigmax thus, like most organizations, offers product as well as service elements.

Sigmax is composed of six SBU's, four of which are visible to the customer. These are *Sigmax Field Mobility*, *Sigmax Mobile Solutions*, *Sigmax Law Enforcement* and *Sigmax ICT Specialisten*. The first three SBU's are placed under the *Sigmax Mobile Holding.* This research is conducted for the SBU Sigmax Field Mobility. For a visual overview of the company's structure, refer to figure 1.1 at the end of this section.

Sigmax Field Mobility (from now on SFM) offers standard mobile solutions for field workers that offer technical service in the form of inspection and maintenance. The word "standard" has to be used cautiously, because, even though these solutions are derived from a standard software architecture, their specifications and features can be adapted to the specific needs of the customer organization.

The activities of SFM can best be illustrated by outlining some of the features of the *Field Mobility Suite*, a standard mobile solution offered by SFM. The Field Mobility Suite is a software programmed for mobile handheld devices such as PDAs or tablets. It guides staff operating in the field by displaying all the details of a work order. This, amongst other details, includes a detailed description of the destination of the work order (address and contact person), an overview of the tasks to be performed, material to be used and the location of objects to be inspected. Moreover, the Field Mobility Suite records the arrival, start en break times of the field staff. Finally, the technician can finalize the work order by creating a standard report in no time, which states the actions that have been executed by the technician and, if necessary, has this report electronically signed by the client.

Being linked with the ERP system of the customer organization, information on material usage, working time, destination of the technician and the report of the working order are automatically registered in the back office in real time. This enables the back office a faster access to information, which can consequently immediately be used to e.g. better coordinate the routes of the technicians. Summarized, the Field Mobility Suite substantially reduces paper work and enhances the information flow within the organization, thereby significantly streamlining operational processes.

At the time of writing Sigmax counts 109 employees and is represented in the top 3 of the Dutch market for mobile handheld solutions. SFM has 14 employees and services four segments, namely *infra and asset management, service providers for consumers, B2B equipment services, and control & inspection.*

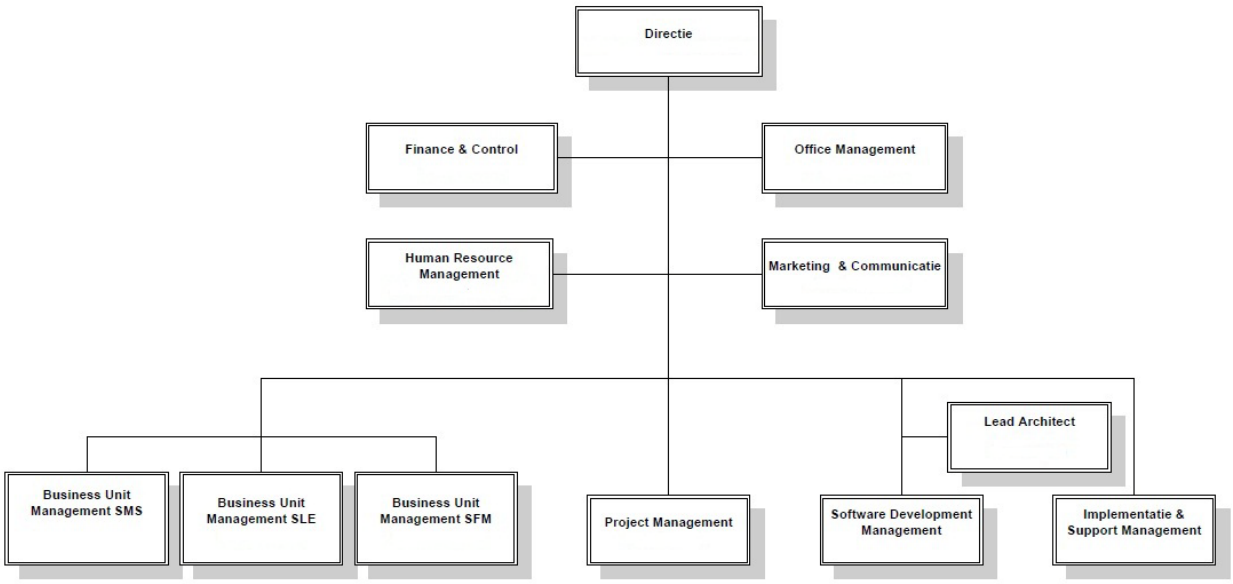

Figure 1.1 – Organogram of Sigmax

1.2 Research problem

The problem that is sought to be tackled in this research becomes apparent by confronting two opposing circumstances. On the one hand, Sigmax has set up the goal to grow their turnover by 30 to 100% annually for the next three years. On the other hand, Sigmax already being represented among the top 3 of the Dutch mobile solutions market, the Dutch market, which itself is relatively small, is already chiefly covered. Therefore, internationalization is the only viable option left to generate further revenue with the current product and thus accomplish the growth target. This drive for internationalization has also been discovered by Root (1994) who stated that:

> "*Companies become committed to international markets only when they no longer believe that they can attain their strategic objectives by remaining at home*"

Having decided to internationalize operations, three apparent questions immediately pop up.
Which country should we enter? With which product should we enter the target country? How should we enter the target country?

The first question, the choice of the target market, is approached by means of a country ranking.
The country with the highest score should ideally be the country targeted for internationalization.
See section 4.1 for the country ranking which identifies *Germany* as the most attractive target country.
Of note, conducting the analysis for the German realm was also the wish of the management.

Question two is easily answered. At the time of writing, SFM offers two mobile solutions, namely FlexInspect for the inspection of larger objects and the Field Mobility Suite for maintenance activities of service companies. Given the fact that the support for FlexInspect runs out by 2012, the advice on how to enter the target market will be given for the Field Mobility Suite.

As concerns the third question, *how to actually enter the target market,* there is consistent agreement in literature, that the *choice of the proper market entry mode* is a critical activity in the process of internationalization (Root, 1994). This proper choice of the market entry mode is what forms the prime focus of this thesis.

A second problem is a lack of market knowledge, which can pose a serious obstacle for internationalization (Johanson & Vahlne, 1977). After all, one can't jump right into a foreign market without having collected some basic market information about e.g. competition, market opportunities, present and future demand and supply, payment conditions, etc. (Johanson & Vahlne, 1977). To enhance market knowledge and reduce the hurdle posed by a potential lack of market knowledge, a competitor analysis will also be conducted. Compared to the identification of the most suitable market

entry mode, the competitor analysis rather constitutes a side activity and is executed in a less comprehensive manner.

1.3 Research purpose

Given that, as stated, the choice of the market entry mode has such a profound effect on the venture of internationalization, the prime purpose of this study is to shed light on the issue of the proper choice of a market entry mode. Apart from that, competitor analysis is important to enhance market knowledge.

Therefore this research specifically is set out to investigate the contributions that have been made in literature concerning the discipline of market entry mode decision and competitor analysis.
It is meant to investigate especially which theories of both disciplines can be used in the context of SFM and what recommendations go along with those theories.

1.4 Research question

The research question that flows directly out of the purpose that this research is set out to satisfy is the following:

"According to literature, taking competitor analysis into account, what is the most suitable market entry mode that SFM can choose for entering the German market?"

1.5 Research approach

During the first introductory meetings with the management of SFM, the management voiced factors that according to them played a decisive role in determining the most suitable market entry mode.
Those factors, the importance of which is also verified in the upcoming chapter, are the location of potential customers, and the availability of partners in the target country.
Therefore, along with the factors that are to be identified in chapter two, these factors will also be taken into account when identifying the most suitable market entry mode. A discussion on how those pre-identified factors relate to those identified by literature will be given in chapter two.
As has been stated in section 1.1, Sigmax serves four different segments. Due to limitations in scope, the competitor analysis, which is conducted for the German realm, and the customer identification is almost exclusively conducted for the *Business Equipment Services* segment.

1.6 Research questions

To act as a guideline, the following research sub questions are identified. By answering all these sub questions, the author systematically tries to give an answer to the central research question.

Sub question 1: What are the most important *direct* and *potential* competitors in the Business Equipment Services (BES) segment in Germany?

Sub question 2: What are the paramount needs/demands of the customers within this segment and how do competitors score on these features relative to Sigmax?

Sub question 3: Identifying the internal and external factors that affect the choice of entry mode as well as their advantages and disadvantages, what is the most suitable entry mode for SFM?

1.7 Relevance of the research

This section justifies this research, by setting out the contribution that it makes to the three fields scientific relevance, societal relevance, and personal relevance.

Scientific relevance

Without going into philosophical detail (what is scientifically relevant for one science philosopher does not have to be scientifically relevant for another one) this paper can be considered as scientifically relevant, because it integrates theories of different disciplines (competitor analysis and market entry mode), and supplements this integration with own judgments of what other factors might also be relevant in our specific case, that have not yet been acknowledged by literature.
Moreover, this thesis contributes to the understanding of the market entry mode discipline in the service setting, which has traditionally been underrepresented by research in this area.

Societal relevance

Given that the success of an internationalization effort is significantly affected by whether or not the proper market entry mode is chosen, this research is economically relevant for Sigmax, because it might influence the future performance of Sigmax Field Mobility in particular, and, since all the Sigmax business units together form a legal entity, Sigmax as a whole. It is therefore most relevant for the direct stakeholders, e.g. the employees. However, it is also relevant for potential customers in Germany that might profit from the benefits of Sigmax' mobile solutions, once Sigmax has entered the German market.

Personal relevance

The personal relevance of this report is high. I severely believe that the time and commitment dedicated not only to the finalization of this report but also to the array of other activities that I was allowed to execute during my internship, meaningfully contributed to my personal and professional development.
Apart from that, the passing of the bachelor thesis constitutes the last missing piece required for graduating as a Bachelor of Science in the business administration discipline.

2 Theoretical framework

2.1 General Introduction

In the previous chapter we identified the proper choice of the market entry mode for SFM as the prime problem that is sought to be answered with assistance of a competitor analysis. In this chapter, we outline the existing body of knowledge that will be used as a guideline for giving a founded advice on the research question. Given the fact that the market entry mode and competitor analysis are two different, rather independent fields of study, the theoretical discussion of both topics will be done separately. Thereafter, the author establishes a connection between the two different fields of study, so as to generate an integrated theoretical framework that specifically applies to this case.

Before we jump right into the theoretical pool of market entry mode and competitor analysis, however, it is useful to stand still for a moment and spotlight on the basic characteristics of the company at issue to see whether this has implications for the applicability of the theories that have yet to be described.

According to literature, two characteristics are especially important when talking about implications for the choice of market entry mode and competitor analysis.

Firstly, the location of a company's offering along the continuum of a pure product offering on the one hand to pure service offering on the other hand has to be made explicit, because it modifies the factors that influence the market entry mode choice. The distinctive features between products and services are amongst others identified by Ekeledo & Sivakumar (1998).
Labeled macro characteristics, features such as *perishability*, *tangibility*, *separability*, and *heterogeneity* distinguish goods from services. *Perishability* refers to the fact, that services are time dependant and thus can't be stored for the sake of future use. The degree of *tangibility* is the key characteristic distinguishing goods from services. In its purest form, services have no tangible form, which has implications for the way that customers are able to evaluate a service. The concept of *inseparability* describes the fact that in a service context, consumption requires the simultaneous presence of delivery. The last macro distinguishing factor, *heterogeneity*, addresses the particularity of services that their delivery is highly variable, because it heavily depends on the condition of the workforce, which is likely to change in a daily fashion (Wolak et al., 1998). See figure 2.1 for an illustration of the continuum from pure products on the left hand to pure services on the right hand.
Moreover, Erramilli (1990) and Ekeledo & Sivakumar (1998) differentiate between hard and soft services. With hard services, production and consumption can be separated, because the service is stored on a tangible medium, thereby making it transportable. Soft services, however, do not allow for such a detachment.

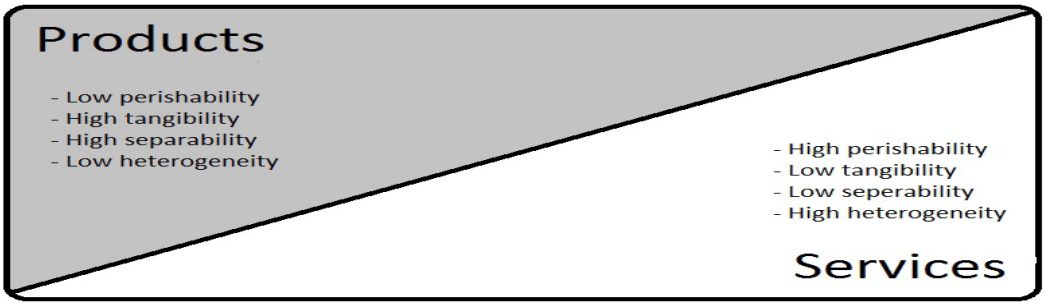

Figure 2.1 – *Continuum from pure product to pure service offerings*

The product component of the hard service is only of subordinate concern for the customer, who derives the primary utility out of the service component, thereby qualifying the physical component of hard services as a means rather than an end. The authors highlight the fact that such a classification is of paramount importance for identifying a feasible entry mode.
Apart from these macro factors, there are micro, item-specific, characteristics of products, such as composition, weight/value ration, packaging, brand name, image and technology etc. that differentiate items within the product respectively service category. According to Ekeledo & Sivakumar (1998) both micro and macro characteristics substantially influence the choice of the market entry mode.
This insight is also shared by Root (1994) who on the one hand acknowledged that different products require individually tailored market entry strategies, thus addressing the effect that micro characteristics of products exercise, and on the other hand states that the internationalization of services requires a distinctive approach to the choice of the market entry mode, due to the fact that they require the simultaneous presence of both supply and demand (*inseparability*).

Secondly, the question of whether or not SFM can be classified as high-tech or not profoundly affects the way that we have to approach competitor analysis. In general

"*…the term high technology refers to cutting-edge or advanced technology" (Mohr et al., 2010)*

and includes traditional branches such as software and IT. Given the fact this definition is fairly fuzzy with blurred boundaries, government classifications have been set up in pursuit of a more objective means of classification. According to this approach there are input-based definitions such as the number of technical employees, the number of patents filed or the monetary expenditure on R&D, and output based definitions, which assess the degree of technological intensity of a company based on the technical novelty of their products. Again, the software industry is seen such a branch that usually offers such novel products (Mohr et al., 2010).

According to Mohr et al. (2010) high-tech environments are characterized by an interception of *market uncertainty*, *technological uncertainty* and *competitive volatility*.

Whereas market uncertainty refers to ambiguity concerning the demand side of a transaction, the concern about the type and degree of customer needs that can be served by a certain technology, technological uncertainty is about the incertitude of whether the technology, or the company providing it, can deliver the promised needs in order to meet customer expectations. The term competitive volatility is used to capture both the intensity and change in the competitive landscape that is so profound in the high-tech market (Mohr et al., 2010).

2.2 Literature review on market entry mode

Market entry strategy, including market entry mode selection, is a theoretical discipline that has caught the attention of numerous academics from early on. The first insights into the factors that affect the choice of the market entry mode were drawn from studies in the fields of industrial organization, international trade and market imperfections (Dunning, 1973; Agarwal & Ramaswami, 1992). Over time, a considerable body of knowledge regarding the choice of the market entry mode developed that at first only distinguished between export and Foreign Direct Investment (FDI = investing in businesses or properties located in a country other than that of the investor) as market entry modes, but later elaborated and added the two categories *contractual agreements* and *equity joint ventures* of entry modes (Buckly & Casson, 1998; Pan & Tse, 2000). However, most theoretical and empirical work has strongly been biased towards manufacturing companies in a multinational setting, covering SMEs only marginally (Brouthers et al., 1996; Coviello & Munro, 1997; Ekeledo & Sivakumar, 1998; Javalgi et al., 2003; Sanchez-Peinado et al., 2006; Castellacci, 2009). Authors who sought to empirically test the applicability of the contemporary state of the art theories in a service setting came up with mixed conclusions. Whereas one fraction (including the authors Weinstein, Terpstra, Yu, Agarwal, and Ramaswami) stated that the factors determining the choice of the market entry mode in a manufacturing context can indeed also be generalized to the service context, the other fraction (including the authors Erramilli and Rao) claimed that this is not the case (Ekeledo & Sivakumar, 1998). Given that the choice of the market entry mode is an ill-defined, dynamic and complex concept, being dependent on a variety of interconnected factors, which are weighted differently in different contexts, different researchers often come up with conflicting contentions (Zhao & Decker, 2004).

When discussing the factors that affect the choice of the market entry mode, two frequently cited authors deserve special mention for their theoretical contributions.

2.2.1 Dunning on market entry mode decision

The first one is John H. Dunning (1973, 1987) who drew from the early insights of industrial organization, international trade and market imperfections as noted above to develop an integrated framework. According to this framework, the choice of market entry mode is determined by three different types of factors, namely *ownership advantages*, *location advantages* and *internalization advantages* (Dunning, 1987). *Ownership advantages* are concerned with a company's asset power,

which includes firm size & multinational experience, and skills, which refer to the firm's ability to develop *differentiated products*. Advantages in such factors are necessary to overcome the higher costs that foreign companies incur in servicing foreign markets as compared to indigenous companies.
Location advantages resemble the attractiveness of a certain market, as characterized by its potential, size, growth, and investment risk.
Lastly, *internalization advantages* are advantages that a firm considers in transferring owner specific advantages across national borders, but within company boundaries in order to avoid market failures that would have taken effect, had the company sold them to foreign based companies. For example, in a setting of high contractual risk and environmental uncertainty, where it is costly to set up and enforce contracts due to the inability to predict future contingencies, the entry mode choice is biased to exporting or sole venture (Dunning, 1987; Agarwal & Ramaswami, 1992).

Despite the model's effort to explore all the important factors affecting the market entry mode decision, it is often challenged as being too static, because it fails to take strategic- and context contingent factors, as well as competition into account (Zhao & Decker, 2004).
A model that does take a more comprehensive perspective, taking a wider array of factors into account that influence the choice of the market entry mode, thereby better addressing the problem of context contingency, is that of Root (1994), the second author that has to be highlighted. Amongst other factors described in section 2.2.5, he also takes competition into account, which creates an interface for integrating the findings for the research questions 1 and 2 (competitor analysis) to question 3 (market entry mode decision). Most critical to the author, however, is the fact that the model of Root is more *normative* than those of other researchers in the field. That is, the book is written more as a *guide* about which mode *should* be chosen under what circumstances, as compared to the more *explanatory* models of other researchers, which rather try to reconstruct the reasons why companies chose certain entry modes in certain situations, afterwards (thus also including bias, error, myopia, and satisficing behavior of the decision makers being studied).
For those three reasons (more comprehensive context contingency, inclusion of competition, normative character) the model of Root (1994) will be used as the foundation for choosing the most appropriate market entry mode.

2.2.2 Root on international market entry strategies

According to Root the foreign market entry mode decision is determined by *internal* and *external factors*. Amongst the external factors are *Target Country Market Factors*, *Target Country Environmental Factors*, *Target Country Production Factors* and *Home Country Factors.* The category of *internal factors* includes *Company Product Factors* and *Company Resource/Commitment Factors* (figure 2.2). Refer to section 2.2.5 for an extensive description of the different factors.
The work of Root holds lots of parallels with that of Dunning. For example, *ownership advantages* such as firm size and the ability to offer differentiated products as identified by Dunning are subordinate to

Company Product Factors respectively *Company Resource/Commitment Factors* in Root's model. Accordingly *location advantages* such as *market potential* and *investment risk* are found in Root's categories *Target Country Market Factors* respectively *Target Country Environmental Factors.*

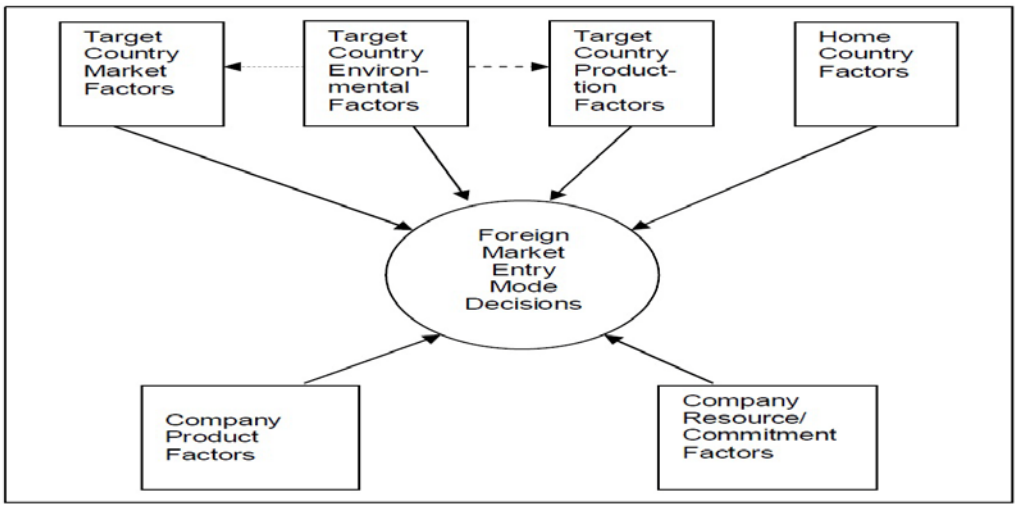

Figure 2.2 - *Factors affecting the Market Entry Mode Decision* (Root, 1994)

2.2.3 The importance of an international market entry strategy

According to Root (1994) the growing global pressure puts the challenge on every business to think globally in order to grow and prosper. Even though a company might decide not to extend their business into foreign territory, it ought to be aware of the threats that potential entrants might pose by entering their domestic market. For those companies that do decide to go abroad, an international market entry strategy for the strategic planning horizon of usually 3-5 years is necessary (Root, 1994).
Reluctance to take a strategic approach to market entry strategy results in a "sales"-approach which is characterized by short term oriented ad-hoc decisions (see appendix A for a characterization of the "sales"-approach). According to Root, such an approach is doomed to fail over the long haul.
An overview of all five elements that constitute a market entry strategy is given in figure 2.3.

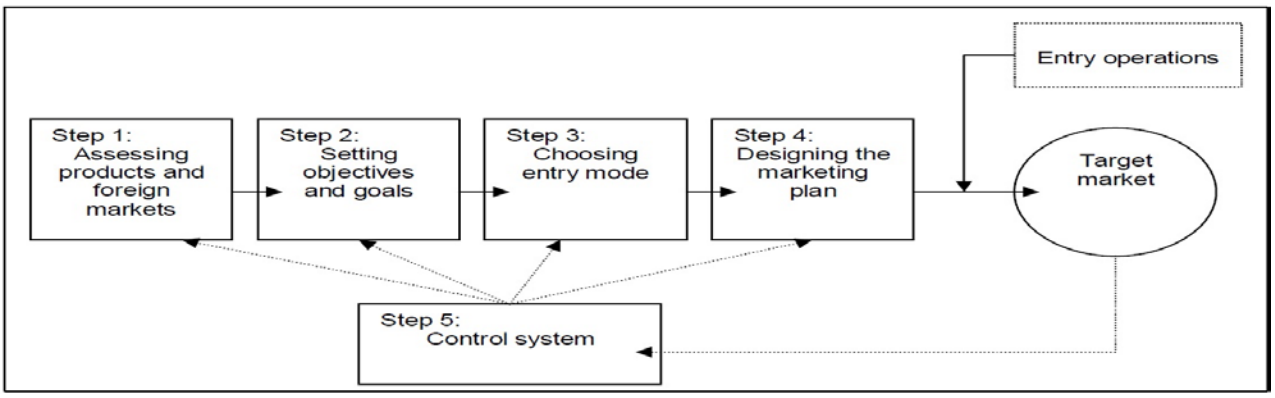

Figure 2.3 – *Elements of a Market Entry Strategy* (Root, 1994)

Due to limitations in scope, the third step within this frame work - the choice of the market entry mode - will be the focus of this research. Given the fact that the selection of an entry mode is associated with a substantial devotion of financial resources, the amount of which varies per entry mode, the choice of the proper market entry mode is a strategic decision that critically affects the success of the internationalization venture (Root, 1994).

2.2.4 Profiling the entry modes

Root identifies three categories of market entry modes, each with their distinctive benefits and shortcomings (Root, 1994). All three entry categories are concerned with transferring something. However, the object of the transfer is what distinguishes them. Where export and contractual entry modes are concerned with the transfer of products, respectively technology and other industrial property, investment entry modes are concerned with the transfer of a whole enterprise. In this section a short description of the entry modes along with an overview of the benefits and shortcomings per entry mode is given. Even though the modes will be described separately, it is made clear at this point, that in practice, usually combinations of the different entry modes are used (Root, 1994).
See table 2.1 below for Root's classification of entry modes.

Export Entry Modes	***Contractual Entry Modes***	***Investment Entry Modes***
Indirect export	Licensing	Sole venture: new establishment
Direct agent/distributor export	Franchising	Sole venture: acquisition
Direct branch/subsidiary export	Technical agreements	Joint venture: new establishment
Other	Service contracts	Joint venture: acquisition
	Management contracts	Other
	Construction/turnkey contracts	
	Other	

Table 2.1 – *Classification of entry modes according to Root (1994)*

When assessing the advantages and disadvantages of the various entry modes, it usually comes down to how they score on the four variables *risk*, *return*, *resource commitment,* and *control*. Generally, the four variables rise proportionally to each other. Therefore, the higher the resource commitment, the higher the risk, return, and control (Erramilli, 1992; Pan & Tse, 2000).

Export Entry Modes

With export entry modes, the product is manufactured outside the target country and subsequently transferred to it. Depending on whether or not the *middleman* used to execute the exporting activities is located in the home or target country, one distinguishes between *direct* and *indirect exporting.* In the

case of indirect exporting, the middleman is located in the home country and does all the exporting. In the case of direct exporting, there is either made no use of a middleman, or such a middleman is located in the target country. The latter option leads to a further distinction, namely between *direct agent/distributor exporting* in which the middlemen markets the exporter's products and *direct branch/subsidiary exporting* in which the products are marketed by the exporter's subsidiary located in the target country. *Direct branch/subsidiary exporting* is associated with greater control than the *agency/distributor* channel, however, the breakeven sales volume is also higher given the larger amount of fixed costs needed due to setting up office and storage facilities (Root, 1994).

Exporting in general holds the *advantage* of requiring only a low resource commitment and therefore exposes the company to a relatively low level of risk. The financial input that is at stake in the case of failure in the foreign market is simply lower than in the other modes of market entry (Agarwal & Ramaswami, 1992; Root, 1994). Therefore, exporting in general is a powerful tool for gaining the first international experience.

Indirect export offers itself more than direct export for gaining the first international experience and success, because, being executed by a middlemen in the domestic country, the commitment in practicing this mode is the lowest. However, this advantage turns into a disadvantage for those who actively want to penetrate the foreign market. Given the fact that in the scenario of indirect exporting all the exporting activities are executed by domestic agencies, the marketing control of the company at issue is marginal at best. Therefore, direct export is a more viable option over the long haul because it a) gives the company full control over the four marketing P's (product, price, promotion, place), b) allows quicker adaption of the product to information extracted from the target market, c) contributes to the concentration of marketing efforts on the manufacturer's product line, and d) allows for better protection of trademarks, patents, goodwill and other types of intangible property (Root, 1994).

Disadvantages associated with exporting in general are the inability to secure long term competitiveness in the target country due to the lack of strategic control and flexibility (Agarwal & Ramaswami, 1992) and the high variable unit costs over the long haul due to transportation costs.

Notably, the traditional understanding of export does not apply to a service organization, given that the physical goods component only constitutes a fraction, if any, of what the customer finally pays for an order. In the case of a mobile solutions provider, export would entail that a person, usually a functional consultant or an account manager of the provider would travel to the customer location so as to learn about the customer organization's work processes and needs and consult on the most suitable mobile solution.

Consequently, a technical consultant would translate those needs into technical specifications and the

actual software development would take place, both steps of which would be carried out in the home country. Finally, on-site support would have to be given during as well as after the roll-out of the solution. Therefore, it is travel time and costs rather than transportation costs which apply to exporting in a service setting.

Contractual Entry Modes

Contractual entry modes are long term vehicles for the transfer of technology and human skills from a domestic to a foreign company. Unlike exporting, contractual agreements are usually not primarily related to the transfer of goods and unlike investment modes of entry, there is no equity commitment associated with this entry mode. What distinguishes *licensing* from *franchising* is the object of the transfer. Whereas *licensing* is concerned with the transfer of intangible assets such as patents, know-how, trade secrets, company name or trademarks to a foreign entity (usually but not necessarily another company) in exchange for royalty or other kinds of compensations, the focus of transfer in case of *franchising* is rather on services. It includes the licensor's assistance in the fields of general management, marketing assistance and technical assistance. Other contractual entry modes include the direct transfer of services in exchange for financial compensation (technical agreements, service contracts, management contracts, and construction/turnkey contracts) or in exchange for goods manufactured with those services (contract manufacture and co-production agreements) (Root, 1994).

Advantages of licensing include the ability to overcome import barriers and the low exposure to political risk due to the low resource commitment. Moreover, licensing can be advantageous if a company's product needs substantial adaption to the preferences of the customers in the target country, because much of the adaption costs can be transferred to the foreign licensee.

Obvious *drawbacks* include the total absence of marketing control in the target market and the lower absolute size of income as compared to export and investment entry modes (Root, 1994).

Investment Entry Modes

The distinctive feature of investment entry modes is the ownership by the domestic company of a production unit located in the foreign target market. The scope of activities of such production units may range from simple assembly that depends entirely on the import of the parent's company intermediate products, to the complete manufacture of a certain product. Depending of the level of ownership and management control, such foreign production affiliates may be characterized either as *sole ventures* (full ownership) or *joint ventures* (ownership and profit is shared with another local company). Depending on the equity that a company contributes, the joint venture may be classified as majority, minority, or 50-50 ventures, with the amount of money contributed usually being proportional to the control it receives. Even though a joint venture is associated with the reduction in risk, one should be aware that potentially conflicting goals with the partnering company can pose a unique source of risk to

this entry mode.
Sole ventures can either be started from scratch, in which case we speak of a *Greenfield* subsidiary, or by means of acquiring a company already located in the target market (*acquisition*).

The most striking advantage of investment entry modes in general is the full control that is gained by transferring ones *knowledge assets* (managerial, technical, marketing, financial, and other skills) to the target country. Thereby, the company is able to fully exploit its competitive advantage in the target market.

Servicing customers locally, investment entry modes are in condition to serve the market more time and cost efficiently due to the physical presence. Additionally, local production/servicing may increase the quality as well as availability of the resources needed to manufacture/service a product. Lastly, marketing is better able to identify the preferences of target customers due to physical presence in the market. Such information can be used to better adapt the product to customer needs.

On the other side of the medal we have the high resource commitment that is required to get this mode running. Accordingly the exposure to risk is also higher, because there is more at stake financially. Apart from this financial risk, the exposure to political risk is also higher. Other disadvantages include the extensive information requirement on political, economic, sociocultural, legal, technological and market factors, the long payback periods, and the inflexibility associated with this entry mode, due to disinvestment being much more difficult than is the case with the other entry modes.

Acquiring a company that is already running in the target market, the obvious advantage of acquisition as an entry mode is the fast access to the market resulting in a faster payback period. Moreover, the acquiring company possibly gets access to new scarce resources, for example in the form of human resources, as well as to a new product line.

Disadvantages associated with acquisition include the immense difficulty in locating and evaluating potential acquisition candidates. Moreover the performance of the acquired firm is a crucial factor in determining the fortune of the venture in general.

2.2.5 Factors affecting the choice of the market entry mode

Having outlined the different entry modes in the last section, we now turn to the factors that actually influence the choice of the market entry mode. As can be seen in figure 2.2, Root distinguishes between *external factors* and *internal factors.* According to Root, the market entry mode choice is the result of often conflicting forces that result from these different factors. This section serves as an overview of these factors, by describing them shortly.

2.2.5.1 External factors

External factors are those factors that can hardly be influenced by management. They can be located domestically or in the foreign country and include the four factor groups *Target Country Market Factors*, *Target Country Environmental Factors*, *Target Country Production Factors* and *Home Country Factors.*

Target Country Market Factors

Three variables are of paramount importance when assessing the target country market. These variables are *present and projected market size*, *competitive structure* and *marketing infrastructure.* The size of the market affects the choice of the appropriate market entry mode, because it is decisive for the justification of high or low breakeven modes of entry. If the market is projected to be large, a high breakeven mode of entry is justifiable and vice versa. High breakeven modes of entry are those that require equity investment e.g. a sole venture. The competitive structure of an industry can be classified by the two extremes atomistic and monopolistic with oligopolistic lying somewhere in between, biased towards the latter. Generally, an oligopolistic or monopolistic industry favors equity modes of entry in order to compete with established competitors, whereas an atomistic structure paves the way for exporting. A fragmented marketing infrastructure, characterized by inappropriate availability and quality of local agents and distributors, favors entry modes that do not rely on external marketing channels such as a sole venture or a branch/subsidiary export entry mode.

Target Country Production Factors

This factor refers to the quality, quantity, and costs of raw materials, labor, energy and other manufacturing inputs. Obviously an abundant amount of high quality, low cost resources in the target country favors entry modes of local production (investment entry modes) as compared to exporting.

Target Country Environmental Factors

Political, economic, and socioeconomic factors of the target country profoundly affect the choice of the entry mode. For example, economic factors like the GNP (the size of the economy), the GNP per capita (absolute level of performance) and the dynamics of the economy (rate of investment, growth rate of the GNP) significantly affect the choice of the entry mode with high levels of size and dynamics of economy justifying entry modes that have a high breakeven point.

Other factors that are of considerable importance are the geographical and cultural distance of the target market. A high geographical distance makes exporting unfavorable, whereas on the contrary a high cultural distance makes equity entry modes unfavorable, because they add the risk of being unable to understand and subsequently serve the market. Given that the weight of human interaction increases in a service setting, especially in soft services, cultural distance becomes a prominent factor in deciding on the most suitable market entry mode (Ekeledo & Sivakumar, 1998).

Not surprisingly, Root states that companies are inclined to conduct their first international activities in

countries that are culturally close to the home country.

Home Country Factors

As do target country factors, home country market, production, and environmental factors influence the choice of the market entry mode as well. Noted by numerous authors, large companies are much more inclined to enter the foreign market by means of equity modes of entry than are smaller firms (Agarwal & Ramaswami, 1992; Pan & Tse, 2000). Therefore, as the size of the home economy influences the size that the domestic firm may take on in the first place, it also indirectly influences the choice of the market entry mode. Companies located in small home economies on the other hand are more likely to opt for exporting as a way to reach optimum size.

Moreover the competitive structure of the home country affects the decision of how to enter the target market. Whereas companies in atomistic industries preferably use exporting or licensing as a market entry mode, firms in oligopolistic industries rather choose investment modes of entry.

We have already seen how favorable production factors in the target country can act as pull factors in influencing the choice of the market entry mode. Likewise, home country production factors can act as a push factor influencing the market entry mode choice. Therefore, e.g. expensive labor force relative to that in the target country can affect the choice in favor of investment entry modes.

Lastly, policy factors of the local government can tip over the balance of neutral attitudes towards exporting or FDI by means of offering tax incentives in favor of exporting or by operating legislations that are restrictive on foreign investment.

2.2.5.2 Internal factors

Internal factors are those factors affecting the choice of the market entry mode that are well under the control of the focal firm. Despite his *dynamics of market entry mode decisions* theory, Root himself did not include *international experience* as a separate internal factor.

Product Factors

Of paramount importance in this category is the degree of differentiation and competitiveness of the focal company's product(s). Whilst differentiated products compete on quality and functionality rather than price, they can absorb a substantial amount of transportation costs and still remain competitive in the foreign market. Therefore differentiated products are more suitable for exporting than low differentiation products which are pushed towards local production, hence investment modes of entry (Root, 1994).

For a service company, the interpretation of this factor has to be modified. In our case, that is, the case in which a mobile solutions provider is about to internationalize to a country nearby, the traditional interpretation of exporting doesn't hold anymore. In our case, exporting is to be understood as travelling to the customer site multiple times (for consulting and implementation services), until the

mobile solution is implemented. From that time on, thanks to the hard services component of a mobile solution, the benefits of such a solution can be enjoyed by the customer separate from the provider. Understanding this difference in interpretation is critical, because it changes the way in which the degree of differentiation affects our entry mode decision. Basically, the only costs associated with exporting in this case are travelling costs. Those, in comparison to the total price the customer pays for licensing and services, are only marginal. Consequently, the degree of differentiation does not really favor export anymore (given that the export, or rather travel costs do not constitute a significant part of the margin). Rather, a high degree of differentiation would favor equity modes of entry, because differentiated products with an edge over competition alleviate some of the risks associated with equity modes of entry, as the venture in general is more likely to be a success due to a) the superiority in performance, and b) the difficulty in copying the product/service.

Another feature of a product that affects the choice of entry mode is the range of pre- and post purchase services. Given that products requiring intensive pre- and post purchase services can only difficultly be marketed from distance, they demand physical presence. Therefore branch/subsidiary exporting and investment modes of entry lend themselves best for this purpose.
The technological intensity of products is the third factor influencing the market entry choice. The more intense the product is technology wise, the more suitable it is for licensing.
As was the case for pre-and post purchase service intense products, products requiring considerable adaption to meet customer demands also need physical proximity, therefore being biased towards branch/subsidiary export and investment entry modes (Root, 1994).

Resource/Commitment Factors

This category is concerned with the availability as well as the willingness to devote a company's resources in management, capital, technology, production-, and marketing skills. The more resources accessible to the company and the more the company is disposed to use them, the wider the pool of entry modes from which the company can and will draw.

In brief one can conclude that Root considerably contributed to our understanding of market entry modes by shedding light on their advantages and disadvantages as well as on the factors influencing them.

International Experience

Even though not explicitly included in the original model of Root, internal experience is a factor widely debated in the market entry mode discipline. Root (1994) also contributed to this discussion with his pattern of internationalization termed *dynamics of entry mode decisions*. According to this pattern, manufacturing companies that are neophyte in the international terrain start entering foreign markets by means of low commitment entry modes. As their experience and confidence increases over time,

however, they gradually put up with a rise in risk for the endeavor of more control over marketing operations. Thus, according to the most ideal procedure of this pattern, manufacturing companies incrementally move along the continuum of market entry mode choices beginning with indirect export (lowest risk and control) at the left extreme and moving towards sole venture (highest risk and control) at the right extreme. See figure 2.4 for a visual outlay of the dynamics of entry mode decisions for manufacturing companies.

Despite the sound logic underlying this pattern, Erramilli (1991) found that this pattern takes on a different, non-linear shape for companies in the service sector. Even though he also confirmed that, like manufacturing organizations, the service organizations' tendency to enter culturally more distant countries correlates with the *scope* (which refers to the amount of different countries in which one has

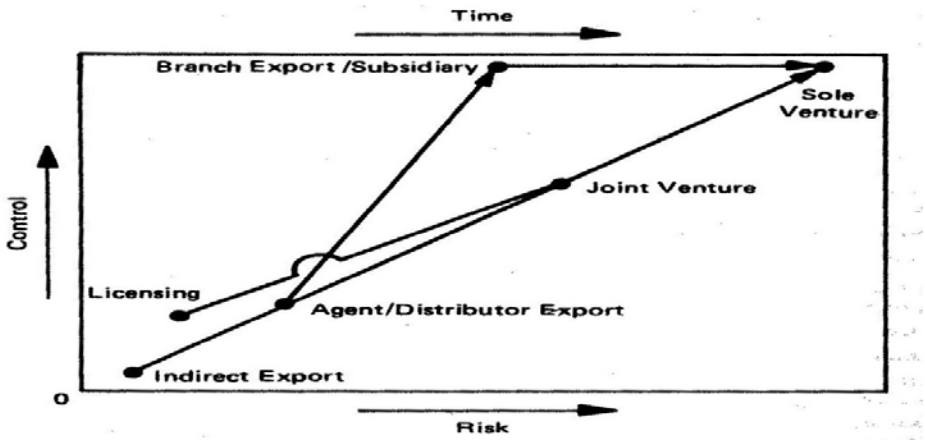

Figure 2.4 – *Dynamics of Entry Mode Decisions* (Root, 1994)

collected business experience, which is clearly to be differentiated from *intensity* – the depth of experience collected per country) international experience gained, the graphical relationship between international experience and the aptness to choose integrated entry modes rather takes on a U-shaped form. See figure 2.5.

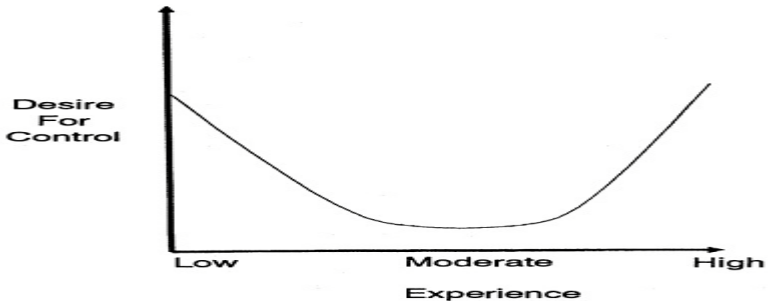

Figure 2.5 - *Effect of experience on a Firm's Desire for Control* (Erramilli, 1991)

The explanation for this pattern is that (ethnocentric) firms start out their venture in the foreign countries with equity modes of entry in order to overcome *transactional uncertainty*. That is, they use those modes to circumvent having to deal with local partners and agents. During the course, however, experience in the foreign countries increases, which results in abandoning the ethnocentric attitude. The propensity to negotiate and do business with local partners and agents, that is, using low commitment entry modes, increases. Having gained more experience, in the later stages of international growth firms become better in accurately assessing risk and returns, as well as to manage independent organizations in other target markets. Hence the desire for control increases (Erramilli, 1991).

Note, however, that the models of Root (1994) and Erramilli (1991) are about the aggregate of international activities of a certain company in all foreign markets in which it is active.
An internationalization model that investigates the role that experience plays for entering one particular, individual market (which is more interesting for our case) is the Uppsala model proposed by Johanson and Vahlne in 1977. See figure 2.6 for their model of internationalization.

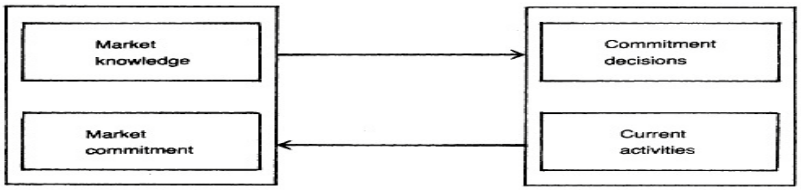

Figure 2.6 – *The basic Mechanism of Internationalization* (Johanson & Vahlne, 1977)

The left box is labeled *state variables* and includes *market knowledge*, and *market commitment*. They influence the *change variables commitment decisions,* and *current activities* in the box on the right, which in turn affect the *state variables*. Market knowledge, that is e.g. knowledge about current and future supply and demand, competition, distribution channels, payment conditions, law, language, etc., is the prominent factor affecting commitment decisions in case of a novel market entry (in which the current market commitment in the target country is essentially zero). Of course a change in commitment in the foreign country effectuates a change of (or in case of novel market entry) an initiation in current activities. Based on the new knowledge gained about performance of activities or market knowledge in the foreign country, one will either decide to decrease, maintain, or increase the commitment in the foreign country in the future. So the cycle repeats over time, qualifying it as a dynamic model (Johanson & Vahlne, 1977). The model emphasizes the need of knowledge that needs to be gained by means of low commitment entry modes before shifting towards the more equity dependant entry modes. Highlighting this need for the software industry they said that

"especially in the marketing of complex and soft-ware intensive products, experiential knowledge is crucial."

Johanson & Vahlne (1977) have labeled the process of gradually raising commitment in tune with an increase in experience the *establishment chain*. Given the fact the model admittedly is somewhat old, it is worth to mention that the authors defended the importance *that* knowledge/experience and the validity of the concept *of* the *establishment chain* still have in the progress of internationalization by stating that

> *"Although many contextual aspects have changed since we made our observations, almost 50 years ago, the ways in which human beings learn and make decision have not drastically changed since. Moreover, experiential learning and building trust and commitment, the basic prerequisites for developing business, and hence for internationalization, certainly have not changed."*

in their revised paper (Johanson & Vahlne, 2009). By also mentioning trust and commitment the authors also point at the importance of relationships nowadays. See section 2.2.6 for more information on that matter.

For all those reasons, the 1977 mode of Johanson & Vahlne will be used to interpret what mode is favored by what degree of international experience. It is more rational than the model of Erramilli (risk minimization by means of incremental steps is more rational than jumping right into a market just because of an ethnocentric mindset) which makes it more suited for our thesis. Moreover, it is the only of the three model which focuses on the progress of internationalization in a single foreign country.

2.2.6 Market entry mode in the service setting

This section will provide a debate about the applicability of the traditional models of market entry mode decision, derived from the manufacturing context, to the service context.

Such a debate is important, because SFM offers lots of service elements. It extensively collaborates and interacts with their customers in order to determine product specifications, helps them in implementing a mobile solution, maintains the mobile solution, etc., all examples of *soft services* that qualify it as a service rather than a manufacturing organization. Indeed, there is no manufacturing taking place. However, given that the software developed by SFM is installed on a handheld device, manufactured by third parties, which is consequently sent to business customers, the primary service component of Sigmax – the software development – can be stored allowing production and consumption to be separated, thereby also classifying it as a *hard service.* Thus, for the record, Sigmax' whole package features hard as well as soft services. According to Ekeledo & Sivakumar (1998) typical entry mode options for hard services include licensing, exporting, management contract, joint venture and sole venture.

When it comes down to differences between the manufacturing and service sector in general, the work

of Ekeledo and Sivakumar (1998) has to be elevated. The differences between *soft* - and *hard services*, have already been set out in section 2.1. The effect of this classification on the market entry mode choice in the service setting is the core contribution of their work. Generally, because of the very nature of these two categories, Sampson and Snape (1985, reference to be found in Ekeledo & Sivakumar, 1998) argue that traditional, say manufacturing, theories of international trade are generalizable to *hard* services, but not so much to *soft services*.
In the same vein, Ekeledo and Sivakumar (1998) propose that entry mode decisions do not differ significantly between hard services and manufacturing goods. However, there is a significant difference between the choice of market entry modes made in the hard service and soft service context. According to them, the inability to export in the case of soft services is what accounts for most of the differences.

The effect is visualized when depicting the various entry modes along a continuum of ascending involvement and control (see figure 2.7). Under similar conditions, when one would choose for exporting in the hard service context, a provider of soft services would have to fall back to entry modes that are adjacent to exporting in terms of involvement. Therefore, the more that external factors push the choice towards the *low control/involvement* end of the continuum (e.g. *small target market size, high competitiveness in the target market, resistance to outsiders by local organizations, weak marketing structure in the target market, political instability, high degree of cultural distance, weak economic infrastructure in the target market, presence of trade barriers)*, the greater the observed differences between soft and hard services. On the other hand, the more that internal factors (e.g. large proprietary asset content, great desire for control, large company size, much international experience) push towards the *high control/involvement end* of the continuum, the smaller the observed differences between the choice of the market entry mode in the soft- and hard services context.

Figure 2.7 – *Entry modes ordered in degree of control*

Another point proposed in their work is that, due to its great reliance on interaction between supplier and consumer, soft services are affected more profoundly by cultural factors than are hard services (Ekeledo & Sivakumar, 1998).

As stated in section 2.1 findings about the applicability of traditional models in the service context are controversial with one fraction saying it is possible to extend traditional models to the service context and the other fraction saying this is not possible. The latter fraction advocates for a distinctive approach due to the inseparability and intangibility of services, which makes the use of exporting as a vehicle for gaining preliminary international experience impossible (Ekeledo & Sivakumar, 1998).

According to Zhao and Decker (2004) such controversies are rooted in the variety of parameters that ultimately influence the choice of a market entry mode, which are likely to differ between different studies. Referring to this particular ill-defined nature they comment:

> "*It is a function of various factors and their interactions. And of course not all factors have equal importance. Moreover, the same factors may play a different role in different contexts. People studying the problem with different expectations may arrive at different conclusions. Different samples selected, different time period analyzed, different methodologies used, or even different skills of the analysts may also induce conflicting results, especially in empirical studies*" (Zhao and Decker, 2004).

Therefore, it is reasonable to use those insights gained from studies that are as similar in context to our case as possible.

One research that offers such a context similarity is the study of Coviello & Munro (1997) who used multi-site case research in the software industry to assess the influence of network relationships on the internationalization of small firms in the software industry. They found that the choice of the market, as well as the market entry mode, is affected by the network being built up prior to internationalization. Moreover, network relationships drive and facilitate the internationalization process, because

> "*relationships which become* "*bridges to foreign markets", providing firms with the opportunity and motivation to internationalise*" (Sharma & Johanson, 1987, as cited by Coviello & Munro, 1997).

Furthermore, relationships can facilitate market penetration as a partner in a foreign market might be used as a connection node to other additional relationships thereby creating a valuable network. Another persistent pattern that Coviello & Munro (1997) could empirically observe was the externalization of certain activities so as to minimize financial and market risk during internationalization. Thus, the availability of business partners in the target country would favor market entry modes that do not solely rely on one's own initiative (e.g. export, and sole venture) but rather leverage the network potential (e.g. joint venture). Moreover, an abundance of network relationships *can* (but does not necessarily have to) alleviate the importance of market trial and experimentation by means of low commitment modes of entry (e.g. exporting) as proposed by the Uppsala theory of internationalization, given that network partners, who have already established themselves in the target market *may* virtually drag their companion into the target market.

Indeed, it is findings like this, which made Johanson & Vahlne revise their Uppsala model proposed in 1977, to investigate and clarify the considerable amount of observations in which companies seemed to

leapfrog certain stages of internationalization (e.g. gaining foreign market experience by means of low commitment modes of entry) and hence do not match the pattern suggested by the *establishment chain* (Johanson & Vahlne, 2009). In particular, the model has been revised to acknowledge and integrate the insights derived from the overwhelming empirical evidence stating the force that *network relationships* have in influencing the market as well as market entry mode chosen for internationalization.
Literally, Johanson & Vahlne (2009) say that

> *"[…] it is to a large extent via relationships that firms learn, and build trust and commitment - the essential elements of the internationalizations process. We argue that insidership is a necessary but insufficient condition for successful business development."*

In their new model, experiential learning is still an important factor but it became a subordinate input factor for founding and forming relationships (which largely influence market entry mode decisions) rather than *the* central independent variable which it used to be in the old model. Indeed market entry is now all about gaining a favorable position in the network of the target country. Of note, even though network relationships can accelerate the progression through stages and even though, overall, events move more quickly, Johanson & Vahlne do *not* discard their model of the *establishment chain*. After all, they argue, firms need to *learn* in order to deal with uncertainty (Johanson & Vahlne, 2009).

Another study that has to be highlighted due to the context similarity is that of Brouthers et al. (1996). Surveying 125 US based computer software firms, the authors set out to shed light on the entry-mode decisions of small – and medium sized service firms. Specifically, they studied the mechanism of the two factors ownership advantages and location advantages, as identified by Dunning, in the service setting. They found that those factors show effect in the service setting, just as they do in the manufacturing setting. That is, firstly, the greater the perceived ownership advantages (e.g. size, international experience, and ability to offer differentiated products), the greater the propensity to apply more integrated (e.g. investment) entry modes, and secondly, the greater the location advantages (e.g. market size and growth), the greater the aptness to choose more integrated entry modes (Brouthers et al., 1996).

Erramilli (1992) observes that the factors *market size, unavailability of host country associates, and the firm's policy on maintaining control over foreign operations* all positively affect a service firm's propensity to favor integrated market entry modes. On the contrary, factors like *host country restrictions on foreign ownership, the firm's aversion for environmental risk, desire to get rapidly established in the foreign market, and internal resource constrains* all discourage the use of integrated market entry modes. Thereby, Erramilli confirms part of Brouthers et al.'s findings, because the factors *market size* and *internal resource constraints* (also included in Root's model) are both important parameters in the two categories location advantages, respectively ownership advantages as identified

by Dunning and tested by Brouthers et al. (1996) in the service industry.

This section concludes with an insight of O'Farrell et al. (1998) who studied the entry mode change behavior of business service firms and deduced that, even though the process of internationalization may not be literally the same for the manufacturing and service sector, insights based on the manufacturing context do indeed provide for greater comprehension for the service sector.
Based on this insight, combined with fact that Root's model on market entry mode is essentially an elaboration, containing most if not all of the factors of Dunning's eclectic model, that largely proved to also be valid in the service setting, Root's model on market entry mode decision will be used as the base theory in order to give a founded advice on the market entry mode decision for SFM.
Simultaneously, having admitted that theories derived from the manufacturing context may not be applied one to one to the service context, the model of Root will be complemented with additional insights that largely reside in the particularity of services, especially soft services.

2.2.7 Conclusion of literature review on market entry mode

Section 2.2 set out the various contributions that have been made by academics in the field of market entry mode decision. Root's model crystallized as the most comprehensive model for the manufacturing context. Generally, as has been shown, there is a bias concerning the amount and depth of insights in favor of the manufacturing setting. Nonetheless, numerous contributions for market entry mode choice in the service setting have been identified. These insights will serve as a fortification for Root's model, thereby creating a solid combination that will guide the author in constructing a founded advice on the most suitable market entry mode for SFM.
A complete figure with all the factors influencing the market entry mode choice in the service setting, as identified in this theoretical framework, will be given at the end of this chapter.

2.3 Literature review on competitor analysis

2.3.1 General overview

Competitor analysis represents a substantial module in the discipline of strategic management. Most of the work on competitor analysis takes a strategic stance and is confined to the question of how to attain and maintain superior competitive advantage relative to that of competitors.
Specifically, it is about understanding and predicting the interdependent behavior in the market between firms that seek to establish a competitive position in a certain industry (Caves, 1984; Porter, 1980; Scherer & Ross, 1990 - as cited by Chen, 1996).

Authors frequently cited in this respect are for example Hamel and Prahalad (1990) with their renowned concept of the *core competencies of the organization.* According to them, being rooted within the culture, systems and processes of the organization, core competencies account for superior performance and are difficult if not impossible to be imitated by competitors. However, this model has to be

dismissed, because information on core competencies is hardly attainable due to the core competencies' primary reliance on knowledge which is chiefly tacit and implicit, therefore rarely being codified or formalized (Tidd & Bessant, 2009).

Amongst the most famous concepts of competitor analysis is the *Five Forces* model of Porter (1996) who claims the attractiveness of an industry to be contingent upon five forces. These five factors are *threat of new entrants*, *intensity of rivalry among existing competitors*, *pressure from substitute products*, *bargaining power of suppliers*, and *bargaining power of buyers*. When it comes down to the individual firm being the unit of analysis, this model, however, is rather unsuited.

On the contrary, being leaned more heavily towards the school of strategic management, which by nature focuses on the individual firm as the unit of analysis, the *strategic-group* approach lends itself better to execute competitor analysis on the firm level. Strategic variables according to which strategic groups can be identified are for example *product line basis, degree of vertical integration, relative size of the firm, etc.* Firms are homogenous in strategic terms within a strategic group, but heterogeneous across different strategic groups (Mc Gee & Thomas, 1986). Such a grouping offers fruitful insights for competitor analysis, as it identifies direct competitors (those within in the same group) as well as illuminates attractive strategic spaces (Johnson et al., 2008).

Yet, despite this usefulness, the approach has to be dismissed as well due to the infeasibility in the context of this research. The depth of insight into strategic issues of competitors required for this analysis can't be provided within the scope of this research.

A model that is more useful for this thesis is that of Chen (1996). Due to its focus on the individual firm level and market level, its feasibility in application, and the critical insights it offers to this thesis, the basis of this theory will be used for founding the competitor analysis in this thesis. Therefore, the theory will be outlined in more detail, now.

2.3.2 Chen on competitor analysis

Chen's model makes two contributions to the specialist field of competitor analysis. Firstly, it offers a new slant to competitor analysis by combining the two concepts *market commonality* and *resource similarity*. Secondly, this model is able to predict the probability of competitive attack and response by integrating the two subjects *competitor analysis* and *interfirm rivalry*.

2.3.2.1 Market commonality and resource similarity – Competitor identification

Market commonality is the concept that accounts for the market focus of this theory. This concept recognizes that firms may compete in more than one market. Also known as *multimarket contact* this concept determines whether or not two firms can be regarded as direct competitors. Specifically, it is the breadth (amount of markets) and depth (degree of presence per market overlap) of market

intersection between a competitor and a focal firm. As stated by Chen (1996) the degree of competition does not necessarily have to be the same between the markets shared by the two competitors.

Resource similarity is a construct derived from the resource-based view of the firm. The starting point of this construct is that each company possesses a unique bundle of resources and capabilities which affects the strengths and weaknesses of the firm, thereby shaping the feasibility of strategic directions. Chen (1996) defines resource similarity as

> *"the extent to which a given competitor possesses strategic endowments comparable, in terms of both type and amount, to those of the focal firm."*

By confronting the two variables market commonality (high and low) and resource similarity (high and low) Chen (1996) constructs a figure that visualizes four categories of competitors. The most direct and mutually acknowledged competitors are located in the cell where high market commonality matches high resource similarity. That is, according to Chen (1996), direct competitors are those that both share a strong presence in multiple markets (high market commonality) and feature the same type and amount of strategic endowments (high resource similarity). Refer to appendix B for this figure.

2.3.2.2 Competitor rivalry and performance

As stated, Chen also assesses the likelihood of competitor attack and response. He defines an attack as a competitive move which is aimed at pinching off a competitor's market share or reducing a competitor's anticipated returns by means of product introduction or market entry. A response is a counterattack attack or retaliation intended to defend or even improve the market position.

As concerns competitive rivalry on the macro level, an important point put forward by Deshpandé & Gatignon (1994) ought to be mentioned. According to them, the three factors *market growth*, *market concentration*, and *degree of product standardization* affect the likelihood of competitive response to attacks like market entry. Generally, the higher the concentration, the lower the product differentiation, and the lower the growth in the target market the higher the impact of the market entry of the focal firm on the revenue of the incumbent firms. Accordingly the response of the incumbent firms will also be rather aggressive.

Several researchers have studied the relationship between competitive actions and performance and came up with interesting results. Firstly, performance increases with the amount of competitive moves undertaken by a focal firm (Young et al., 1994). Secondly, performance positively correlates with the tendency to respond (Smith et al., 1991). Thirdly performance is negatively correlated to the amount of responses being provoked by the focal firm (Chen & Miller, 1994). Direct confrontation of fact one with fact three might seem contradictory because the assumption that a higher amount of attacks also leads

to a higher amount of responses seems nearby. However, as will be set out in following sections, an attack does not necessarily need to result in a countermove.

The foundation for understanding competitor rivalry and predicting the likeliness of (counter) attacks rests on the three drivers of competitive behavior, namely *awareness*, *motivation*, and *capability* (Chen, 1996). *Awareness* is considered to be an a priori to any move and is increased by both market commonality and resource similarity. The *motivation* to attack or respond is affected by market commonality. Finally, the *capability* to successfully attack or respond depends on the resource similarity.

Based on this foundation, Chen (1996) made seven propositions, which can be found in appendix C.

2.3.3 Bergen & Peteraf on competitor analysis – A modification of Chen's approach

Bergen & Peteraf (2002) slightly modify the model of Chen (1996) by taking a more customer oriented approach and slightly adapting the concepts of resource similarity and market commonality used by Chen. They propose a two stage model, where stage one is devoted to competitor identification and stage two is devoted to the actual analysis. Given much of their contribution is derived from Chen's work, only a short outline of their key extensions will be given.

2.3.3.1 Stage 1: Competitor identification

In order to broaden the sight on market commonality, Bergen & Peteraf (2002) redefine this concept as

> "the degree to which a given competitor overlaps with the focal firm in terms of customer needs served."

This formulation is intended to eliminate the supply side bias in identifying competitors, by acknowledging that customer needs may also be satisfied by means of technologies that are considered uncommon in a certain market.

In order to clearly distinguish between competitor identification and competitor analysis, Bergen & Peteraf (2002) split Chen's original definition of resource similarity into two parts, where one part is used for competitor identification and the other part is reserved for competitor analysis.

Specifically, resource similarity is restated as

> *"the extent to which a given competitor possesses strategic endowments comparable, in terms of type, to those of the focal competitor" (Bergen & Peteraf, 2002).*

By confronting the two variables of market commonality and resource similarity they identify a

framework for competitor identification that executes the task of competitor identification more explicitly than does the model of Chen. Refer to figure 2.8 for the model of competitor identification.

In this framework, direct competitors are those that serve the same market needs with the same type of resources. On the other hand, indirect competitors are those serve the exact same market needs with completely different technologies. Thus, this category represents the providers of *substitutes.*

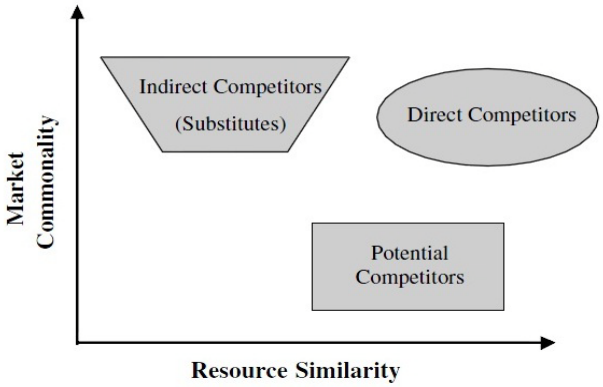

Figure 2.8 - *Competitor identification (Bergen & Peteraf, 2002)*

Potential competitors, a group of competitors not identified by Chen, are those that score high on resource similarity and low on market commonality. Thus they serve different needs with similar endowments. Even though such competitors might not impact the revenue of the focal company in the status quo as they serve mutually exclusive needs, they do pose a potential threat, because they could easily enter the focal company's market, given they already possess the necessary resources needed to service the market at issue. Therefore, this group of competitors is also labeled *potential entrants*.

Refer to appendix D for the second stage of Bergen & Peteraf's model , which is about the actual analysis of competitors.

One remarkable point being raised by Bergen & Peteraf (2002), that crystallizes out of the propositions of both articles, e.g. that of Chen and Bergen & Peteraf, is that the greatest source of competitive threat stems from competitors that feature low market commonality and high resource similarity. That is, over the long haul, *potential competitors* are likely to pose a greater threat than *direct competitors*. Not paying attention to such seemingly remote sources of threat, a myopia dealt with in the literature of *competitive blind spots*, can be fatal (Zajac & Bazerman, 1991).

2.3.4 Conclusion on competitor analysis

Section 2.3 contributes to the thesis in several ways. It began with a short overview of the most important contributions that have been made in the field of competitor analysis, accompanied by

reasons for why most of them had to be dismissed. We then turned to Chen's model of competitor analysis. Consequently, the concepts of *resource similarity* and *market commonality*, that build the pillars of this theory, have been outlined. Based on these pillars, Chen claimed and tested seven propositions (appendix C). This section concluded with Bergen & Peteraf's contribution to competitor analysis. They borrowed heavily from the work of Chen and took it a step forward by redefining the two concepts *market commonality* and *resource similarity* so as to, on the one hand give competitor identification a more customer focused approach, and on the other hand distinguish competitor identification from competitor analysis (which makes this model especially useful for our case as we are almost exclusively interested in competitor identification). Moreover, by means of introducing a third concept, called *resource equivalence*, they paved the way for the evaluation of competitive opportunities and threats.
Of note, *only the model for competitor identification* from Berger & Peteraf will be used for the analysis chapter in this paper, searching *only* for *direct and potential competitors*.

The next section will combine the distilled theories of section 2.2 and 2.3 so as to ultimately design an integrated framework which will lay the basis for solving the research question identified in chapter 1.

2.4 Theoretical integration

This section visually combines those elements of the literature review that are the most relevant in the context of our problem definition (see figure 2.9). The model of Root has been modified in the following ways. Firstly, the category *Production Factors* (foreign as well as domestic) and the subfactor *marketing infrastructure* have been omitted completely, because they don't apply to the service setting. Given the nature of the B2B market, the traditional interpretation of marketing infrastructure as local agents or distributors doesn't hold anymore. After all, mobile solutions can't be stored in a warehouse or sold and delivered by a single person. Secondly, the category *Network Relationships* has been added for it proved to be an important determinant. Thirdly, it includes the factor *Hard vs. Soft Services,* as this distinction proved to be critical for the entry mode options available for a service company that wants to internationalize. Fourthly, *international experience* has been added as a separate factor, since many authors depicted its power in predicting the choice of the market entry mode. Fifthly, the factor *Target Country Market Factors* has been edited in the sense that the sub-factor *Location of Customers* has been added. This necessity resides in the particularity of our case that we investigate the market entry into a neighbor country. In such a case the location of the customers in the target country can have a decisive impact. That is, if customers were clustered around the national border, this would favor non-equity entry modes, because the extent of travel costs (which is seen as one of the disadvantages of non-equity entry modes) would be minimized.
Moreover, as stated in section 2.2, *explanatory factors* that, generally, were identified by literature to explain the market entry mode choice in the service context have been omitted deliberately. Explicitly, this model is not meant to be *explanatory*, but *normative.* Its purpose is to identify the most suitable

and ideal market entry mode that ought to be chosen under conditions to which the company at issue is currently subject, instead of reconstructing the reasons of why a certain company decided for a certain entry mode, *ex post*. Therefore, factors like *aversion of environmental risk, global mindset, attitude towards internationalization, desire to get rapidly established in the target country,* etc. have not been included in this model.

Furthermore, Bergen & Peteraf's model for competitor identification lends itself to frame the competitive landscape of the home and target country. Clearly, identifying the amount and size of the different actors in a certain market, this model lends itself for assessing the competitive landscape, which in terms of Root means deciding whether the competitive field is rather atomistic, oligopolistic or monopolistic. In our case, however, the model is only applied to competition in the target country, due to a) the fact that the competitive field in the target country has a way bigger influence on the choice of the market entry mode decision, and b) limitations in scope. The arrow pointing from the model to the home country competitive structure, however, is left intact, since that is how the model should ideally be applied.

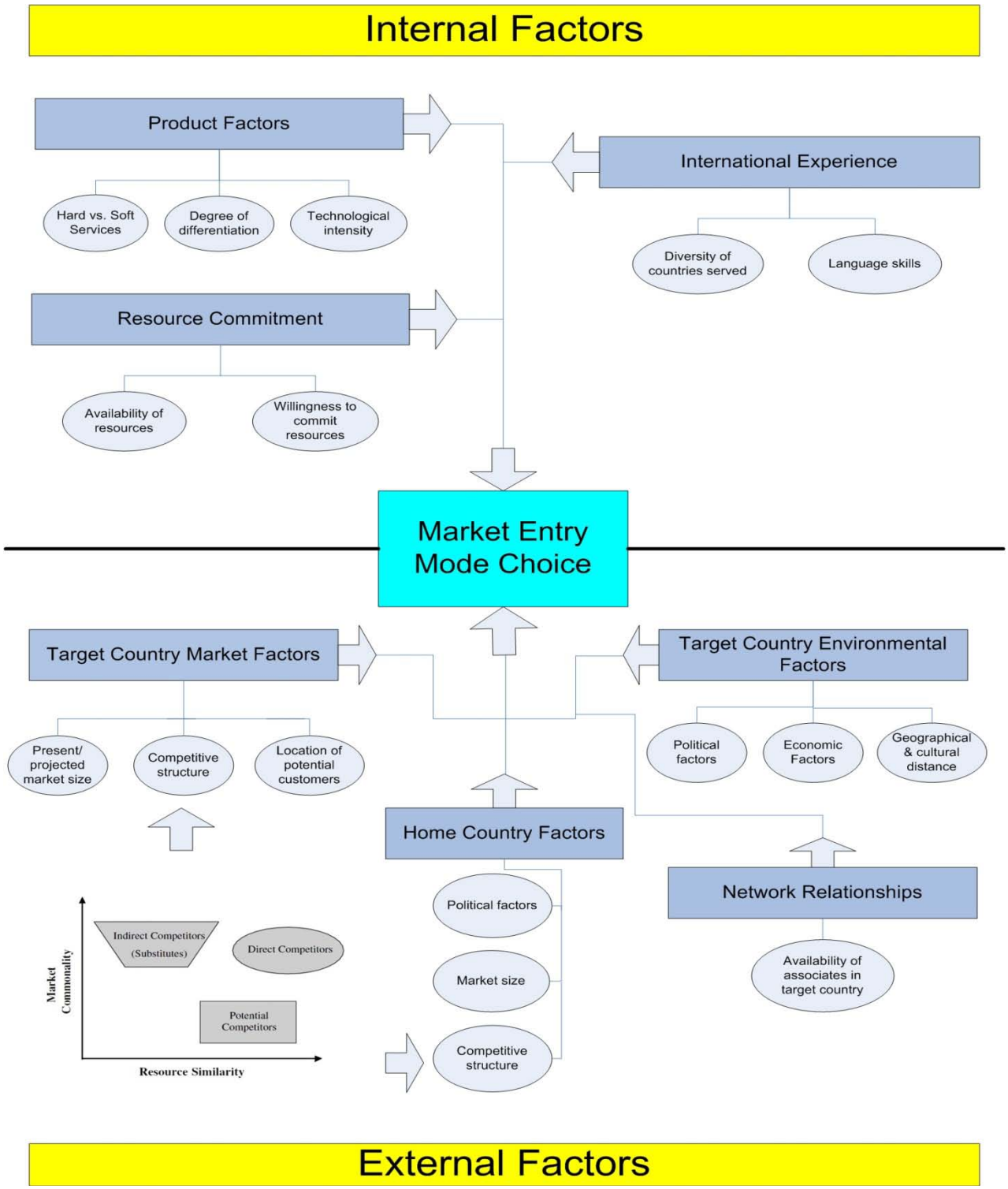

Figure 2.9 - *Theoretical integration – Root's model complemented with insights from the service literature, and integrated with Bergen & Peteraf's model for competitor identification*

3 Methodology

At the end of chapter two, a model has been identified that visualizes the factors that influence the choice of the proper market entry mode. The purpose of this chapter is to describe how the different factors will be measured. That is, this chapter describes the methods used to gather, process, and evaluate the data. The chapter is structured in the following way. Firstly, a descriptive as well as a graphical overview will be given, stating which part of the model is covered by what research method. Secondly, the author justifies the choice of the research methods. Thirdly, the author outlines how each method will be applied in practice and also discusses the characteristics as well as the strengths and weaknesses of the methods used. Hence, the first three steps concern the data collection methods. The fourth and last step concerns the data processing techniques used for processing the data on competitor analysis and market entry mode decision. Specifically for the market entry mode choice, it gives a draft of the various methods available, justifies the method eventually chosen, and outlines its mechanism. This chapter concludes with the methodological limitations.

3.1 The general picture

Generally, three methods were used to gather information that cover all the different factors, thereby giving an answer to the research questions posed in the introduction. Those three methods are *questionnaire, interview,* and *desk research.* Therefore, the advice of this paper is founded on primary as well as secondary data. Together all these three methods make up the family *survey research* (Babbie, 2007).

Two questionnaires are used. The first one, called *competitor analysis*, is used to answer sub question 2, which is about how competitors within the BES segment score on the paramount needs within that segment relative to Sigmax. Questionnaires were sent to customers of Dutch as well as German customer organizations in order to identify the paramount needs within the BES segment as well as how SFM's competitors score on those needs relative to SFM itself. Referring to the literature model, figure 2.10, this questionnaire covers the factor *degree of differentiation* of the factor category *Product Factors* because an insight into the competitive superiority respectively inferiority as compared to indigenous competitors sheds light onto the question in how far SFM differentiates itself from competition.

The second, shorter questionnaire with *closed-ended* as well as *open-ended questions* (termed *management attitude*) was distributed to the management of SFM internally. Primarily, this questionnaire is aimed at spotlighting on the importance that the management in general attributes to the five variables *risk, return, resource commitment, control,* and *breakeven time*. Moreover, this questionnaire also asks questions regarding the international experience of the management. Therefore, this questionnaire covers the categories *resource commitment* and *international experience* within the

internal factors category. Findings on the other factors will be used for the recommendation chapter.

One particular shortcoming of closed question questionnaires is their one directionality. They largely predefine the pool of potential answers that can be given by respondents, thereby denying them to voice ideas that fall outside of such a predefined pool, yet might give critical insights into an issue to be studied.
Therefore, in order to complement the rather quantitative insights gained by means of the competitor analysis questionnaire, an *interview* was held so as to get a more qualitative and detailed insight into the most prevailing needs within the BES segment. This interview was held with a company from the vending industry which was about to implement a mobile solution. The advantage in using multiple research methods has also been recognized by Babbie (2007) who states that the best study design uses more than one research method, so as to exploit the different benefits, offered by the different methods. Also, by using two methods, the author sought to reduce the chance of *mono-operation bias* (Shadish et al., 2002).

Another interview was held with an ambassador of the European Business Support – an organization that guides and informs companies which want to engage in border-crossing business activities. Amongst other activities, the EBS gives advice regarding the differences in political (including law and tax) cultural and other factors between two countries. Insights of this interview were used to describe the subfactor *Political Factors* of the factor group *Target Country Environmental Factors*.

Sub question 1 and all the remaining factors of the theoretical framework were covered by means of *desk research*. A considerable set of data for desk research was derived from the Kompass database - a database which lists companies worldwide in a register and categorizes them according to economic activity codes.
See figure 3.1 for a complete overview on how the different elements from the theoretical framework are covered by the methodology.

The research in general is deductive. That is, we have the adapted theory of Root as a starting point which will be applied in practice by means of choosing the most suitable market entry mode for SFM. Based on the outcome of this choice we'd verify or fail to verify the theory. Noticeably, the latter step is not conducted in this research. Moreover, suffering especially hard from the *fundamental problem of causal inference* (Shadish et al., 2002) in this case, one could, irrespective of the research design chosen, never, not even under the most ideal circumstances, proof to have chosen the most suitable market entry mode. That is, we can't compare the effect of a certain market entry mode choice, say export, on the consecutive financial performance of the firm, with the effect of choosing another market entry mode, say sole venture, because we couldn't recreate the research setting in a *meaningful* way. Thus even though we could compare the effect of choosing a certain entry mode now with the effect of

choosing an entry mode for entering another market sometime in the future, such a comparison would not be *meaningful*, because the context would not be the same anymore.

Apart from the general picture, the questionnaire competitor analysis serves an inductive purpose. That is, by aggregating the individual responses, we tried to identify a pattern of customer needs that is valid for the BES segment group as a whole. Therefore, in a sense, our research features deductive as well as inductive elements.

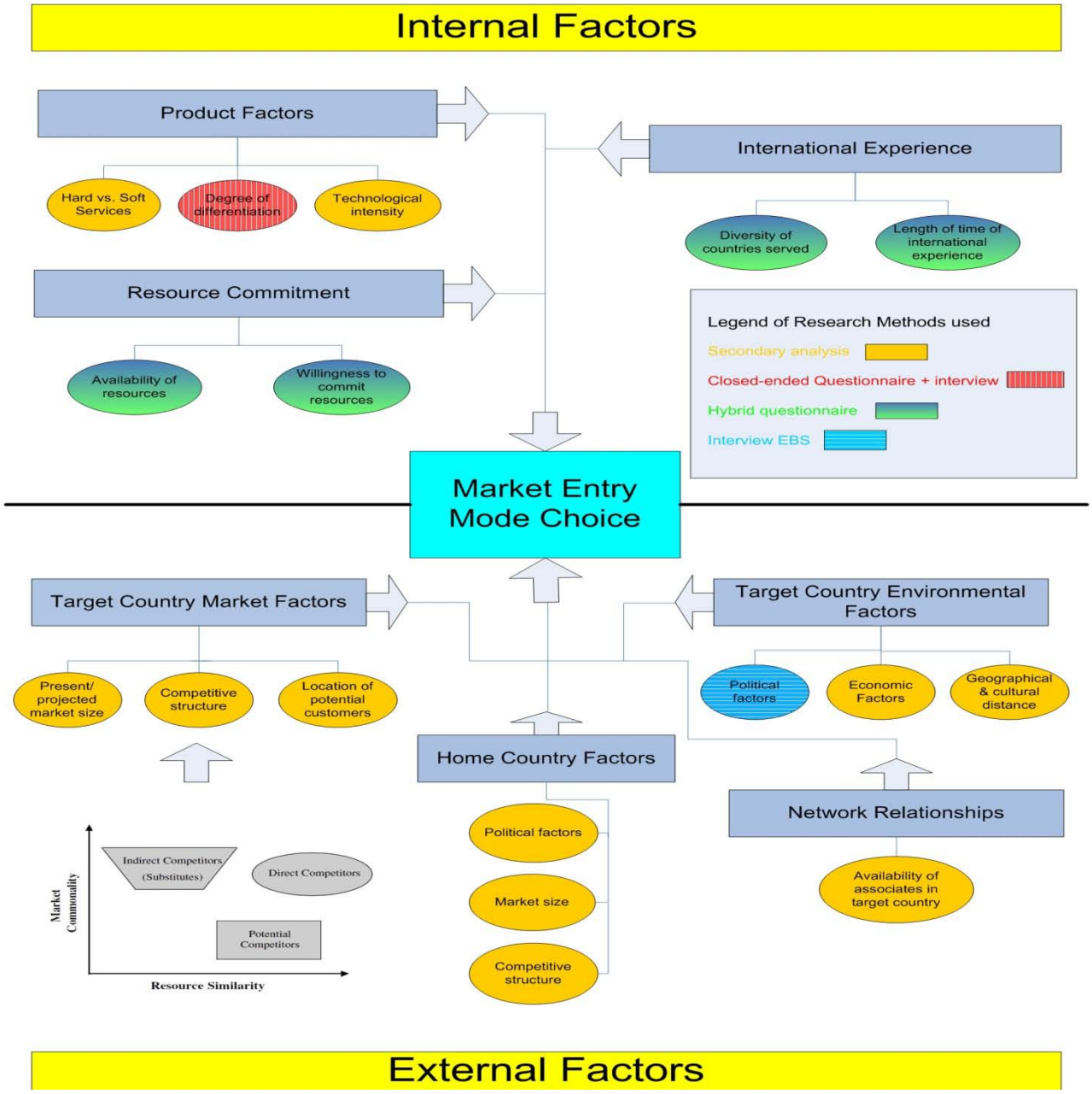

Figure 3.1 – *Methodological coverage of the theoretical framework*

3.2 Justification

The reason why survey research was used as a research method to answer the research question becomes evident by a process of elimination.

Experiments for example would have been absolutely inappropriate for this research. Firstly, they are useful for explanatory purposes, a purpose that is of no interest in this paper. Secondly, experiments require the manipulation of objects in order to observe a consequence. However, hardly any of the constructs studied in this research can be manipulated by the researcher in any way.

Being intended to observe human interaction in the field, field research would have been equally infeasible for this research. Field research is about understanding the social dynamics that underlie the interaction between individuals or groups of people (Babbie, 2007). However, none of the factors identified in the theoretical model are characterized by social interaction. After all, you can't just go out and observe e.g. competition or target country environmental factors, as you can observe, say, the behavior of pupils in a classroom.

However, turning the focus away from the factor level of the theoretical model, that is, asking oneself how the individual factors (e.g. *product* factors) can be measured, one could focus on the choice of the market entry mode as a *social process.* Then, we could for example have applied the technique of *case studies* so as to understand how other companies, that faced a situation similar to that of SFM, went about choosing their market entry mode. However, apart from the problem of feasibility (why would any company provide us with such information?) this research method does also not satisfy our research purpose. As has already been stated in chapter two, this research is not aimed at understanding how companies arrange themselves for the market entry mode choice in practice, but rather to describe what the different factors of the theoretical model look like in the case of SFM so as to objectively (that is, as free from bias as possible) choose the most suitable market entry mode according to the adapted theory of Root. Therefore, survey research was used as the research method in this paper.

The circumstance that the largest portion of our primary research is devoted to studying the opinions of customers and the management of SFM calls for a research method that studies subjectivity. The answer to this call is found in survey research.

According to Babbie (2007) survey research provides an excellent tool for gathering original data about the attitudes and opinions of a group that is too large to observe directly, which is exactly what was needed. Moreover, survey research is especially useful for descriptive and explanatory purposes, the former of which is the primary task of our analysis. Another advantage is the low cost of this research method. Especially self administered surveys are relatively cost efficient (Babbie, 2007).

One disadvantage of survey research, especially questionnaires, is their inflexibility, which strikes in two different ways. Firstly, the standardization of questions, which is necessary to provide that each of the questions is at least minimally appropriate for every respondent, prohibits the posing of questions that

are especially and exclusively important to a smaller group of respondents. Secondly, once the questionnaire design is finalized, additional variables that proof to be important during the course of the research, can't be added anymore.

Of note, the author deliberately tried to get a grip on the standardization problem of questionnaires, by keeping the sample as homogeneous as possible. Therefore, it was the intention of the author to use only customers (German as well as Dutch) within the BES segment, wherein customers are known to share roughly the same needs.

According to Babbie (2007), the inability to deal with the context of social life is another shortcoming of survey research, meaning that survey researchers can't understand the situation in which respondents think and act as accurately as field observers can. This would have important implications for the relativization of findings.

3.3 Data gathering

This section describes the *research methods* used in order to collect the data needed for analysis.

3.3.1 The questionnaires

As has been said, two questionnaires were used in this research. To avoid confusion, we shall name the first survey *competitor analysis* and the second one *management attitude*. The two surveys can be found in appendix E, and F, respectively.

3.3.1.1 Competitor analysis questionnaire

The competitor analysis survey is split into two parts. The first part contains 36 closed-ended questions and 1 open-ended question, designed to get an insight into the prevailing needs of the customers within the BES segment. All of the 36 closed-ended questions represent statements, where the customers, specifically the service manager of the customer organization, was asked to provide his degree of agreement concerning the statement by choosing a value on a seven-point Likert-scale. Service managers were chosen as the unit of observation (respondents), because it is them, who are in charge of coordinating, and designing the field service work processes. Thus they are the ones being most concerned and knowledgeable about mobile solutions.
When it comes to the question in how far SFM differentiates itself from competitors, it would have been nice to know how each competitor scored on those 36 attributes. However, this was not feasible to do, as it would have been too obtrusive. It would have negatively affected the response rate, as no company would provide such detailed information about its supplier.
Therefore, the 36 question were subdivided into the six categories *hardware, features, software design, service, planning process optimization,* and *work process optimization,* which together were thought to appropriately cover the majority of performance areas, which a customer is looking for when deciding

on a mobile solution. The second part of the *competitor analysis questionnaire* then represents a simple matrix with the six categories of attributes in the X-axis and a score from one to seven on the Y-axis.

The hardware section was deliberately put in the first position, because it represents the easiest category, giving the respondent a feeling of fast progression, thereby increasing the likelihood of response (Babbie, 2007). The questions in the questionnaire are based on a review of the *Field Service Health Check* (Morra & Veeke, 2009), numerous implementation success stories of providers of mobile solutions and their referents, as well as numerous value propositions from providers of mobile solutions, so as to be sure to have included the most important attributes. Yet, one open question is provided at the end of part one, where respondents may voice attributes that have not been listed in the closed questions.

In designing the questions, the author cautiously took effort to minimize common pitfalls as identified by Babbie (2007). For example, the author tried to formulate the questions as clear as possible, while at the same time trying to keep the items as short as possible. Negative statements have been avoided completely.
Despite their potential for bias, some *double-barreled* questions have been used in limited scope, whenever the author felt it would be superfluous to split a certain question into two. Moreover, two pilot questionnaires have been filled out in advance, so as to detect the last errors.

Unit of analysis, sampling, and response rate

As has already been mentioned, the ultimate purpose of this questionnaire is to get an insight into the prevailing needs of customer organizations within the BES segment, as well as how competitors score on those needs. In the former case the unit of observation and analysis is both the customer organization of a mobile solution. We compare data on individual organizations to generalize about aggregates of individual organizations. In the latter case the unit of observation and analysis is the individual competitor organization. Once again, we collect data on individual competitor organizations to infer to the aggregate of individual competitors (Babbie, 2007).

The population of the competitor analysis questionnaire comprises all companies that are a) located in Germany or the Netherlands b) belong to the BES segment, and c) are (potential) customers of mobile solutions provided by competitors from Germany or the Netherlands.
Unfortunately, due to practical limitations, probability sampling couldn't be used. There was no comprehensive list available of all the German or Dutch competitors from which to randomly pick a sample. Furthermore, because we analyzed B2B companies in a single segment, the population, by nature, was relatively small.
Therefore, in order to construct a sample, the researcher grazed the homepages of all meaningful Dutch and German competitors that have been identified this far. By means of positive screening, the

researcher noted all the referents, stated on the competitor's homepages that fitted in the BES segment.
Thus, the nonprobability sampling method used here is purposive sampling. That is, the researcher took those companies in the sample, which he, according to some identified variables, judged to be most representative for the population.

Prior to distributing the questionnaires, the researcher called the companies in order to personally speak with the service manager of the organization and ask for his collaboration. If this option was denied by practical matters (e.g. service manager is out of office for a longer period), the researcher at least tried to get to know the email address of the service manager.
In three week intervals, the researcher sent reminder emails in case of no response.
The underlying intention of all these actions, of course, was to increase the response rate.

Of the 109 companies (services managers) called and asked to participate, 20 have returned the questionnaire, resulting in a response rate of about 18.3%. Of those 20 responses, 16 companies belong to the BES segment. Even though the remaining 4 companies (active in industries like e.g. smart metering and sewer cleaning) do not fit the BES segment, they'd still fit into other segments of SFM. Among the 20 respondents, all company sizes are represented. The sizes 0-50, 51-100, 101-150 employees are each represented with 10% of the total sample. The remaining sizes 151-200, 201-500, and 500+ employees are represented with 15%, 25%, and 30% of the total sample. The different categories of field service staff size are also equally well represented (see appendix G).
As concerns part two of the questionnaire, 14 of the 20 companies have provided data regarding the score of the provider of their current mobile solution. Of those 14 providers, two come from customers of Sigmax, and 3 companies have implemented a mobile solution on their own, leaving us with 9 responses that refer to scores of pure competitors.

3.3.1.2 Management attitude questionnaire

This questionnaire is composed of five closed-ended questions and three open-ended questions. The former questions ask the respondents to attribute a score on a seven-point Likert scale to each of the five factors *risk, return, control, payback time,* and *resource commitment* where a high score indicates that a respondent attributes a high importance to a certain factor.
The first of the latter three open questions asks the respondent to motivate the choice that has been made in assigning the score in the closed-ended questions. The remaining two open questions are meant to gain an insight in to the personal international experience of the respondent as well as his strategic objectives that he has in mind when talking about entering the German market.
The questionnaire was distributed to the management of SFM.

3.3.1.3 The interview

As has been said, an interview will be conducted with a mobile solutions customer within the BES segment, so as to get another, rather qualitative insight into the most prevailing needs within the BES segment. See appendix H for the full interview (person and company names are disguised to maintain discretion). As compared to self administered questionnaires, interviews provide a deeper insight into the topic of interest because a face to face dialogue provides a platform by which interviewer and interviewee can immediately respond to unforeseen events (for example the answer of a respondent to a certain question might raise another sub question in response).

3.4 Data processing

3.4.1 Competitor analysis

In order to process the data derived from the standardized *competitor analysis questionnaire* the *multi-attribute model* was applied. This model features a table which shows the score of a number of competitors, including the own organization along a number of identified attributes (Mohr et al., 2010). In our case, the attributes are Hardware, Features, Software Design, Service, Planning-process benefits, and Work-process optimization.

As has been said in section 3.3.1.1, the author couldn't ask for the respondent's supplier's score along all those 37 attributes. What has been done instead is to compute the mean per attribute category (e.g. hardware, software architecture, etc.) based on the mean values of all attributes per attribute category and subsequently look how the competitors score along those categories. The former step is quite risky methodology wise, because the validity of such a measure depends on the exhaustiveness of the items included per category. Given that there have hardly been any additional attributes suggested in the open comment field by the respondents, one can reasonably suggest that this is the case.

3.4.2 Market entry mode decision

According to Root, the choice of the market entry mode ought to be based on a *comparative profit contribution analysis* adjusted by a *comparative risk analysis*, and *comparative analysis for nonprofit objectives* for or all the entry modes that have been identified as feasible beforehand.

However, most of the information needed (e.g. all incremental revenues and costs that are associated with the different entry modes) to conduct such an analysis were not accessible.
Therefore, another method was applied.

3.4.2.1 Multi-attribute Decision Making – An overview

Clearly, the problem with which we are dealing here is similar in structure as the country ranking problem faced in section 4.1. That is, we have a pool of n potential alternatives A_1, …, A_n, the choice of

which has to be based on their respective performance on *m* different criteria C_1, …, C_m.
In literature, the term that is used to refer to those kinds of problems is called *multi-attribute decision making problems* (Fülöp, 2005).

Accordingly, there are a number of *multi-attribute decision making methods* available to approach such problems. Generally, there are two main families of multi-attribute decision making methods, namely *Multi-attribute Utility Theory (MAUT)* and *Outranking methods* (Fülöp, 2005).
There are also other methods which won't be discussed here because they are overly simplistic (e.g. the *pros and cons analysis* where simply a list of pro and contra arguments for each alternative is made, or the *lexicographic method*, where the alternative with the best score on the single most important attribute is chosen, both methods of which are part of the family *elementary methods*).

In section 4.1, where the SMART method is used for identifying the most suitable target country for internationalization, one can see how the MAUT methods work in practice.
Generally MAUT methods aggregate the various criteria into a function that ought to be maximized. Compared to this mechanism, outranking methods follow a different procedure. The basic idea rests on the pairwise comparison principle where alternative A_i outranks A_j, if on most of the criteria A_i outperforms A_j, while the performance on the criteria where A_i performs less well, is still acceptable.

As concerns the output of the decision making process, the prime difference between the two families of the multi-attribute decision making methods is that, while the MAUT methods aim to identify the single one best alternative by means of utilizing the aggregated function, the outranking methods merely provide a subset of alternatives, a shortlist which serves as a solid starting point for further considerations (Fülöp, 2005).

However, given that on the one hand we are already beginning with a relatively limited amount of decision alternatives, while on the other hand the purpose of this thesis is to identify the single most suitable market entry mode, we will make use of one of the methods derived from the MAUT family.

3.4.2.2 Choosing the Analytic Hierarchy Process (AHP)

According to Fülöp (2005)

"AHP is one of the more widely applied multi-attribute decision making methods".

It is this model developed by Thomas L. Saaty (Anderson et al., 2009), which is used in order to identify the most suitable market entry mode. The prime reason for using this model is that it gives a quantitative ranking output based on qualitative judgments about performance values.

This is a critical feature in our case, because, unlike in section 4.1, where we rank the potential target countries by means of the SMART method and are able to assign scores A_{ij} to the decision alternatives A_i on criteria C_j as there are objective data available (e.g. the political stability index, wage rates, GDP, etc.), in the decision making process of deciding on the most suitable market entry mode, we do not have such data available. That is, there is no objective, quantitative data available indicating in how far e.g. a high political stability favors or disfavors a certain market entry mode, say export.
The circumstance of having to work with subjective judgments makes the AHP model suit us nicely.

3.4.2.3 How the Analytic Hierarchy Process (AHP) Works

How does AHP make the step from converting qualitative input into quantitative output?
In order to answer this and other questions, this section will outline the basic mechanism of AHP.

According to Anderson et al. (2009) the first step in the AHP process entails the construction of the hierarchy of the decision making problem. That is, an overview of the overall goal to be reached (top layer), criteria to be applied (middle layer), and decision alternatives available (bottom layer). Refer to figure 3.2 for such an overview applied to our case.

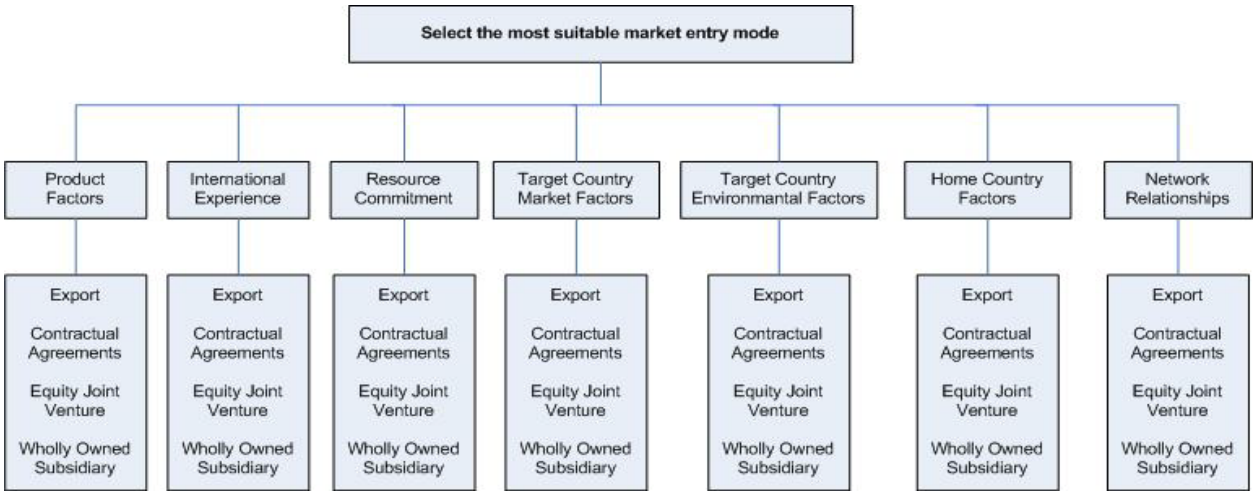

Figure 3.2 - *Hierarchy of the market entry mode selection problem*

As Pan & Tse (2000) noted, the power of the different influencing factors decreases as one moves down the hierarchy of entry modes. Therefore, we will restrain our analysis to Pan & Tse's third layer of entry modes, that is, export, contractual agreements, equity joint venture, and wholly owned subsidiary.
The choice of incorporating exactly those four entry modes in our pool of decision alternatives is also backed by referring to the statement of Ekeledo & Sivakumar (1998) that typical entry mode options for hard service companies (like Sigmax) include licensing, exporting, management contract, joint venture and sole venture, of which management contract is not applicable to our case. A detailed discussion about the most feasible submode is done separately in a qualitative manner.

The second step is about attributing a relative importance weight to the different criteria. This is done by means of pairwise comparison, which, as already stated, forms the core of this method.
To do so, the decision maker has to compare each criterion C_i with the other criteria C_j.
Thereby the decision maker has to verbally voice in how far one criterion, say resource commitment, is more important than another criterion, say international experience, in making the decision.
Table 3.1 shows the various statements available and their corresponding points.
So if we said that resource commitment was *moderately more important* to us than international experience, we'd assign a score of 3 for resource commitment, and score of 1/3 for international experience for that very comparison. Choosing in between values is also possible.

Verbal Judgment	Numerical Rating
Extremely more important	9
Very strongly more important	7
Strongly more important	5
Moderately more important	3
Equally important	1

Table 3.1 – *Comparison Scale for the Importance of Criteria Using AHP* (Anderson et al., 2009)

Next, one has to construct a matrix which confronts the various criteria with each other.
Having filled out the matrix with all the values, one calculates the column total for each criterion.
A simple matrix with criteria C_a, C_b, and C_c would look like this.

	C_a	C_b	C_c
C_a	1	3	1/8
C_b	1/3	1	1/5
C_c	8	5	1
Total	9 1/3	9	1,325

In the next step, each cell in the matrix is divided by its column total. That is:

	C_a	C_b	C_c	*Priority*
C_a	0.107	0.333	0.094	0.178
C_b	0.035	0.111	0.151	0.099
C_c	0.857	0.555	0.755	0.722

The last step needed to compute the importance weight, requires us to calculate the average of each row. So for criterion C_a we'd get a weight of (0.107 + 0.333 + 0.094)/3 = 0.178
This procedure just outlined (entering scores in matrix, divide cells by column mean, calculate weighted average per row to derive priorities) to derive the priority vector is called *synthesization* (Anderson et al., 2009).

The third big step in the AHP process is the calculation of the consistency ratio, which is used to ensure that the values assigned to the various comparisons are consistent. For example, if one said that criterion A is *moderately more important* than criterion B, and that criterion B is equally important to criterion C, then, under conditions of perfect consistency, criterion A compared to C should also be *moderately more important* than criterion C (since 3x1 = 3).
Of course, achieving perfect consistency is difficult if not impossible, and the difficulty increases with the number of criteria used. Therefore, in order to control that one does not assign numerical ratings in a rather conflicting way, one calculates the consistency ratio. The formula for calculating such a ratio will not be described here, but explained in section 3.4.2.4, where we actually execute step 2 and 3. However, it should be mentioned that this ratio ought not to exceed 0.1 (Anderson et al., 2009).

The fourth step is about calculating the utilization value for all the decision alternatives along all the criteria. Basically, this is done in the same way that we used for assigning values to the different criteria. That is, we pairwise compare how the different alternatives score on each criterion, using the same table for converting subjective judgment into numerical scores. Also, the very same process of synthesization will be applied, resulting in *n* vectors with *j* dimensions per vector, where *n* is the amount of criteria and *j* the amount of decision alternatives.

The fifth and final step is a straightforward one and only requires us to multiply the value of each decision alternative on each criterion by the weight of the respective criterion, and consequently calculate the total score per decision alternative.

3.4.2.4 Applying the AHP model – step 2 and 3

In this section we execute step 2 and 3 of the AHP model to our case. That is, we pairwise compare the different criteria so as to eventually determine their importance in solving the problem. Consequently, we compute the consistency ratio so as to ensure that we didn't attribute weights in an unreasonable manner. Both steps are methodologically very important ones and have to be done cautiously for they significantly influence the eventual outcome of the analysis and therefore the answer and advice that will be given to the central research question.

Assigning weights to criteria – step 2

Before constructing the matrix with the pairwise comparison values, we made an intermediate step

by constructing a table that records the details of each pairwise comparison. See appendix I.
See table 3.2 below for the resulting matrix that pairwise compares the different factors as has been done in appendix I.

Criterion	*Product Factors*	*International Experience*	*Resource Commitment*	*Target Country Market Fact.*	*Target Country Env. Factors*	*Home Country Factors*	*Network Relationships*
Product Factors	1	2	1/3	1/3	1/3	3	1/2
International Experience	1/2	1	1/3	1/4	1/4	2	1/3
Resource Commitment	3	3	1	1/2	1/2	5	2
Target Country Market Fact.	3	4	2	1	1	6	3
Target Country Env. Factors	3	4	2	1	1	6	3
Home Country Factors	1/3	1/2	1/5	1/6	1/6	1	1/3
Network Relationships	2	3	1/2	1/3	1/3	3	1
SUM	**12 5/6**	**17 1/2**	**6 3/8**	**3 4/7**	**3 4/7**	**26**	**10 1/6**

Table 3.2 – *Confronting the different criteria*

The resulting matrix with the priority weights are given in table 3.3.
As can be seen, target country market factors and target country environmental factors both form the most important factor group, each with a weight of 0.27. Refer to section 3.4.2.3 to understand how the priorities of the different criteria have been established.

Computing the Consistency ratio – Step 3

The computation of the consistency ration can be subdivided into 5 steps.
In the first step one has to multiply the priority value of a given criteria, say resource commitment, by the column of the same criterion. This has to be done for each criterion which results in *n* vectors, where *n* is the amount of criteria, in our case 7. Explicitly, for the criterion resource commitment, this means that we have to multiply 0.18 by the column values (0.333 | 0.333 | 1 | 2 | 2 | 0.2 | 0.5), resulting in the vector (0.06 | 0.06 | 0.18 | 0.35 | 0.35 | 0.04 | 0.09).
Consequently, we have to determine the sum of all the *n* vectors. This process is illustrated in table 3.4.

Criterion	*Product Factors*	*International Experience*	*Resource Commitment*	*Target Country Market Fact.*	*Target Country Env. Factors*	*Home Country Factors*	*Network Relationships*	*Priority*
Product Factors	0.078	0.114	0.052	0.093	0.093	0.115	0.049	0.085
International Experience	0.039	0.057	0.052	0.070	0.070	0.077	0.033	0.057
Resource Commitment	0.234	0.171	0.157	0.140	0.140	0.192	0.197	0.176
Target Country Market Fact.	0.234	0.229	0.314	0.279	0.279	0.231	0.295	0.266
Target Country Env. Factors	0.234	0.229	0.314	0.279	0.279	0.231	0.295	0.266
Home Country Factors	0.026	0.029	0.031	0.047	0.047	0.038	0.033	0.036
Network Relationships	0.156	0.171	0.079	0.093	0.093	0.115	0.098	0.115

Table 3.3 – *Priority matrix*

Vector PF	Vector IE	Vector RC	Vector TCMF	Vector TCEF	Vector HCF	Vector NR		Total Vector
0.085	0.114	0.059	0.089	0.089	0.107	0.058		0.599
0.043	0.057	0.059	0.066	0.066	0.071	0.038		0.401
0.255	0.170	0.176	0.133	0.133	0.179	0.230		1.276
0.255	0.227	0.352	0.266	0.266	0.214	0.345		1.925
0.255	0.227	0.352	0.266	0.266	0.214	0.345		1.925
0.028	0.028	0.035	0.044	0.044	0.036	0.038		0.255
0.170	0.170	0.088	0.089	0.089	0.107	0.115		0.828

Table 3.4 – *Vectors of the different criteria and their sum*

In the second step, we have to divide each value of the total vector by the priority value of the corresponding criterion. For the factor resource commitment for example, we'd have to divide 1.276 by the corresponding priority value 0.176, which gives us the value 7.25. Doing this for all criteria, we get the following values (see table 3.5).

	PF	IE	RC	TCMF	TCEF	HCF	NR
Element of weighted sum vector divided by corresponding priority	7.048	7.052	7.260	7.243	7.243	7.122	7.194

Table 3.5 – *Weighted average vector divided by corresponding priorities*

The third step constitutes the calculation of the weighted average of the above seven values. This value will be denoted $\lambda_{max.}$ In our case this value is 7.166.
Next, the consistency index has to be computed. This value, denoted CI, is computed as follows.

$CI = \frac{\lambda \max - n}{n-1}$, where *n* is the amount of criteria.
Finally, all we have to do is compute $CR = \frac{CI}{RI}$, where RI is the consistency index of a randomly generated pairwise comparison matrix. For an *n* of 7, this RI value is 1.32. Executing this formula we, get a value of 0.021. See table 3.6 for an overview of the values just computed.

Lambda max.	7.166009
CI	0.027668
RI	1.32
CR	0.020961

Table 3.6 – *Overview of values*

Our just computed CR value is far below the required maximum CR value of 0.1 and thus grants us to move on to the next stage, which is the assignment of scores to the different decision alternatives, e.g. entry modes. This will be done in the analysis.

3.5 Methodological limitations

As is usual for a bachelor thesis, there is a decent amount of methodological limitations in this paper. First of all, due to limitations in scope the researcher mostly focused on the Business Equipment Services (BES) segment of SFM when conducting the competitor analysis and when looking for potential customers (14 of the 17 activity codes scanned in the Kompass database pertain to the BES segment). Secondly, the total amount of respondents who filled in part 1 of the competitor analysis questionnaire (n=20) is far from being representative of the whole population of users of mobile solutions within the BES segment. The same is true for the second part of the questionnaire.
Having received scores on only 10 different competitors, it is highly doubtable whether this sample is representative for the whole competitive field. Moreover, apart from two exceptions, the performance per competitor is based on the evaluation of a single customer (the respondents of the questionnaires). However, as comes forth in the competitor matrix, there is hardly any customer which has less than 10 referents, let alone customers. Thus even the score per competitor is likely to be unrepresentative for the actual performance per competitor.
Thirdly, the assignment of scores to the decision alternatives (different market entry modes) in the pairwise comparison procedure is purely subjective and therefore not free from bias. A different author most likely would have attributed different scores.
Fourthly, the Kompass database which was used for a bulk of desk research also has its limitations. The database is not complete. Especially smaller firms are usually not included in their list. Also the amount of companies it shows for a certain economic activity code per country sometimes diverges from the sum of the amount of companies from all the federal states for that very same economic activity and country. All of those limitations severely challenge the validity of this research.

Yet, all the steps taken that led to those limitations can be defended. The inclusion of other segments into the analysis would simply have taken too much effort for one person to realize. The same counts for the amount of respondents of the competitor analysis questionnaire.
And despite the shortcomings of the Kompass database, it is still one of the most comprehensive standardized databases available for researching companies per region and per economic activity. More importantly, the bias, in the sense that it doesn't show all companies, is supposedly distributed equally among regions and economic activities.
Furthermore, the researcher experienced that the most relevant companies he identified for his cold calling activities during his internship were also included in the database and where shown as results when searching for the most important customers per activity code. Therefore, the database is still exceptionally useful for identifying patterns of economic activity within a certain region.

4 Analysis

The previous chapter has discussed the methods with which the data will be gathered. Moreover, details on how such information will be processed so as to come to a conclusion, has been provided.
In this chapter the actual analysis of the data will take place.
This chapter starts with a small side step in which the author leaps back to the beginning of the research process. Specifically, the author conducts a country analysis in which the choice of Germany as a target country is justified. After all, it would be negligent to analyze the market entry mode for a certain country, if one hadn't investigated whether this country is the most attractive one, beforehand.
The structure of the remaining part of this chapter resembles that of the AHP process.
That is, it continues with the description of the internal and external factors and how the entry modes *export*, *licensing*, *joint venture*, and *sole venture* score on these factors. To enhance the flow of the paper, the pairwise comparison (that is the evaluation of how the different entry modes are favored by the different internal and external factor groups) per factor group, will follow directly after the description of a certain factor group.
This chapter concludes with the denomination of the most suitable market entry mode.

4.1 Country ranking

This part is meant to answer the call for a more objective determination of the most suitable country to enter. In order to provide such an objective method, we made use of the *Simple Multi Attribute Rating Technique* (SMART) which was proposed by Edwards in 1977.
According to this approach, the decision making process is broken down into 10 steps.
In order to derive at a satisfying solution, the 10 steps will be dealt with step by step.

Step 1: *Identify the person or organizations whose utilities are to be maximized*

Given that the venture of internationalization significantly affects the fortune of an organization, the most direct stakeholders to be identified are all the employees of Sigmax, especially the management.

Step 2: *Identify the issue*

The issue that is meant to be solved by means of this procedure is to identify the most attractive target country for the sake of Sigmax' internationalization ambitions.

Step 3: *Identify the entities to be evaluated*

In this section, we will refer to *entities* as *decision alternatives* as is also usually done in literature. Clearly in our case the decision alternatives resemble all the potential countries to which SFM could internationalize.
Due to limitations in scope, we can't investigate the attractiveness of all the countries available to us.

Therefore, this step will be conducted in a somewhat sketchy manner. The following countries are identified as theoretically feasible: Germany, Belgium, France, Italy, Spain, Austria, Switzerland, Luxembourg, Sweden, Denmark, Norway, Finland, Greece, and UK.

Due to of the immensity of their physical distance, USA, Australia, Africa, and the Asian realm have been discarded. They are simply too far away to be considered a realistic option for market entry by a SME like Sigmax.

Step 4: *Identify the relevant dimensions of value for evaluation of the entities*

The term *dimension of value* will also be translated into another term called *criteria.*
According to Edwards (1977) the number of criteria, which ultimately serve to discriminate between the different decision alternatives, shouldn't be too large. Edwards gives a rule of thumb stating that 8 criteria is "plenty" and 15 is "too many". We'll restrict ourselves to 6 criteria, which are thought to be exhaustive enough for this preliminary analysis.

The following criteria have been identified on the basis of literature review and a discussion with my tutor of SFM: *Political stability, economic strength, physical proximity, cultural proximity, market size,* and *labor costs*.

Step 5: *Rank the criteria in order of importance*

- 1) Market size (80)
- 2) Physical proximity (70)
- 3) Cultural proximity (60)
- 4) Labor costs per hour (40)
- 5) Economic strength (30)
- 6) Political stability (10)

Step 6: *Rate criteria in importance, preserving ratios*

In order to provide the different criteria with ratios, Edwards (1977) suggests to begin by assigning the least important criterion a value of 10 points, working the way through to the most important criteria. The relationship of the scores is linear. That is, the importance of a criterion scoring 80 points is 8 times higher than a criterion scoring 10 points and vice versa.

As can be seen in step 5, *political stability* has been ranked the least important and will therefore be assigned a score of 10 points.
Political stability ensures the continuity of business in the target country. The weight is relatively low, because this factor shouldn't have too much impact. After all, it wouldn't make much sense to choose a country that has a high political stability, but e.g. low market potential. Therefore, the importance of this factor is scaled down.

The economic strength of a target country is measured as the GDP per capita. This GDP is sought to give information regarding the general propensity of a company in a certain country to buy a mobile solution. This assumption rests on the thought that the higher the economic performance of a country, the higher the drive for efficiency with which companies in a given country work, the higher the willingness to automate field service processes. Moreover, the more prosperous a country, the more likely that a given company within that country owns excessive financial resources which it can spend on mobile solutions. Apart from the light ability to remotely indicate market size, measuring the market value of all goods and services produced in a given country, the GDP primarily gives disclosure regarding the productivity of a country.
Because the clarity of the GDP's power to predict market size is kind of fuzzy, the importance of this criterion is scaled down to 30 points.

A factor that is supposed to be more reliable when it comes down to predicting the general propensity of a service company in a target country to make use of mobile solutions, is the average *labor costs per hour* in a country. After all, mobile solutions aim at reducing the extent of non-value adding activities like paper work. Therefore, the higher the labor costs, the greater propensity to make use of a mobile solution to streamline work processes. 40 points are assigned to this criterion.

Overall, *cultural proximity* is fairly important because, as stated in section 1.1, we are dealing with a product that is quite service intense, requiring lots of personal intercourse between the members of both organizations. Therefore, it is important that the professional as well as social understanding between the two parties is high. To account for this importance, a score of 60 has been assigned to his criterion.

Physical proximity is judged to be marginally higher, because the international experience of SFM at the time of writing is quite low with Belgium, UK and Switzerland being the only countries of reference for Sigmax as a whole. Therefore it is unlikely, that SFM will immediately jump into an exotic country being relatively far away. Moreover, given that the distance of the target country is also associated with greater costs (e.g. the cost of information search, travel costs, but also costs associated directly with the execution of a certain entry mode) this factor has to be scaled up in importance, because, as an SME that just recently invested a lot of money in product development, SFM has relatively limited financial capacity. A score of 70 is judged to be appropriate.

The criterion judged to be most important is *market size* receiving a score of 80 points. After all, only if the target country offers profitable commercial future perspectives does it qualify as an attractive target market.

Step 7: *Sum the importance weights, and divide each by the sum*

This is merely a computational step meant to derive the value ratios (Edwards, 1977).

Criterion	*Score*	*Ratio*
Market size	80	0.27
Physical proximity	70	0.24
Cultural proximity	60	0.21
Labor costs	40	0.14
Economic strength	30	0.10
Political stability	10	0.03
Total	**290**	**0.99**

Table 4.1 – *Criteria-ratios*

Step 8: *Measure the location of each alternative being evaluated on each criterion*

This step constitutes the core process of the whole procedure by which we assign a score of all the different decision alternatives along the identified criteria.

For this purpose, Edwards (1977) suggests to use a score scale ranging from 0 – 100.

He differentiates between three kinds of criteria. The purely subjective ones, the scores on which can be estimated by e.g. an expert, the partly subjective ones, where the measurement of the criterion can be done objectively, but the score has to be estimated subjectively, and the purely objective ones, where measurement and score assignment is done nonjudgmentally.

Methodology – wise Edwards (1997) proposes to connect the minimum and maximum *plausible* value with a straight line, so as to use this line for transforming the intermediary scores into a value of 0 – 100.

Even though not done graphically, this is the same procedure that is used here computationally.

Edwards makes a crucial point when mentioning that the minimum *plausible* value often is not the same as the minimum *possible* value. Likewise, regarding the minimum value of e.g. the total GDP to be 0 would be an example of the lowest possible minimum value. However this is technically not a plausible one, since, apparently, any country, irrespective of its size, will have a positive GDP. Yet, there are countries with a GDP of 32 million, which, in terms of per cent, when compared to the German GDP of 3,316,000 million, come pretty close to 0. Therefore, to simplify computation, in some instances the possible minimum is indeed considered the plausible minimum. In case we deviate from that methodology, a comment is made.

See the table 4.2 below for the actual score that has been assigned to the different decision alternatives (e.g. countries). Netherlands is included for comparison purposes.

Countries	*Political stability*	*Economic strength*	*Labor costs*	*Physical proximity*	*Cultural proximity*	*Market size*
Germany	62	70	58	90	47	100
Belgium Total	60	30	98	70	33	12
Belgium Flemish	60	15	98	70	40	7
Belgium Wallonia	60	15	98	70	26	4
France	57	60	78	50	39	97
Italy	50	50	40	30	40	73
Spain	45	35	13	0	23	24
Denmark	78	30	100	40	66	11
Norway	88	50	-	20	85	16
Sweden	68	30	91	0	66	69
Finland	68	30	56	0	75	10
Austria	64	30	52	20	16	3
Switzerland	66	40	89	40	49	21
Luxembourg	64	50	76	60	50	1
Greece	37	20	0	0	0	4
UK	54	50	14	50	42	88
NL (comparison)	60	36	64	-	-	15

Table 4.2 – *Country score per criterion*

Political (in) stability

The operationalization of this factor is done by means of the "*Political Instability Index"* issued by the Economist (The Economist Intelligence Unit Limited, 2011) which covers the period 2009/2010. The score of the "Political Instability index" is already scaled from 1-10, which is comfortable. However, in this index a high score indicates a high instability. Therefore we have to turn the score around so that a high score indicates a high stability. Therefore

$$Political\ stability\ value\ = 100 - \text{Political Instability Index-value} * 10$$

Economic strength

First of all both the total GDP as well as the GDP per capita will be used in order to comprise the actual economic performance (which is more realistically measured by GDP per capita, because it adjusts the GDP for the size of the country) as well as the total economic size of a country (which is best measured when GDP is not adjusted for the size of the country).

In both cases the operationalization is done as follows.
Since there is no *plausible* upper value for the GDP that can be determined independent of reference data, we regard the upper value as the European country that had the highest GDP in 2010.
That is, Germany is the reference point for upper value with a GDP of 3,316,000 million $, receiving a score of 100. As mentioned above, the plausible minimum value here is considered to be the same as the possible minimum value, e.g. 0. Based on the data of the CIA World Factbook for 2010 the score of each country for both factors will be computed as follows:

$$GDP\ score\ = \frac{\text{GDP value of focal country} * 100}{\text{GDP value of the country with the highest value}}$$

$$GDP\ per\ capita\ score\ = \frac{\text{GDP per capita value of the focal country} * 100}{\text{GDP per capita value of the country with the highest value}}$$

The final value for the economic strength factor will be a weighted average of the two factors mentioned above, that is

$$Economic\ Strength = \frac{\text{GDP score} + \text{GDP per capita score}}{2}$$

Country	***GDP score***	***GDP per capita score***	***Weighted average (rounded off)***
Germany	100	38	70
Netherlands (comparison)	23	49	36
Belgium	14	42	30
France	78	37	60
Italy	62	32	50
Spain	42	28	35
Denmark	9	54	30
Norway	13	84	50
Sweden	14	46	30
Finland	7	43	30
Austria	11	42	30
Switzerland	16	65	40
Luxembourg	2	100	50
Greece	9	27	20
UK	68	34	50

Table 4.3 - *GDP score per country*

Labor costs

Given that a high labor cost puts more pressure on companies to automate and streamline work processes, the higher the labor cost, the higher the score. Again, there is no *plausible* upper value that can be determined independently. Therefore, the highest wage rated will be considered to be the upper limit. Given that the values of labor wage rates within the EU are quite close to each other, the plausible minimum value is not considered to be equal to the possible minimum value.

This is done to prevent that countries, which, compared to the European level, feature a very low wage rate, still receive a score of above 50. Therefore the minimum plausible level is raised from 0 to the lowest country wage rate (17.5) observed within our pool of EU countries.

The data used here are the “labor costs per hour worked in 2010” derived from the “private sector” (Destatis, 2011). See table 4.4 for the actual wage rate and corresponding score per country and figure 4.1 for a graphical illustration of the underlying distribution pattern.

Country	Wage rate per hour	Score
Germany	29.2	58
NL (Comparison)	30.4	64
Belgium	37.2	98
France	33.1	78
Italy	25.6	40
Spain	20.1	13
Denmark	37.6	100
Norway	No info	-
Sweden	35.9	91
Finland	28.9	56
Austria	28	52
Switzerland	35.5*	89
Luxembourg	32.8	76
Greece	17.5	0
UK	20.3	14

Table 4.4 – *Wage rate/score by country*

Figure 4.1 – *Wage rate to score distribution*

Physical proximity

Physical proximity will be measured as the amount of airline kilometers from Enschede to the economic center of the target country. In case of Germany this will be the Ruhr, for France it's Paris, for England it's London, for Italy it's Milan and so forth. Here the range of score distribution has been conceptualized manually. A linear relationship has been abandoned in order to account for the stronger preference of countries that are nearby, making the density of score per km bigger in the beginning and smaller at the end. The plausible minimum is set at 1000 km. The actual distance per country and the score per range of kilometers are found in table 4.5 and 4.6, respectively.

Countries	*Airline distance from Enschede to economic centre in km*
Germany	88
Belgium	204
France	490
Italy	770
Spain	1540
Denmark	530
Norway	890
Sweden	1050
Finland	1417
Austria	808
Switzerland	550
Luxembourg	397
Greece	2050
UK	490

Table 4.5 – *Airline distance per country*

Range of km	*Score*
0 - 50	100
51 -100	90
101 – 200	80
201 – 300	70
301 - 400	60
401 - 500	50
501 – 600	40
601 - 800	30
801 - 900	20
901 - 1000	10
> 1000	0

Table 4.6 – *Score per range of km*

Cultural proximity

In order to measure the cultural proximity of the various countries with the Netherlands, we make use of the different numerical cultural indices proposed by Hofstede (2009). That is, we measure the total deviation of the various countries' index values with that of the Netherlands index values. The five different dimensions along which Hofstede (2009) compares the cultures of selected countries are *power distance* (the degree with which less powerful people in an organizational entity accept the fact that power is distributed unequally) , *individualism* (the strength of social bindings), *masculinity* (the degree of separation of gender roles in society) , *uncertainty avoidance* (the degree with which members of a social entity feel frightened by and avoid uncertain situations), and *long term orientation* (the degree to which virtues in society are associated with e.g. sustainability and abstinence). Refer to appendix J for the table of scores along the different cultural dimensions. The deviation with the score of the Netherlands is indicated in brackets.

As can be seen, Greece shares the least cultural similarities with the Netherlands and possesses a total deviation of 175. The most similar country culture wise is Norway with a total of 27 deviation-points. The plausible maximum will be set at 0, given that this would mean that the country is 100% similar to the Netherlands. The plausible minimum is set at 175.
The ultimate score is calculated in the following manner:

$$\text{Culture score} = 100 - \frac{\text{Total Deviation of focal country} * 100}{\text{Highest Deviation score}}$$

Market size

In order to measure market size the author has applied the following procedure. First, all the classification codes of the various economic activities within the Kompass database (2011) have been scanned to identify those codes that are most suitable for describing the economic activities of typical customers within the BES segment. Refer to appendix K for the list of the identified codes.

Secondly, the author scanned the database to identify the total amount of companies for the different codes. This is supposed to indicate the market size of the country because it roughly indicates the total amount of potential customers per country. Of course, the data has to be approached cautiously, because a lot of companies are not listed in the database. Nevertheless this methodology provides a vital starting point for sketching the market size.

In the following step, we will construct a table showing the amount of companies per activity code per country as well as the total amount of companies for all codes. Refer to appendix L for this table.
To derive at a score per country, the following formula is applied:

$$\textit{Market size score} = \frac{\text{Total amount of companies of focal country} * 100}{\text{Total amount of companies of the country with the highest score}}$$

This gives the following score per country:

Country	*GE*	*BE*	*BE FL*	*BE WA*	*FR*	*IT*	*SP*	*DEN*	*NO*	*SWE*	*FIN*	*AU*	*SW*	*L*	*GR*	*UK*	*NL*
Score	100	12	7	4	97	73	24	11	16	69	10	3	21	1	4	88	15

Step 9*: Calculate utilities for entities*

Obviously, this constitutes a very straightforward task for it only requires the calculation of the weighted average, that is

$$U_i = \sum_j w_j \; u_{ij}$$

where U_i is the utility, that is, the eventual score of country *i,* which is composed of the various scores u_j scored on the criteria j , weighted by the respective weight, w_j.

See table 4.7 for the utilization of the different countries.

	DACH			*BELU*				*NORDIC*				*SP/IT/GR*			*FR*	*UK*
	Germany	Austria	Switzerland	Belgium	Belg. Fl.	Belg. Wall.	Luxembour	Norway	Sweden	Finland	Denmark	Spain	Italy	Greece	France	UK
Political stability (0.03)	1.86	1.92	1.98	1.80	1.80	1.80	1.92	2.64	2.04	2.04	2.34	1.35	1.50	1.11	1.71	1.62
Economic strength (0.1)	7.00	3.00	4.00	3.00	1.50	1.50	5.00	5.00	3.00	3.00	3.00	3.50	5.00	2.00	6.00	5.00
Labor costs (0.14)	8.12	7.28	12.46	13.72	13.72	13.72	10.64		12.74	7.84	14.00	1.82	5.60	0.00	10.92	1.96
Cultural proximity (0.21)	9.87	3.36	10.29	6.93	8.40	5.46	10.50	17.85	13.86	15.75	13.86	4.83	8.40	0.00	8.19	8.82
Physical proximity (0.24)	21.60	4.80	9.60	16.80	16.80	16.80	14.40	4.80	0.00	0.00	9.60	0.00	7.20	0.00	12.00	12.00
Market size (0.27)	27.00	0.81	5.67	3.24	1.89	1.08	0.27	4.32	18.63	2.70	2.97	6.48	19.71	1.08	26.19	23.76
Total	75.45	21.17	44.00	45.49	44.11	40.36	42.73	34.61	50.27	31.33	45.77	17.98	47.41	4.19	65.01	53.16

Table 4.7 – *Utilization of countries*

Step 10: *Choose*

Given that our problem only revolves around picking the most suitable target country, all we have to do is choose the country with the highest utilization value (Edwards, 1977).

With a total amount of 77.85 points, Germany makes the race and therefore, according to this SMART-analysis qualifies as the most suitable target market to entry.

Of note, there is one value missing in the table, namely the labor cost value for Norway. However, this is not problematic for the eventual denomination of the "winning country", because, even if Norway had scored the maximum of 100 points, it would not have affected the end result, given that the sum of 37.01 (Norway's current score) and 14 (maximum possible weighted score for labor costs) is still below Germany's score of 77.85.

4.2 Factor Description and Evaluation

In this section, the subfactors of the different internal and external factor groups (e.g. product factors) will be described and evaluated. We begin with the internal factors which are composed of factor groups that are controllable by the organization, namely *Product Factors, International Experience*, and *Resource Commitment*. Then we'll move on to the external factors - those factors on which a company has no or hardly any control over. They include *Target Country Environmental Factors*, *Target Country Market Factors*, *Network Relationships*, and *Home Country Factors*.

Internal Factors

4.2.1 Product Factors

Here we look at the subfactors Hard vs. Soft Services, Degree of Differentiation, and Technological Intensity.

4.2.1.1 Description of Product Factors

Hard vs. Soft Services

The Field Mobility Suite, SFM's primary product for maintenance service companies, includes aspects of both, hard services and soft services. The hard service component refers to the fact that the output of their core business, the software development, is installed on mobile handheld devices. Therefore, over most of the product's lifetime, the benefits that are to be gained from the mobile solutions can be enjoyed *separate* from Sigmax.
However, prior to being able to use such a mobile solution in the field, a lot of work has to be done, which requires the simultaneous physical presence of both SFM, and the customer.
Much of such physical presence in the early stage is needed for example in order to get grip on the customer's needs. Events that fall under this category are the first few meetings where the customer sketches their work processes, and where the specifications and features of the mobile solution are determined in order to best meet the needs that crystallize out of such a needs analysis. This also comprises the occasions where *functional consultants* accompany the fields staff in order to spot the potential values that a solution could add in practice. Apart from the design phase, where one seeks to match supply and demand in the most effective and efficient manner, the implementation phase, where the *technical consultants* care for the actual rollout of the solution, also requires physical presence. Therefore, one can see that parts of SFM's offering indeed are not possible to be consumed *separate* from Sigmax.

As concerns the residual macro characteristics of services, the Field Mobility Suite is *not perishable*, because the benefits that result from mobile solutions can theoretically be enjoyed lifelong, once the mobile solution is installed.
The issue of *tangibility* is an ambivalent one. In its purest form the output of SFM's software development just comprises electronic data which can't be touched or experienced, let alone be

evaluated with any of human's senses. However, given that (as already mentioned) the software is installed and only usable on a physical end device, the output can very well be touched. The heterogeneity of the service of Sigmax is fairly high, the final experience of the customer using the product being dependent on a lots of factors such as the performance of the employees (back office, e.g. programmers, as well as front office, e.g. consultants).

Summarized, we find that *currently*, the implementation of the Field Mobility Suite classifies as both a *hard* and a *soft* service. The emphasis on the word currently is put due to the fact that Sigmax is undertaking efforts to develop a more standardized mobile solution for the future, where potential customers can assemble their own mobile solution in a web browser. With such a business model, the need for physical presence would significantly be minimized, thereby considerably increasing the separability of supply and demand.
Consequently, this had a decisive impact on the choice of the market entry mode, given that the impact of the physical proximity would be scaled down.
To determine the weight of the service component in general, one can compare the proportion of income per contract that stems from license fees vs. services, the two main activities for which the customer pays. For the initial order, this proportion is 1:1 to 1:2 under the *current* business model. Apart from that, Sigmax also offers optional services for software maintenance and updates.
The service intensity is also reflected by the fact that 80% of SFM's costs are personnel costs (work consultation of September 2011).

Degree of Differentiation

By nature, a mobile solution is a highly differentiable product. There are virtually countless ways to write and design a software architecture which results in e.g. a unique task flow (the way that a technician is led through the work order by the device), usability (ease in handling the device), configurability (the ease and variety with which users can modify a client to suit their own specific needs) amount of features, computing speed, etc. All those details on the idiosyncratic level make no mobile solution resemble the other.

Yet, when turning to a broader view of analysis, we find that almost all providers of mobile solutions share identical value propositions, which becomes apparent by studying competitor's websites[1].

That is, they all claim to streamline the work of field service technicians and back office employees by providing the technicians with detailed customer information, work order information, the ability to

[1] Compare for example the sites: http://www.acteos.com/de/de_DE/losungen/Logonsmart.aspx; http://www.ics-ident.de/mobile-loesungen/loesungen/4mobile-service.html; http://www.mobileobjects.de/mobileservicemanager.html?&L=losubdexseia; or http://praxedo.com/de/aussendienststeuerung.php

register travel and work time as well as used material per work order, and the ability to finalize and have the work order signed by the customer on location. They all claim to do so by offering a client with high usability, a planning system which optimizes fleet routes and leverages company resources (mostly in terms of time and human resource) by providing the most efficient work order distribution, and a solution which generally promises a seamless integration into the established IT environment of the organization.

What, then, is it, that actually differentiates SFM from its competitors? To shed light onto this issue, the results of the *competitor analysis questionnaire* will be analyzed.

Results competitor analysis questionnaire

This paragraph is primarily aimed at answering subquestion 2 and offers valuable input for investigating SFM's degree of differentiation.

Asking for the respondent's preferences concerning the operating system of the mobile client, most uttered a preference for Windows 7 and Windows Mobile (41.4% and 34.5%, respectively). Android and iOS scored 10% each. As concerns the device preference, 38.9% said to prefer PDA's, being followed by laptops with 25%. Smartphones and tablets are preferred by 19.4% and 16.7% of the respondents, respectively.

When it comes to the attributes of mobile solutions which customers of mobile solutions would value the most, there are only three (device design, reduction of importance of central dispatcher, omnipresent access to price information) of the 37 attributes which scored lower than a mean value of 5. Overall, thus, all attributes of mobile solutions which were asked for in this questionnaire were judged to be relatively important.

The top 7 attributes which were judged as most important by the respondents are

- Usability (mean 6.675, std. deviation 0.613)
- Reliability of the solution (mean 6.55, std. deviation 0.686)
- Optimal capacity allocation (mean. 6.44, std. deviation 0.984)
- Reduction of paperwork (mean 6.39, std. deviation 0.85)
- Clearly arranged overview of location of objects (mean 6.33, std. deviation 0.686)
- Total cost of Ownership of the solution (mean 6.25, std. deviation 0.851)
- Computing power/speed (mean 6.25, std. deviation 1.372)

As can be seen it is the basic characteristics and benefits which customers value most about mobile solutions. Most importantly the mobile clients that the field service technicians use in the field have to

be easy to operate. After all, those devices ought to decrease, not increase the workload of the technicians. Constant operation and functionality of the device is also evaluated as important to ensure that the workflow is not interrupted. As concerns the benefits sought from a mobile solution, optimal capacity allocation and reduction of paperwork were judged to be the most important ones by the respondents. The functionality of the client of the mobile solution to which the respondents assigned the highest score was a clearly arranged overview of the location of objects to be inspected onsite. Refer to appendix M for the table showing the minimum, maximum, mean, and std. deviation values for all 37 attributes.

The interview with the vending company confirms the results of the questionnaire.

Usability, too, is judged to be the single most important characteristic (both in terms of hardware e.g. the weight, size, grip of the device, as well as the software e.g. task flow). Other attributes voiced to be important (such as a timely access to critical information, overview of material to be used, process optimization, efficient allocation of resources, etc.) are also included in the questionnaire.

As stated in section 3.3.1.1, obtaining competitor score along all the 37 attributes was not possible. What has been done instead is to compute the mean per performance category based on mean values of all attributes per performance category.

The mean values for the categories hardware, features, software architecture, service, planning process benefits, and work process benefits are 5.32, 5.42, 6.05, 5.98, 5.57, and 5.66, respectively. See appendix N for the performance scores that the respondents assigned along those six categories to their suppliers of mobile solutions. To see in how far Sigmax has an edge over competition, the mean values of the performance scores will be computed. See table 4.8 for the mean score of Sigmax, table 4.9 for the mean scores of solutions provided by competitors as wells as those that respondents developed and implemented on their own, and table 4.10 for the mean score of pure competitors only.

The reason that scores are indicated separately for solutions being solely implemented by competitors, as well as those being implemented with the help of or exclusively by the respondent on its own is twofold.

	N	Minimum	Maximum	Mean	Std. Deviation
Hardware score	2	5	6	5.50	.707
Features score	2	4	5	4.50	.707
Software score	2	6	6	6.00	.000
Service score	2	6	6	6.00	.000
Planning score	2	5	6	5.50	.707
Workprocess score	2	6	7	6.50	.707
Valid N (listwise)	2				

Table 4.8 – *Mean scores of Sigmax*

	N	Minimum	Maximum	Mean	Std. Deviation
Hardware score	12	1	6	4.50	1.679
Features score	12	3	6	5.00	1.044
Software score	12	1	6	4.50	1.732
Service score	12	3	7	5.17	1.337
Planning score	12	2	6	4.58	1.311
Workprocess score	12	3	6	4.83	1.193
Valid N (listwise)	12				

Table 4.9 – *Mean scores of competitors (including internal solutions)*

	N	Minimum	Maximum	Mean	Std. Deviation
Hardware score	9	1	6	4.11	1.764
Features score	9	3	6	4.89	1.167
Software score	9	1	6	4.44	1.944
Service score	9	3	7	5.22	1.481
Planning score	9	2	6	4.67	1.323
Workprocess score	9	3	6	5.00	1.118
Valid N (listwise)	9				

Table 4.10 – *Mean scores of competitors (excluding internal solutions)*

Apparently, it would be misleading to mix the scores of respondents who developed/implemented a solution on their own with those of the *true* competitors. Yet, the former scores also provide valuable information, because they indicate in how far self implemented solutions might under- or outperform compared to those of Sigmax.

In order to compute a final score for each of the three categories, we'll follow the same procedure as that applied in section 4.1. Step 1-6 and 8 have already been done by means of the questionnaire and the data provided by the respondents. Step 7 is merely a computational step which requires us to divide the importance value attributed to each criterion (hardware, feature, software, service, planning- and work process benefits) by the sum of those values of all criteria. Doing so, we get values of 0.156 (hardware), 0.159 (features), 0.178 (software), 0.176 (service), 0.164 (planning process benefits), and 0.166 (work process benefits).

Step 9, utilization, is the last computational step in which the scores per criterion of the decision alternatives (in that case Sigmax, pure competitors, and competitors mixed with results of respondents who implemented mobile solutions internally) are multiplied by the weight per criterion. Refer to table 4.11 for the results. The normalization of scores is simply the translation of scores from a 1-7 scale to a 1-100 scale.

	Hardware	Feature	Software	Service	Planning	Work	Total
Importance attributed by respondents	5.32	5.42	6.05	5.98	5.57	5.66	34
Importance weighted	0.156471	0.159412	0.177941	0.175882	0.163824	0.166471	1
Score Sigmax	5.5	4.5	6	6	5.5	6.5	34
Normalized Score	78.57143	64.28571	85.71429	85.71429	78.57143	92.85714	485.7143
Weighted Score	12.29412	10.2479	15.2521	15.07563	12.87185	15.45798	**81.19958**
Score Competitors (including internal MS)	4.5	5	4.5	5.17	4.58	4.83	28.58
Normalized Score	64.28571	71.42857	64.28571	73.85714	65.42857	69	408.2857
Weighted Score	10.05882	11.38655	11.43908	12.99017	10.71874	11.48647	**68.07983**
Score Competitors (excluding internal MS)	4.11	4.89	4.44	5.22	4.67	5	28.33
Normalized Score	58.71429	69.85714	63.42857	74.57143	66.71429	71.42857	404.7143
Weighted Score	9.187059	11.13605	11.28655	13.1158	10.92937	11.89076	**67.54559**

Table 4.11 – *Multi attribute model*

As can be seen, according to this analysis, Sigmax (81.2 points) outperforms the competition (around 68 points, irrespective of whether or not the score of the respondent's own MS are included).
Of course, the generalizability of those results is highly limited (see section 3.5).
Yet, this approach constitutes the only useful hard data that could be gathered within this short period of time.

According to SFM's business development manager, what differentiates the Field Mobility Suite from competitor's mobile solutions is its innovative, distinctive, and thought-out software architecture resulting in a unique usability, which comfortably navigates the user through the course of a task. Moreover, the Field Mobility Suite matches the needs of the customers in an above average qualitative manner (Sigmax Mobile Solutions BV, 2010), because the functional consultants of SFM are highly capable to listen to the needs of the customers and translate those needs into technical specifications. This is also reflected in Sigmax' sales strategy which generally stipulates to deliver solutions to parties with the amount of field service employees being higher than 50 only, in order to justify the (compared to competitors) relatively expansive implementation costs, which result from the high effort to find the mobile solution that is best fitting the customer organization. Nonetheless, SFM is able to service small as well as large organizations.

Also adding to the distinctiveness of their solution is the depth of functionality. The Field Mobility Suite for example features a functionality to take a photo which can be visually edited. It for example allows the field service technician to highlight a certain stated defect by painting a colored circle around it. Also contributing to the differentiability of the solution is its integration with ORTEC's planning system, which allows the customer organization to have their planning optimized in the sense that it, amongst other things, allocates resources (e.g. employees, material, etc.) and optimizes fleet routes in the most

efficient manner. Last but not least, the high degree of configurability of the Field Mobility Suite, allowing the customer to adapt the solution over time so as to extract the most out of the solution on their own, gives SFM an edge over competition.
Therefore, even though the Field Mobility Suite is labeled a *standard solution*, it is a highly differentiable product.

Summarized then, we find that a mobile solution in general is a highly differentiable product/service. Adding to this, the results of the competitor analysis questionnaire indicate that Sigmax has an edge over competition which might relate to the reasons stated by the business development manager.

Technological Intensity

Obviously, the technological intensity of the Field Mobility Suite is high. One fact that advocates for such a statement first of all, is the nature of the product. After all, the development of software requires in depth knowledge and expertise in all the different programming languages. Moreover, a mobile solution requires technical knowledge about the different data transmission technologies and the variety of backend ERP systems like SAP, with which the mobile solution must be compatible.
Secondly, the software and IT branch both by nature belong to the definition of high tech (Mohr et al., 2010).
Thirdly, a number of *input based factors* like the yearly R&D outlay, which is about 10-15% per year (Sigmax Mobile Solutions BV, 2010), the total portion of personnel costs, which are about 80% (work consultation of September, 2010), and the portion of technical employees, which is about 65% according to Sigmax' intranet (excluding jobs like sales consultant which are not technical per se, but still require sound technical knowledge in order to execute the job well) advocate for the company Sigmax being a high tech company with the Field Mobility Suite being an offspring characterized by high technological intensity.

4.2.1.2 Evaluation of Product Factors

Opening the evaluation with a brief overview of which entry mode is favored most by what subfactor, we see that export is not favored by any factor.

Factor / Mode	***Export***	***Licensing***	***Joint venture***	***Sole Venture***
Hard vs. Soft Services		X	X	X
Degree of differentiation			X	X
Technological intensity		X		

Table 4.12 – *What mode is favored by what subfactor*

What disfavors *export* and in the same vein favors *licensing* and the *equity modes of entry*, that is, *joint venture* and *wholly owned subsidiary* in the first place, is the prominence of the *soft service* component and the overall high service intensity, especially in the concept, design, and rollout phase of a mobile solution, which calls for physical proximity.
However, given that the German market itself is very proximate in the first place, we have to scale the preference associated with the soft service component attributed to *licensing* and the *equity modes of entry* down, because, unlike is the case in internationalization literature, the presence of the soft service components does not completely deny the application of the *export* entry in our case, because of the very proximity of the German market. Moreover, due to the hard service component of the Field Mobility Suite, the need of physical proximity to the customer decreases after the rollout of the MS.
Still, the service component favors *licensing* and *equity modes* of entry, because, given that customer problems and issues can occur quite suddenly, the service experience of the customer was simply better if Sigmax or a potential licensee company could flexibly respond to such issues.

We have just argued that the mere presence of a soft service component generally favors *licensing* and *equity modes of entry* over *export*. However, there is a difference in the score of attractiveness between *licensing* and *equity modes of entry* when it comes down to a really service intense setting, as is the case with Sigmax. Such a setting is in favor of the latter option, given that the higher degree of control which is associated with that option allows for a more dedicated and fine tuned supply of service that is tailored to the specific needs of the customer organization.
The natural high degree of differentiation of a mobile solution coupled with the edge that SFM has over competition (according to our limited analysis) also favor equity modes of entry, because both take some of the risk associated with those entry modes. Accordingly, the higher the risk associated with an entry mode, the more it is favored by this factor (in descending order of favor this is sole venture, equity joint venture, export, and licensing, with a gap between joint venture and export). Generally, the degree to which sole venture is favored more strongly compared to the other modes has to be slightly scaled to down to reckon with the facts that a) the degree to which Sigmax outperforms competition according to the analysis is not critical (yet significant), and b) the analysis itself is limited.

Licensing benefits most from the high degree of technological intensity, as this characteristic paves the way to expand to Germany by means of transferring the highly technical knowhow, patents, and/or company name to a potential licensee in Germany. Of note, this potential licensee could also be another company of Sigmax, which would yet have to be built. In such a case one would use a combination of the entry modes *licensing* and *sole venture*.

In cases where different entry modes are favored significantly different by the various subfactors (as is the case here) the pairwise comparison has been done for each subfactor. The weighted average of the pairwise comparisons for the different subfactors will be used to indicate in how far the whole factor

group favors the different entry modes. The weighted average priority values are 0.114, 0.274, 0.244, and 0.368 for export, licensing, equity joint venture, and sole venture, respectively. See appendix O for the pairwise comparison matrices.

4.2.2 International Experience

Here we look at the market knowledge that Sigmax currently holds in general as well as for Germany in particular.

4.2.2.1 Description of Internal Experience

The international experience of Sigmax Mobile Solutions (including the business units Sigmax Field Mobility, Sigmax Law Enforcement, and Sigmax Mobile Solutions) in general is low (Sigmax Mobile Solutions BV, 2010) and limited to the countries of Belgium, Luxembourg, Switzerland and the UK with the former and latter countries making up the biggest part of the portion. SFM also has 5 programmers in Ukraine, but it's doubtable that this substantially adds to international business experience. As far as the German realm is concerned, SFM is going to supply a mobile solution for Maas International GmbH. Maas Internationaal has already been a Dutch customer beforehand, so this shows how important references are in the B2B context, especially when it comes to internationalization. To further illuminate this issue, the results of the management attitude survey will be analyzed.
Of the four SFM managers surveyed, three only have had international experience with regard to Belgium. The business development manager has also had experience especially in the UK, and marginally in France, Switzerland, and Germany. Specifically, he worked six years in an English speaking international company, worked together with an English company for another year, worked 2 months in France, and visited Germany and Switzerland, once.
Even though the business unit manager of SFM, one of the persons whose international experience is limited to Belgium, does not have business experience in Germany, he did already live in Germany for a period. So his language skills and feeling for the German culture may be valuable for internationalizing to Germany.

Speaking of language, all the managers of SFM stated to speak Dutch and English. Apart from that the CEO and business development manager speak German on an intermediate level. As already said, the business unit manager speaks German on a somewhat advanced level.

Summarized, the aggregated international experience of Sigmax and of SFM in particular is low. They have already come into touch with other countries making them sensitive for cultural differences in general. However, the international experience regarding Germany is low, lacking informal market knowledge about supply and demand, which according to Johanson and Vahlne (1977; 2009) is a prominent ingredient for market knowledge. Uncertainty about demand is also what keeps the CEO from making sizeable investments right at the start.

4.2.2.2 Evaluation of International Experience

The current low level of international experience of Sigmax, especially for the German realm, favors low commitment modes of entry (e.g. export and licensing) over equity modes of entry (sole and joint venture), because they keep the risk exposure low. Viewing the penetration of the German market from this angle, it is simply too dangerous to take such a giant leap and enter the market with equity modes without having gained knowledge about the German market beforehand. Rather, according to Johanson & Vahlne's establishment chain, SFM ought to gather experience regarding the German market by means of low equity modes of entry (e.g. export), first.

Also differentiating between the nonequity and equity modes of entry, we can construct a continuum of degree by which the individual entry modes are favored by this low degree of international experience. At one end of the continuum we have licensing, which is favored the most by a low degree of international experience, because the whole marketing responsibility is forwarded to a third party (which makes market knowledge unnecessary for the forwarding company).

Next, export is (albeit to a lower degree than licensing) also favored by the circumstance of low international experience, because risk exposure of this entry mode is low given that (as is the case with licensing) the financial loss at stake is smaller.

Moving down the degree to which the entry modes are favored by a low degree of international experience, the next entry mode is joint venture. Even though the risk exposure is still limited due to the fact that risk is shared with another partner, it is still higher than in the nonequity modes of entry, given that the resource commitment is higher. Arriving at the very opposite of the continuum, we have the sole venture mode of entry, which features the highest risk exposure due to the high amount of financial resources needed to get this mode running.

Accordingly, the following weights have been attributed. Please refer to table 4.13.

International Experience

Alternative	*Export*	*Licensing*	*Equity Joint Venture*	*Wholly Owned Subsidiary*
Export	1	1/2	4	5
Licensing	2	1	5	6
Equity Joint Venture	¼	1/5	1	2
Wholly Owned Subsidiary	1/5	1/6	1/2	1

Table 4.13 - *Pairwise comparison matrix for criterion international experience*

In alleviating the preference values, the author has taken into account that Sigmax does exhibit some degree of international experience (as noted above). Therefore, the author just assigned a value of 6 to the preference of licensing over wholly owned subsidiary, even though they represent both extremes of a continuum. The resulting priority values are 0.324, 0.505, 0.104, and 0.067 for export, licensing, joint venture, and sole venture, respectively.

4.2.3 Resource Commitment

This factor category sheds light on the availability as well as the willingness to commit financial, human, technological, marketing or production resources.

4.2.3.1 Description of Resource Commitment

Availability of resources

Given that Sigmax is an SME with about 107 employees that recently heavily invested in projects and product development as well as in a new affiliate in Enschede, resource commitment is clearly a restraining factor when talking about the option of equity modes, because financial resources are scarce at the time of writing. According to a study of Kees de Groot (2010), setting up an affiliate in a foreign country as a service company is associated with costs of about € 300,000. According to the business development manager of SFM, this would be too much as of now.
Technological and marketing resources on the other hand are not a constraining factor. Both can be supplied by the domicile of the company.

Willingness to commit resources

One of Sigmax' business philosophies is that of controlled growth. Amongst other things, controlled growth stands for the intention to grow only on grounds of the customer's cash. That is, financial resources to be used for expanding are only to be derived from the income generated from sales. In other words, Sigmax does not make use of dept capital in the form of loans. This clearly is a restraining habit. Attracting dept capital could severely increase the speed of international activities as it would increase risk.

Accordingly, the desire to keep risk low is an attitude found along all the managers of SFM. In the management attitude questionnaire the importance of the risk factor (a high importance indicating a high desire to keep risk as low as possible) has been rated consistently high by all managers with at least 5 out of 7 points, the average and standard deviation being 5.5 and 0.577, respectively.
As the CEO put it, entering a foreign market is expensive in terms of finance, time, and effort. In order to minimize wasting resources, one would have to cautiously touch the market at first, keeping financial commitment low in the beginning. Only if cash is actually generated from business in the foreign country, should the company raise the financial commitment.

However, asking the management to assign a score to the resource commitment factor directly (a high value indicating a high desire to keep resource commitment as low as possible), the responses have been quite mixed ranging from a score of 3 to 6 out of 7. Accordingly, the standard deviation was as high as 1.414, the average being 4. Whereas a high resource commitment was mandatory for high focus and performance in the eyes of the business development manager, rating resource commitment only 3

out of 7, the business unit manager of SFM assigned a score of 6 out of 7, arguing that, given the current situation, resource commitment (referring to human resources in particular) would have to be kept low when entering a foreign market.
Even though the score has been assigned differently by the two, they probably meant the same. After all, the opinion of the business development manager could be understood as an ideal one. Therefore it could be read as "if, under ideal circumstances, you wanted to enter a foreign market, you would have to do so with full commitment in order to drive performance". Whether or not he'd actually advocate for a high resource commitment, if Sigmax undertook the market penetration in the very near future, would be a different issue.

4.2.3.2 Evaluation of Resource Commitment

As has already been indicated above, resource commitment in general is a restraining factor favoring nonequity modes of entry over equity modes of entry. However, the most extreme scores won't be assigned, given that, even though financial resources are scarce, other forms of resources (e.g. marketing and technology) are available and could be supplied by the domicile. Still, relatively high scores will be assigned, given that the scarcity of financial resources is the most important aspect when it comes to resource commitment in general. Also, the willingness to commit resources is average. Depicting again the four entry modes along a continuum we, like in the case of international experience, have licensing at one end of the continuum and sole venture at the other end. Licensing requires the lowest financial outlay and is therefore favored the most by the restraining factor resource commitment. Being close on licensing's heels is export, which also features a low degree of resource commitment. At the opposite extreme we have sole venture requiring the largest financial outlay. Located in between export and sole venture, joint venture displays a medium degree of attractiveness by sharing costs as well as profits with a business partner. Table 4.14 gives an overview of the scores that have been assigned.
This translates into priority values of 0.308, 0.508, 0.119, and 0.064 for export, licensing, joint venture, and sole venture, respectively.

Resource Commitment

Alternative	*Export*	*Licensing*	*Equity Joint Venture*	*Wholly Owned Subsidiary*
Export	1	1/2	3	5
Licensing	2	1	4	7
Equity Joint Venture	1/3	1/4	1	2
Wholly Owned Subsidiary	1/5	1/7	1/2	1

Table 4.14 - *Pairwise comparison matrix for criterion resource commitment*

External Factors

4.2.4 Target Country Environmental Factors

This factor group includes political factors as well as the factors of economics, and geographical & cultural distance.

4.2.4.1 Description of Target Country Environmental Factors

Political Factors

Since both countries are part of the European Union, the prime task of which is to ensure mobility and free movement of goods, services, capital, and persons within the European boundaries, the hurdles associated with setting up a legal entity in a foreign country within the EU are generally low (Kunzmann, 2010). This is also reflected in the following statement of NRW.INVEST (2011 a):

> *"Any entrepreneur who wishes to start a business in Germany may do so: there are generally no restrictions limiting the establishment of new companies."*

Accordingly, the bureaucratic work needed to set up a company in Germany is on average only about 4.5 days (IfM Bonn, 2009) which is about average on the European level.

Ever since the 1950s Germany has exhibited a very open investment regime with no barriers against *inward foreign direct investment* (Jost, 2010). In fact, Germany tries to promote rather than hinder the establishment of new companies within Germany by providing a variety of (financial) incentives. The free movement of goods and services also translates into the absence of tariffs. However, this aspect is rather irrelevant, given that the mobile devices, the only part of SFM's offering on which one would have to pay duty in the presence of tariffs, constitute only a fraction of what the customer pays for software licenses, consultancy and implementation services, anyways.

In fact there are a number of political factors that affect the preference of one entry mode over the other. Such factors pertain mainly to the fields of taxation, law, and subvention.

As concerns the aspect of taxation, the first thing to be mentioned is that there is a *double taxation agreement* between Germany and the Netherlands, which prevents the taxation by two tax authorities of income generated in country B transferred to country A. The double taxation agreement between Germany and the Netherlands is based on the credit method, the exemption method and a variety of other methods depending on the type of transaction (Holtrop, 2011).
In the credit method the amount of taxes to be paid on a transaction in the home country, that is, where the company in question has its domicile, is lessened by the tax amount that has already been paid in the foreign country on the very same transaction.
The exemption method does not affect the tax amount but the assessment base. That is, the income

generated in the foreign country is totally excluded in the tax assessment base of the home country and only taxed in the foreign country (Quilitzsch, 2010). For an illustration check the example in table 4.15.

	Credit method	Exemption method
Profit outland	150,000	150,000
Tax rate outland	20%	20%
Tax amount outland	30000	30000
Profit homeland	200,000	200,000
Total income	350,000	200,000
Tax rate homeland	25%	25%
Tax amount home country	87500	50000
Tax deduction	30000	
Tax paid home country	57500	50000
Total tax paid	**87500**	**80000**

Table 4.15 –*Simplified illustration of credit – and exemption method*

In this simplified example we consider a capital transaction from an affiliate in the foreign country to the domicile country. Of course, the difference in the amount of tax paid resides in the difference of foreign and home country tax rate. Generally, the higher the home country tax rate (provided the outland tax rate is below the home country tax rate) the more desirable the exemption method, vice versa.

Speaking of income transaction one has to mention that the compensation of loss, that is, the deduction of the amount of financial loss made in an affiliate in a foreign country from the tax assessment base in the home country, between Germany and the Netherlands is principally not possible (Quilitzsch, 2010). The financial extent of the absence of financial loss compensation is depicted in a simplified manner in table 4.16.

	With compensation	Without compensation
Profit outland	-100,000	-100,000
Tax rate outland	20%	20%
Tax amount outland	0	0
Profit homeland	100,000	100,000
Taxable income	0	100,000
Tax rate homeland	20%	20%
Tax amount homeland	0	20000
Total profit/tax paid	0	-20,000

Table 4.16 – *Simplified illustration absence of loss compensation*

There are, however, a number of legal constructions in Germany that do allow for such financial loss compensation. The list of such legal constructs is governed by ECOFIN, a configuration of the Council of

the European Union which is composed of Economics and Finance Ministers of the 27 EU member states. Amongst a variety of other tasks, this commission tries to abolish competition imbalances.
Included in the list of legal constructions is also the German legal form *GmbH & Co. KG* (Holtrop, 2011). Of note, the GmbH is not included in this list.
As concerns the height of taxation itself, it is difficult to say which of the two countries is more preferable. Raising this question is important, because, obviously, the lower the tax ratio in the target country, the more it favors equity modes of entry.

On the first glance, the Dutch tax system seems more attractive, that is, featuring a lower tax rate than the German tax system. In the Netherlands, the so called *vennootschapsbelasting* is the only tax on income and amounts to 25%. In Germany the corporate income tax (*Körperschaftssteuer)* is the prime income tax for corporations and amounts to 15%. However, adding to this 15%, German companies also have to pay 5.5% solidarity surcharge on the corporate income tax (making it amount to 15.825%) plus a trade tax called *Gewerbesteuer* of 3.5%. This trade tax in turn is applied by the corresponding community in which the company in question is located. Communities are free to choose a multiplier (*Hebesatz*) by which they want to raise their tax rate. This multiplier can be anywhere between 200% and about 500% (NRW INVEST, 2011 a). Thus, in Germany, the effective corporate tax is composed of 15.825% corporate income tax accounted for the solidarity surcharge, and 3.5% trade tax multiplied by the *Hebesatz* of 200 – 500% making a minimum of 22.825% and a maximum of 33.325%, the amount being dependent on the location.
On the second glance, the contrast becomes even more blurred by the different exemption measures used to lower the effective tax paid in Germany. Such measures can be universal in nature in the sense that they apply to any German organization like e.g. the *Gewerbesteuerfreibetrag* which lowers the tax assessment base for the calculation of the *Gewerbesteuer* by 22,500€. Other measures may depend on the type of the organization like e.g. *Investitionsabzüge,* where the tax assessment base is lowered by the amount of cash used to invest in e.g. facilities.
Hence, making an ad hoc comparison of the two tax systems is difficult (Holtrop, 2011).

Moving to the legal factors there is also an array of aspects that affect the choice of the market entry mode. As a start, a German supplier enjoys more trading securities than his Dutch fellow when trading with a German customer, because, should the customer deny payment, a German supplier (that is, a German legal entity) has more legal tools available to get hold of the money. As an example, the German supplier could distrain the goods, if the customer doesn't pay. A Dutch supplier would not be allowed to do this without further ado. Generally, in case of export, one has to differentiate between the instance where goods are solely moved across the border and the instance where additional work or services at the customer site in Germany are executed. This differentiation is important, because, in the latter instance, should a person take physical damage from the goods/service supplied by the Dutch trade partner, the Dutch general terms and conditions are not applicable anymore. Instead, the

directorate of the Dutch supplier would be made accountable by means of a *Durchgriffshaftung,* a legal act that makes the directorate of a company unlimitedly, jointly and severally liable with their own property, irrespective of the legal form of the organization.
In fact most of the uncertainties reside in the fact that the Dutch general terms and conditions are seldom applicable in the whole breadth (Holtrop, 2011).
Moreover, a German supplier experiences more safety when trading with a German customer than a Dutch supplier, because the German company, unlike his Dutch colleague, is obliged by law to hand in documents like the contract of sale, contract of purchase, declaration of conformity, etc. which add to his safety in the sense that these documents limit his liability.
On the other hand, the German *customer* also possesses more securities when trading with a German supplier. Suppose for example that a customer wants to complain about a supplied good or service. In the German Commercial Code (*Handelsgesetzbuch*) there is a variety of clear definitions of what is to be classified as inadequate quality and what legal processes can be applied in what case. However, if the German customer trades with a Dutch company, the customer must deal with the Dutch general terms and conditions that he has accepted (Holtrop, 2011).

In the introductory text of this section it has already been mentioned that Germany exhibits an open investment climate. This is also reflected in the number of financial incentives granted for setting up a new company in Germany (NRW.INVEST, 2011 a). Funds are generally issued on EU -, national -, or federal level. For the period up to 2013, Germany has 26.3 billion funding provided by the EU. Complementary, Germany and its federal states derive the cash for their incentives on their own (NRW.INVEST, 2011 b).
Such incentives may take the form of low interest loans, guarantee of payment of a loan, liability exemption, subsidies, etc. An example of such promotion measures is the ability to make use of consultancy services which can be subsidized to up to 80% of the costs. Apart from consultancy services, one can also have other immaterial performance transfers subsidized (e.g. the TÜV inspection of a new production process). Even though the eventual pool of measures from which a company can make use of is dependent on the type of the company as well as other factors such as the place of location, one can indeed generalize that the richness of promotion measures is much bigger in Germany (with more than 2000 programs) than it is in the Netherlands (Holtrop, 2011).
With all the measures available, one has to recognize that the probability to be granted a subsidy is decisively affected by the legal form of the applying organization. As an example one is more likely to be considered a potential applicant as a GmbH & Co. KG than as a Limited (ltd.) legal form when it comes to giving away subsidies in Germany (Holtrop, 2011).

(Socio) Economic Factors

According to the CIA World Factbook (2011), the German GDP (PPP) in 2010 was estimated to be $ 3.316 trillion nominal and $ 2.94 trillion when adjusted for the costs of living (PPP). In terms of the PPP,

this qualified Germany as Europe's largest, and the world's sixth largest economy (EU and USA being included in the list). With a GDP real growth rate of 3.5% in 2010, Germany is about to recover from the recent crisis. For comparison, the GDP real growth rate in 2009 and 2008 used to be -4.7% and 0.7% respectively.
Indeed, Germany is said to be amongst those European countries, which best endured the financial crisis (Jost, 2010).
When converting the GDP (PPP) to the GDP (PPP) per capita, Germany drops from world rank 6 to rank 33. In 2010, the GDP per capita (PPP) was estimated to be around 35,700 (CIA World Factbook, 2011).

The strength of Germany's tertiary sector becomes apparent when comparing the GDP composition by sector. In 2010, the service sector accounted for 71.3% of German's GDP. For industry and agriculture the ciphers are 27.9% and 0.8%, respectively. This relationship is also reflected by the key figures on the German labor market. Accordingly, the proportion of employees working in the service sector was about 73.5%, whereas the proportion of employees working in the industry and agriculture was only about 24.4% and 2.1%, respectively. The total German labor force in 2010 amounted to 43.30 million people.
With an unemployment rate of about 7.4%, it is about 1.9% higher than the Dutch rate.

Measured by the proportion of value of imported goods per country, the Netherlands is the most important import partner of Germany, accounting for 13% of all imported goods in2009.

Of all the sixteen federal states, North Rhine- Westphalia has to be highlighted for it forms the economic centre of Germany. Indeed, it is even one of the most important economic regions for whole Europe accounting for 4.4% of the European GDP. With a GDP of € 543 billion it is almost as high as the Dutch total GDP and outperforms Bavaria and Baden Württemberg which score second and third in Germany with a GDP of € 442.4 and € 361.7 billion, respectively.
Moreover, North Rhine- Westphalia is the most densely as well as the most populous federal state accommodating about 17.9 million people on an area of 34,088 square kilometers (NRW.INVEST, 2011 c). An issue that also deserves to be mentioned at this stage, given that it will have considerable long term implications for the German economy and thus also for the attractiveness of Germany as a potential place of location, is the problem of demographic change that Germany is struggling with. With a birth rate of 8.3 births per 1000 people and a death rate of 10.92 deaths per 1000 people, the total population is rather regressive and aging.

Nonetheless, Germany was ranked 5th in the Global Competitive Report of 2010-2011. It is therefore one of the world's most preferred investment destination (Schwab, 2011). Interestingly, the majority of all FDI projects between 2003 and 2009 in Germany stem from the ICT and software branch, which make up about 19% of all FDI projects (Germany Trade & Invest, 2011).

Not surprisingly, most of the foreign direct capital invested in Germany, flows directly to North Rhine Westphalia. With an inward foreign direct investment of 184.6 billion it attracted 28.4% of all foreign capital invested in Germany in 2009. The federal states Hessen, Bavaria, and Baden- Württemberg ranked second, third, and fourth with and inward foreign direct investment of € 106.9, 102.6, and 80.9, respectively (NRW.INVEST, 2011 d).

Cultural Distance

Once again, the book "Allemaal andersdenkenden" (Hofstede, 2009) will be used in order to shed light on the issue of cultural similarities and dissimilarities between the Netherlands and Germany.
As has already been mentioned in section 4.1 Hofstede compares a variety of countries along the five dimensions *power distance*, *individualism*, *masculinity*, *uncertainty avoidance*, and *long term orientation*.

Power Distance

According to Hofstede, Power distance is

> *"the degree with which less powerful members of an institution or organization in a country expect and accept that power is distributed unevenly" (Hofstede, 2009).*

The effects of such distances can be observed in e.g. the work life quite easily. In countries with a low power distance for example, the emotional distance between a manager and his or her employees is much lower. Employees have frequent contact with managers. Moreover they are more often included in decision making and have no trouble disagreeing with the management.
In countries featuring a high power distance on the other hand, employees have a hard time disagreeing with the management. They don't interact with the management frequently. Even more so, they expect to be led by the management independent of their own involvement. In countries being characterized by high power distance, a hierarchical management style is supposed to occur much often (Hofstede, 2009).

The index values of Germany and the Netherlands are 35 and 38 respectively. *Therefore the cultural difference between the two countries along this dimension is insignificant*.
According to this index score, both countries feature a relatively high involvement of employee participation, a relatively low income difference between top and bottom of the hierarchy, etc.

Of note, however, there are sources that suggest that there are indeed differences with regard to e.g. hierarchy, the German culture relying much more on hierarchy featuring a greater emotional distance between manager and subordinates (Schürings, 2008).

Individualism / collectivism

The dimension individualism / collectivism measures the intensity of social bindings that individuals share with their fellow men. In other words, it measures the degree with which people in an organizational entity either go through their lives rather on their own, or are heavily integrated in a collective organization, being characterized by a high degree of loyalty.

On this dimension, the Netherlands scores 80 points, whereas Germany scores 67, giving a difference of 13 points. Therefore, both countries show an inclination towards individualism. However, this inclination is more pronounced in the Netherlands.

Expressing this numerical difference in some work life examples, one can for example expect German employees to be a little less self concerned in the sense that the intersection of work-related and personal goals does not have to be as strict as in the Dutch context. Moreover, given that the social ties are somewhat tighter than in the Dutch context (yet still relatively loose), German employees are considered to switch their jobs less frequently than the Dutch fellow. A theoretical deduction that would follow from this score is that Germans are a little more used to and perform better in group work.
In solicitations, Germans are relatively more inclined to look at where the solicitant comes from and what associations and groups he or she belongs to (Hofstede, 2009).

Bringing this a step further, this could also mean that in the case of a hypothetical implementation traject of a potential mobile solutions costumer, the customer would not rely the judgment solely on grounds of performance, but also take the origin of the customer into account when making the decision of who wins the deal.
Indeed the very same point is made by Hofstede (2009) who said that, whereas companies from an individualistic country treat every customer alike (*universalism),* companies from a collectivistic country give preference to those customers that reside within their group (Hofstede, 2009).
This also most probably links directly to what Mr. Holtrop (2011) meant when he said that B2B companies enjoy a bigger prestige in Germany when they actually are German, that is, recorded as e.g. a GmbH. This aspect deserves emphasis and should by no means be underestimated.

What follows from this discussion is that theoretically, the need to build up a solid relationship with a potential business partner is somewhat higher in Germany than in the Netherlands, given that, according to their lower score on the individualism index, Germans are more likely to discriminate on grounds of membership.

Masculinity

Masculinity is a cultural dimension which measures the degree to which gender roles in a social organization are separated. On the one extreme we have a highly *masculine* social organization with a

high index score, where the male participants are supposed to be assertive, strong, hard, en concerned with materialistic success, whereas women are supposed to be tender and concerned with the quality of life.
On the other extreme, we have *feminine* social organizations, where there is no separation of gender roles. Both male and female are concerned with the quality of life.

Compared to the prior two dimensions, the cultural distance in this dimension is immense.
With a score of only 14 points, Netherlands is the third most feminine country measured by Hofstede, who investigated a total of 74 countries along this dimension.
Germany on the other hand shows a score of 66. With only two more points, Germany would have been qualified as belonging to the top ten of the most masculine countries.

The implications on this cultural divide for the work life are obvious.
According to the difference of the score on the masculinity index, conflicts in Germany are much more likely to be resolved by the principle of strength, and performance, whereas conflicts in the Netherlands are more likely to be resolved by means of consultation and consensus.
Generally, masculine social organizations are said to be much more concerned with performance. Accordingly the financial compensation in work is more likely to be dependent on performance in Germany than in the Netherlands.
Furthermore, people in a masculine society are more inclined to work for big organizations than are people in a feminine society.
Analogue for the degree of masculinity in a country is the proportion of women working in prestigious job positions. When looking at a statistical review of the average amount of women on boards, we do indeed see a difference as expected. However, contrary to expectation this difference is only marginal. Specifically, the proportion of women on boards in the Netherlands was 10.3 %, whereas it was only 9 % in Germany (GovernanceMetrics International, 2009).

Uncertainty Avoidance

This dimension measures the attitude towards something that is omnipresent in nowadays business environment, namely uncertainty. More precisely, uncertainty avoidance measures

> "*the degree with which members of a society feel frightened by uncertain or unknown situations. Such feelings are expressed in stress and a need for prediction: Formal and informal rules" (Hofstede, 2009).*

The difference along this dimension amounts to 12 points with Germany scoring 65 and Netherlands scoring 53, respectively. Therefore, the German "*Otto Normalverbraucher"* is relatively more uncertainty avoiding than the Dutch "*Jan Modaal*".

Such a divide in score on this dimension is also in line with Hultrop's statement that Germans rely much more on written communication than the Dutch, who prefer to communicate verbally. After all, written documents serve as backups providing substantial safety. Thus one does not need to be *afraid* of forgetting things that have been negotiated (be it binding or non-binding) with the customer or supplier. Moreover in case of disagreement one can use such documents for reference.

Of note, the inclination to rely much more on written communication resides in Germany's legislation, which is much more sophisticated and comprehensive than the legislation of the Netherlands (Hultrop, 2011). This does not come as a surprise and is in line with Hofstede's prediction that high uncertainty avoidant countries have an inner strife for control.
Indeed, by setting up that much rules and laws, Germany tries to prevent uncertainty by predefining the outcome of any eventuality as far as possible. According to Hofstede (2009) the need for a structured living defined by laws is not of logical, but psycho-logical nature. People in uncertainty avoidant societies are simply raised and programmed to feel more comfortable in situations which are structured and free from fuzziness.

Based on the comparison of the German and Dutch culture, other implications that follow from Hofstede's theory are that employees in Germany are likely to switch jobs less frequently, given that working for a new company constitutes a completely *new* situation where one faces *unknown* colleagues, processes, and so forth.
Moreover, the rules which define the rules and duties of an employee are much more comprehensive which is analogue for the desire for control that has been described in the paragraph above. Generally, the degree of bureaucracy is supposed to be higher in Germany.
Also, time takes on another dimension in uncertainty avoidant countries. In such countries, people are said to work harder, being constantly under pressure, trying to arrive at meetings strictly on time. Given their relatively lower score on this index, people in the Netherlands, according to theory, are more prone to see time rather as a framework instead of something to keep an eye on consciously and continuously (Hofstede, 2009).

Long-term orientation

The cultural divide along this dimension is almost similar in size to that of the preceding dimension. More precisely, Germany scores 31 points, whereas the Netherlands scores 44 points along this dimension, making it relatively more long term oriented.

Characteristics that are attributed to highly long-term oriented cultures include virtues such as honesty, flexibility, self-discipline, and responsibility. Moreover long-term oriented cultures disdain social and economic disparities, whereas short-term oriented cultures are rather characterized by the principle of

meritocracy. Companies in long-term oriented cultures resist taking actions that push the short term bottom line at the cost of the sustainability of the company. Furthermore, such companies feature a higher saving – ratio.

Conclusion and discussion on cultural distance according to Hofstede

This section set out to investigate the cultural difference between the Netherlands and Germany. Doing so, it compared the scores of the two countries along the five cultural dimensions identified by Hofstede as well as suggested some implications for doing business in Germany that result from such cultural difference.

Overall, one can conclude that the two countries are fairly similar culture wise, the only real big difference being observable on the dimension *masculinity* with a difference of 52 points.

For the four remaining dimensions, the average difference amounts to 8 points. Even though this number is comparatively small the cultural difference along the dimensions *individualism/collectivism*, *uncertainty avoidance*, and *long-term orientation*, which is 13, 12, and 13 points respectively, should not be neglected.

It is, however, questionable in how far the cultural comparison along Hofstede's five dimensions actually captures the full breadth of the whole cultural interplay between Germany and the Netherlands. After all, the relationship between Germany and the Netherlands is a unique and complex one. Being severly damaged by the WWII, the relationship between Germany and the Netherlands began to improve ever since. Even though most (if not all, especially for the younger generation) of the tension rooted in the WWII has been cleared by now, there are still some relics of the past that influence how the Dutch and the German approach each other (even if it is only about the jokes still being cracked) (Schanze, 2007). Moreover, Germany and the Netherlands exhibit some of the artificial enmity, which can be compared to the kind of enmity that arises in football derbies and is present in many adjacencies on country, city, and community level. Ironically, the football enmity between Germany and the Netherlands has been quite high ever since, reaching its peak points in 1974 and 1988 (Schürings, 2008 b).

Adding to this, the German *"Otto Normalverbraucher"* occasionally smiles at the *"Jan Modaal "* for the size of the Dutch population, the size of their houses, the way they build their houses, drive their car, etc. According to Mr. Holtrop (2011), especially those cultural puzzles make it mandatory to choose an equity mode of entry (that is, a German legal entity) from a marketing point of view, because German trade partners are taken more seriously.

Of note, a cultural similarity in terms of Hofstede does not have to mean that there may not be any cultural disproportionateness, inconsistency, or tension, between two countries. After all, a cultural similarity in terms of Hofstede means that two cultures are mentally similarly programmed – that they respond similar to identical circumstances, that they feel comfortable under similar conditions, that they roughly have the same preferences, etc. This does not, however, imply anything about how the two countries have to face or see each other.

Physical Distance

One has already seen in chapter one, that the physical proximity of the German market considerably contributed to the attractiveness of Germany as a potential place of location. The airline distance from Enschede to the next city, Gronau, is only 10 km. The German border is even only 5km away. By car, one can access the whole Ruhrgebiet within a travel time of 2hours. Adding a travel time of one hour, one can even cover about 40% of whole Germany, that is, one can access whole Lower-Saxony, Bremen, Hamburg, North Rhine-Westphalia, and most of Hessen and Rhineland-Palatinate. As will be described in section 4.2.5.1 a significant portion of the potential customers resides within in the area which can be reached within a two-hour travel time.

Even though not mentioned in Root's model, one should also take a glance at the infrastructure. After all, the benefits of physical proximity, for example a fast travel time to potential customers, become considerably diminished if the infrastructure of that very country is inappropriate.

Fortunately, Germany features an excellent infrastructure consisting of 231,000 roadway km, 12,600 km of which are high speed highways. Moreover it has 37,900 km of railway, 7,500 km waterways and 26 international airports (Federal Ministry of Economics and Technology, 2011). Refer to appendix P for a pictorial overview of what can be accessed by a travel time of respectively one, two, and three hours.

4.2.4.2 Evaluation of Target Country Environmental Factors

Given that the factors of this factor group favor the entry modes in a rather inconsistent manner, we will open this evaluation with an overview depicting which modes are favored by what factor.

Factor / Mode	***Export***	***Licensing***	***Joint venture***	***Sole Venture***
Political factors			X	X
Socio economic factors			X	X
Cultural distance			X	X
Physical distance	X			

Table 4.17 – *What mode is favored most by what subfactor*

In general, the political factors favor equity modes of entry because of the open investment climate in Germany, the greater trade securities that customers as well as suppliers enjoy when operating as a German legal entity and the richness of financial promotion measures associated with setting up a company in Germany. Yet, there is a difference in the degree to which export and licensing are less favored by the political factor. Building a continuum, we have export on the left hand side, being least favored. Licensing is located somewhere in between (with a bias to the left hand side) export on the one hand and joint and sole venture on the other hand. It is more favored than export, because the licensee

in Germany will profit from the higher trust that is attributed to indigenous trade partner due to trade law aspects outlined above. Yet, these advantages would profit Sigmax only indirectly in the form of the additional commission based on the additional sales that the licensee would strike thanks to this advantage. Far on the right hand side, we have joint venture and sole venture being equally favored.

The (socio) economic factors also favor equity modes of entry, because the strong economy in Germany justifies the higher financial outlay that is associated with those modes, given that the potential for high return is more likely than under circumstances of a weak economy.
It favors sole venture slightly more than joint venture, because under the former mode, you reap all the potential profits that are associated with the target country, on your own.

Likewise, the cultural distance favors the equity modes of entry. The cultural similarity in terms of Hofstede increases the probability of successfully making business in Germany. Likewise the particularity of the German culture calls for doing business in Germany as an entity with German appeal. Therefore, again, it favors export the least and equity modes of entry the most, licensing being in between.

Contrary to the previous factors, physical distance is the only factor that favors export within this factor category. It does so, because the proximity of the German market significantly reduces the travel costs and increases the time efficiency associated with exporting a service.

The weighted average priority weights are 0.199, 0.109, 0.324, and 0.369 for export, licensing, equity joint venture, and wholly owned subsidiary, respectively. For the pairwise comparison matrices, refer to appendix Q.

4.2.5 Target Country Market Factors

This factor group is composed of the subfactors Market Size, Competitive Structure, Marketing Infrastructure, and Location of potential Customers.

4.2.5.1 Description of Target Country Market Factors

Market Size / Market Growth

Recent market take off

In Germany, the market for mobile business solutions is relatively young. Even though businesses started to implement solutions for the automation of the field force already a decade ago, there is a threefold reason for why the ball got rolling just recently.
Firstly, the technical development of mobile end devices allows for a much higher storage capacity, functionality and usability. This development considerably accounted for the feasibility to use such devices in the field.

Secondly, the decreasing price/performance ratio of mobile data-flat rates also contributed to the feasibility of using mobile solutions. The coverage of mobile networks is much wider than it has been before with connections being established in a much more reliable fashion, offering an ever increasing broadband connection. With providers such as E-Plus Mobilfunk, Telefonica o2 Germany, T-Mobile Deutschland and Vodafone D2, Germany features one of the most powerful mobile infrastructures with the 2G network (GSM, supporting a 220 kbit/s downstream by means of the latest 2.5 updates) and 3G network (UMTS, 384 kbit/s downstream) reaching a nationwide coverage of respectively 98 and 59-81 per cent.
Thirdly, we see a steady increase in the development of mobile applications which benefits from the circumstance that many developers of mobile end devices open their platforms for third parties.
Even though we observe this happening primarily in the consumer market, this phenomenon is also likely to take effect in the B2B market (Stiehler, 2010).

Market size

Also accounting for the recent boost of the issue field mobility in Germany is the increasing demand to mobilize work processes. The portion of SME companies that have employees executing non-stationary work is 50%, for medium sized enterprises the portion is almost 75% (Büllingen, 2010).
The total amount of employees executing work that features substantial mobile components is estimated to be around 8.1 million (Büllingen, 2010). The amount of mobile workplaces is supposed to increase rather than decrease in the future (Dufft & Flug, 2011).

However, opposing to this euphoric development stands the fact that the awareness of SMEs about the existence of mobile solutions, let alone their potential to enhance business processes, is relatively low. Accordingly, the percentage of SMEs that knew about applications for

- **Personal Information Management** - the access to centrally saved personal information like tasks, notes, addresses, calendar, etc. in the field)
- **Remote access to company files** – in the field access to company internal data like product – and customer information, document archives, etc.
- **Mobile Productivity Applications** – the use of special software for “company control” – enterprise resource planning, supply chain management, procurement decisions, material handling on the go, etc.
- **Fleet Management** – external access to positions of fleet units, route planning and optimization, task allocation, etc.
- **Mobile Payment** – the handling of the payment process by means of a mobile device

is only 79%, 75%, 50%, 63%, and 65% respectively. This for example means that 37% of all SMEs do not even know that there are solutions in the market aimed at optimizing the fleet routes.
Generally, the knowledge of the (potential) users of mobile solutions about the supply side of the market is poor.

The actual use of the above listed business applications is 24%, 21%, 4%, 5%, and 5% respectively. Thus, as can be seen, the proportion of SMEs that has already implemented solutions aimed at fulfilling those functionalities that are addressed by the Field Mobility Suite is relatively low (Büllingen et al., 2010). About 23% of all SMEs in Germany don't even use any mobile application at all. Thus, according to this information, the German market is far from saturated.
The primary reason for such a low usage can be linked to the aforementioned low degree of awareness.

Out of the group of SMEs that has not implemented any mobile applications apart from telephone/SMS/MMS, the two primary reasons mentioned for not making use of mobile applications were "no need temporarily" (56%) and "added value is not apparent" (44%). According to Büllingen et al. (2010) the occurrence of these answers reflects the low awareness concerning the potential of mobile solutions. Moreover it indicates that a considerable portion of companies has not given much thought to the topic of mobile solutions in general (Büllingen, 2010).
This is something that I can definitely confirm on grounds of my *cold calling* activities that I conducted during the internship at SFM. The most frequent answer to the question of why companies didn't have any mobile solution implemented, yet, was that they have not given much thought to it.
The top 3 and top 4 hurdles for not having implemented mobile solutions were *initial investment costs* (29%) and *effort for installation* (26%), both of which could substantially be minimized by offering a SaaS sales model.

Another observation about the SME environment that directly relates to the juvenileness of the mobile solutions market in Germany is the general absence of a mobility strategy. Companies seldom conceptualize their mobility needs and set up a strategy by which such needs can be addressed in the long term (Büllingen et al., 2010). This leads to situations where about 63% (Dufft & Flug, 2011) of all companies address mobility questions in a rather ad hoc fashion, implementing i*sland solutions* that are difficult to integrate into the IT infrastructure of the organization and benefit the company at issue only marginally (Flug, 2011). Again, this is something that I could also observe. Quite often, the companies I called that claimed to already have a mobile solution were using solutions that only offered a fraction of the functionality of what a complete mobile solution would offer.

Also symptomatic of such a lack of strategic orientation is the inability to say what portion of the IT-budget for 2011 would be dedicated to the mobility issue (in terms of devices, applications, and services including communication costs). In total, 45% of all companies (not just SMEs) with more than 50 employees were unable to decipher the proportion of the IT-budget that would be dedicated to mobility issues. 20% said it would be less than 5%, 12% chose 5-10%, 15% indicated 10-25% and the last 7% of all companies of the sample population said it would be more than 25% (Dufft et al., 2011).

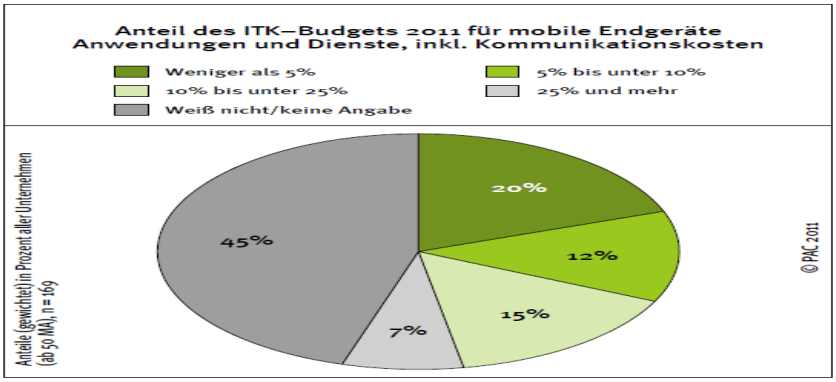

Figure 4.2 – *Respondent's IT budget devotion to mobile device applications and services including communication costs for 2011*

Generally, and this counts for all the above mentioned facts, the bigger the company size, the higher the awareness about mobile solutions and the greater the propensity to make use of mobile solutions. This is also something that the author came to experience during his cold calling activities. Due to the low amount of employees hired in the low end of the SME spectrum, service managers seemed to be too stressed out and flooded with operational tasks as to have any time and think about something like mobile solutions in general.

Future forecasts

Generally, most research institutions forecast a significant market growth for the coming two years. Such a market growth is explicitly also forecasted for the segment of Sales & Field Force Automation (Stiehler & Flug, 2010). On the agenda of issues of IT consultants and vendors, enterprise mobility resides on the 2nd place (Stiehler, 2010).

Amongst other factors, the effect of *consumerization* is also responsible for this market growth. Due to the extensive use of Smartphone's in private life, employees get used to the aspect of mobility and don't want to miss it in work life as well. In 2010, 16% of the internet users in Germany accessed the web by means of a Smartphone – 7 % more than in 2009 (Stobbe, 2011). Due to the hype in the tablet market, the cipher is forecasted to increase in the coming years. Again, even though this data refers to the consumer market, it is likely to affect the B2B market as well.

About 22% of all SMEs in Germany plan to implement new mobile solutions or extent the scope of currently used solutions in the upcoming two years. Another 34% think about changes in the use of mobile solutions, but do not yet have specific procurement plans. The bigger the company size, the more concrete the plans to procure mobile solutions in the near future.

Yet, one has to be cautious of this upbeat forecast, because only 14% and 5% out of the aforementioned 56% that are ambitious about implementing/changing mobile solutions in their

company, plan to use those mobile applications to support (preventive) maintenance, respectively fleet management processes. The authors base this low score on the SME's perception that these two business processes are economically less profound than processes compared to *customer relationship management* which score much higher (Büllingen et al., 2010).

On the other hand, switching the point of view from the users to the providers of mobile solutions, market forecasts look much more euphoric, especially for the field force automation segment. Providers of mobile solutions estimate the current German market volume to amount to 1billion euro. For the year 2012, 40% of the providers estimate the market to grow by 3-10%. Another 43% even forecast a growth of 10-20%. In general, they all forecast a substantial market growth for the coming 3 years. The two segments that benefit the most from this growth are customer service (indicated by 81 of all providers) and (preventive) maintenance (78%) (Büllingen et al., 2010).

Summary of market size / growth

The German mobile solutions market is juvenile. This is reflected by the poor knowledge of the demand side of the market about the benefits that mobile solutions can deliver. This also indicates that most of the potential of the market is still untapped, which probably also links to the rosy market growth forecasts made by the majority of analysts (especially in the area of technical field mobility). Another input for such forecasts is the growing trend to mobilize workforce. We conclude with a reference to section 4.1 in which we have already seen that the German market is the biggest in the EU (according to the Kompass database, measured by the sum of potential customers along all activity codes classified as relevant for the BES segment), being about six times the size of the Dutch market. Thus, both market size and growth look promising, advocating for an equity market entry mode.

Competitive structure

This paragraph is set out to answer subquestion 1. All of the information used in this paragraph is derived from a desk research executed during the internship at SFM, where the author described competitors along characteristics such as size, turnover, segmentation, etc. See appendix R for an example.

The competitive structure in Germany is clearly an atomistic one. This does not come as a surprise, since, as has just been noted, the German market is a relatively young one. In total, the author identified 38 competitors in Germany. The majority of them have their domicile in Germany. The other handful of competitors either have their domicile outside Germany, but have affiliates in Germany, or they are located outside Germany (Switzerland and Austria) but are also active in the German market. Both forms pose a potential competitive threat which is why they are classified as competitors.

In applying the model of Bergen & Peteraf (2002) the author further differentiated the competitive field. Specifically, the author sought to differentiate direct from potential competitors by judging the

competitor's degree of market commonality with SFM. A provider of mobile Customer Relationship Management (CRM) solutions, for example, would have been classified as a potential competitor. After all, the need they address (streamlining work of sales agents) is different from the need that SFM seeks to serve (streamlining work processes of field service technicians). Even though this difference seems negligible at first, it is not, because the development of a mobile solution for a certain target group requires in depth knowledge of the processes and resulting preferences of that very target group.
In total, the author identified 26 *direct* competitors classified by high resource as well as market commonality. The remaining 12 competitors have been classified as *potential* competitors.

There is a threefold reason for not having looked for indirect competitors. The first two reasons pertain to relevance. Of course, information on direct competitors is the most important information for understanding the basic competitive structure, given they pose the most *immediate* threat.
Secondly, as stated by Berger & Peteraf (2002), potential competitors pose the biggest competitive threat over the long term. Lastly, the limitations in scope prohibited the further investigation for *indirect* competitors.

To get a more detailed idea of the competitive structure, the author also tried to get grip on the size of the competitors, both in terms of turnover and amount of employees. Refer to figure 4.3 and 4.4 for an overview of the amount of turnover and employees per competitor, respectively.

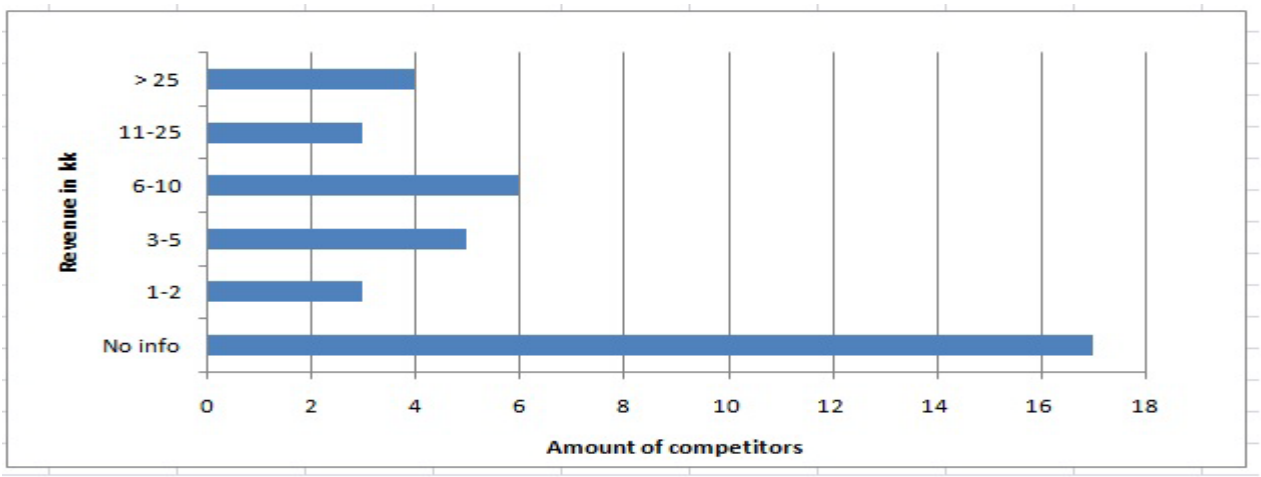

Figure 4.3 – *Competitor size in terms of revenue*

One has to be cautious with the data in the upper extreme region. Usually, those data (turnover and amount of employees) refer to the whole conglomerate in which a mobile solutions division or SBU is located. Those data have been used only, when there was no more detailed information available.
For example, data in figure 4.4 shows that there are 5 competitors with an amount of employees above 251. However, those 5 data entries refer to Click Software, Good, Hoeft & Wessels AG, Intergraph

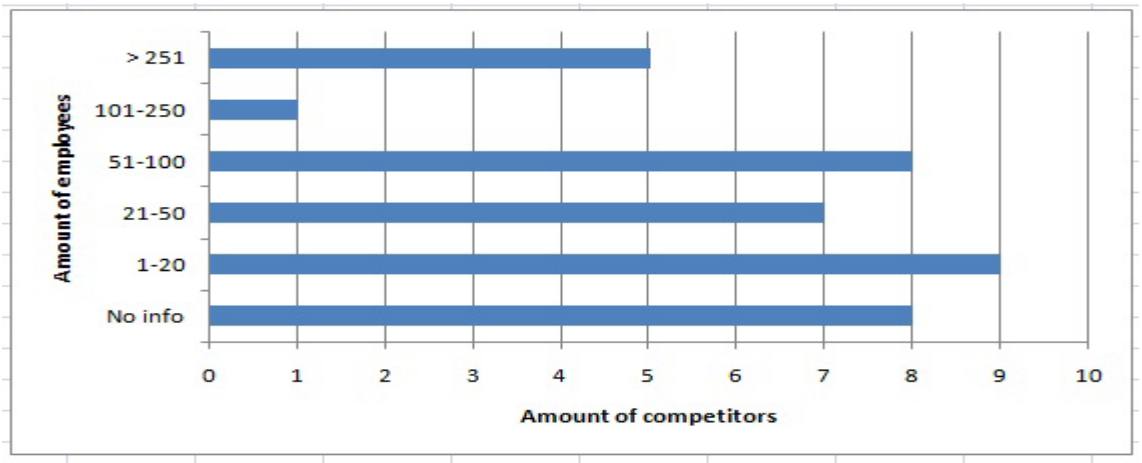

Figure 4.4 – *Competitor size in terms of amount of employees*

Holding, and PSI-Energie-EE. All of the five have employees worldwide and incorporate business activities that are distal from field service mobility. Therefore, the actual amount of employees of those companies in Germany devoted to field service mobility issues, is supposed to be only a fraction of what is stated in the figure. The same counts for upper extreme values in figure 4.3.

The amount of competitors from which no data along those two dimensions could be gathered, is supposed to be biased to small sized companies. Usually those are not registered by the Kompass database and do not post any information about their size on their homepage.

The competitive volatility which is characteristic for high tech markets (Mohr et al., 2010) is reflected by mergers such as those of WPA Mobile & ePocket Handyman, or Enginius & BIS Maintenance which took place during the author's short period of internship at Sigmax.

Overall, the information on the size of competitors further confirms that the German mobile solutions competitive field is an atomistic one with only a handful of competitors actually having a workforce bigger than 100 employees. A map of the competitor's location in Germany is given in appendix S.
As can be seen, most of the competitors are located in west and south west of Germany.

Location of potential Customers

In order to map the location of customers per federal state in Germany, the author made use of the Kompass database and searched for the different activity codes as identified in section 4.1.
Refer to appendix T - a list, which shows the amount of companies per activity code per federal state.

As one can see in appendix T, the top three federal states as concerns the amount of potential customers are Bavaria, North Rhine- Westphalia, and Baden Württemberg, the per cent of potential

customer per federal state in relation to the total amount of Germany being 16.2%, 14.9%, and 13.6% respectively. However, when talking in terms of density per federal state taking the size of the federal states into account, the ranking changes. In this case, among the top three federal states judged by the total market size, North Rhine-Westphalia switches to rank 1, and Baden Württemberg and Bavaria are replaced to rank 2 and 3, respectively. Speaking purely of density, Berlin ranks first with a density of 126% (that is, 1.26 companies per square kilometer). The second and third highest density scores go to Hamburg and Bremen with a density of 92.3% and 71.1%, respectively. One has to keep in mind though, that the total market size of those three federal states is just a fraction of that of e.g. North Rhine Westphalia or Bavaria. Figure 4.5 shows the total amount of potential customer per federal state. Refer to appendix U for a pictorial overview.

As another measure of customer location the author looked up the origin of the top 10 sized companies per economic activity per federal state so as to get an idea where the biggest potential clients are located. To do so, the author once again made use of the Kompass database. The size of the company is measured by turnover. Table 4.18 shows the number of top 1 to top 10 companies per federal state along all the identified activity codes that are matching the BES segment. For all the companies, which were given as output by the database, the author checked their website to learn whether or not the company in question actually performs maintenance activities. See table 4.18 for the result.

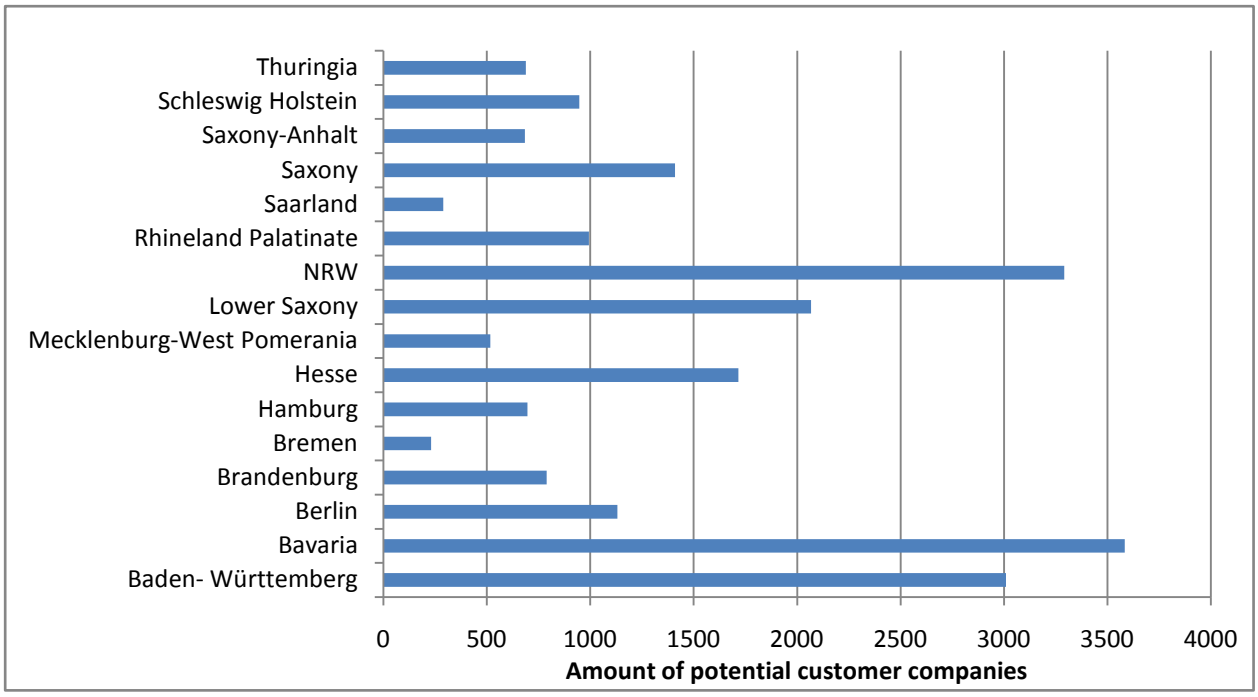

Figure 4.5 – *Amount of potential customers per federal state*

What we see in the table confirms what has been indicated in the table above. That is, as far the for the BES segment relevant economic activities are concerned, North Rhine Westphalia, Baden- Württemberg, and Bavaria proof to be the three economic agglomerations of Germany. According to the output of the

Kompass database, North Rhine Westphalia, with exception of the top 2 and top 10 category, accommodates the highest amount of companies per top 10 category. For example, out of the 16 identified activity codes, 6 of the 16 possible top 1 companies reside in North Rhine Westphalia.

The reason that the total amount of companies per top 10 category is decreasing towards the end has methodological causes. The researcher was only granted limited time to make use of the Kompass database. Therefore the researcher copied the first 20 entries of output per activity code via mail and processed the data afterwards. In cases where the total amount is smaller than 16, this is because there were less than 16 of the 20 listed companies that perform maintenance activities and therefore have been dismissed.

	Number of top X companies along all economic codes									
Federal state	Top1	Top2	Top3	Top4	Top5	Top6	Top7	Top8	Top9	Top10
Baden-Württemberg	4	6	3	3	4	1	2	1	2	3
Bavaria	4	2	1	1	1	1	3	2	2	3
Berlin		1	3			1		1		
Brandenburg					1		1		1	
Bremen							1			
Hamburg	1	1	1	1				1		
Hesse	1	1	2	2	1	1		1	1	2
Mecklenburg-West Pomerania										
Lower Saxony				2	1	2			1	
NRW	6	3	3	5	5	8	4	5	5	2
Rhineland Palatinate		1	1				1			
Saarland										
Saxony						1	1		1	
Saxony-Anhalt										
Schleswig Holstein			2	1	2		1	2		1
Thuringia		1								
Total	16	16	16	15	15	15	14	13	13	11

Table 4.18 – *Number of top 1 to 10 companies per federal state*

Summarized, the two tables underscore the economic importance of North Rhine Westphalia which was also indicated in section 4.2.4.1 (paragraph about socio economy). It has the third highest amount of potential customers competing with Bavaria and Baden Württemberg which rank one and two respectively in terms of total market size. Corrected for geographical size, North Rhine Westphalia has the highest customer density among these three federal states with the highest total market size. Judged *only* by density, we see that Berlin, Hamburg and Bremen are three other relevant agglomeration areas.
Looking at the amount of companies per top 10 category per federal state along all the identified relevant economic codes, this once again elevates the priority that has to be attributed to especially North Rhine Westphalia, and Bayern and Baden Württemberg.

4.2.5.2 Evaluation of Target Country Market Factors

Again, given that the different subfactors favor the alternatives in different, rather conflicting ways, this section opens with an overview of which mode is favored by what subfactor (see table 4.19).

Factor / Mode	***Export***	***Licensing***	***Joint venture***	***Sole Venture***
Market size/growth			X	X
Competitive structure	X			
Location of potential customers	X			

Table 4.19 – *What mode is favored most by what subfactor*

As has been set out in the previous section, the German market (in terms of amount of potential customers according to the Kompass database) for mobile solutions is about six times the size of the Dutch market and among the biggest (if not the biggest) mobile solution markets in the EU. Moreover, the forecasts of the market growth sound optimistic, too. This favors equity modes of entry, given that the big potential of this market, justifies the high financial costs that are associated with those modes. After all, equity modes of entry are more effectively in fully leveraging profits that are associated with the size of the German market. Therefore, in descending order, sole venture is favored the most by this subfactor, since it lets you reap the profits associated with this potential market size/growth, alone, being closely followed by equity joint venture. Next we have export and licensing the former of which is lightly preferred over the latter, since, as stated by Root (1994), licensing is associated to be the mode with the lowest return, followed by export. Compared to export and licensing, joint venture and sole venture are about *very strongly* preferred by this subfactor. The actual priority weights according to the subfactor market size/growth are 0.099, 0.056, 0.325, and 0.520 for export, licensing, equity joint venture, and sole venture, respectively.

Given the atomistic competitive structure of the German mobile solutions market, it is not per se necessary to build up physical presence in the target country in order to be competitive. Therefore, this subfactor favors export over licensing, joint – and sole venture. Given that, according to Root (1994), licensing is seen as the last resort for entering foreign markets where competition is too strong (in terms of a single competitor dominating the whole foreign market) this mode is favored the least in our case, since, as said, the competitive structure of the German mobile solutions market is anything but monopolistic. The priority weights assigned to export, licensing, equity joint venture, and sole venture are 0.641, 0.077, 0.141, and 0.141, respectively.

Finally, the subfactor *location of potential customers* favors especially export, due to the physical proximity of North Rhine Westphalia. This federal state shelters the most top 1 and top 3 to top 9

potential customers (across all relevant economic activity codes) in terms of size measured by turnover. Measured in terms of amount of potential customer companies, NRW ranks second, being very close to the lead. Export, however, is favored only *moderately* over licensing and the equity modes of entry, because one would leave Bavaria and Baden – Württemberg, the other two big agglomeration areas, out, if one went solely for export and focused on NRW as a target market. Accordingly, the weights attributed to export, licensing, equity- and sole venture, are 0.5, 0.167, 0.167, and 0.167, respectively.

For deriving the total priority weight per entry mode alternative for this factor group, the author calculated the weighted average per entry mode alternative. However, in doing so, the author manipulated to weights to attribute more importance to the market size/growth subfactor. Specifically, in deriving the average, a weight of 50% has been attributed to the subfactor *market size/growth*, and a weight of 25% to each *competitive structure*, and *location of potential customer*, instead of providing a weight of 33.333% each. Accordingly, the aggregated priority values are 0.316, 0.092, 0.244, and 0.348 for export, licensing, equity joint venture, and sole venture, respectively. Please refer to appendix V for the pairwise comparison matrices.

4.2.6 Network Relationship

Here, we look at the availability of current associates in Germany.

4.2.6.1 Description of Network Relationships

At the time of writing, Sigmax knows four different kinds of partners. These four categories are *channel partners*, *communication partners*, *implementation partners*, and *technology partners.*

In principle, channel partners are companies, offering products that can be supplemented by SFM's products and know-how. Channel partners get custom versions of SFM's solutions, so that they better fit the supplemented technology of the channel partner.
Members of this group are *Micpoint*, *NPQ Solutions*, *ORTEC*, and *SG|automatisering*. For example, Micpoint uses the mobile solution of Sigmax for their track & trace technology.

As the name indicates, implementation partners are those companies, which independently implement the solutions of SFM at their customer sites. Currently SFM has two implementation partners, namely *Inspectation*, and *LAMA consultancy*.

Communication partners are carrier companies supplying mobile communication services needed for transmitting the data from client to server. Sigmax' communication partners are *KPN*, *T-Mobile*, and *Vodafone*.
Lastly, technology partners are primarily those partners which supply the hardware (for example the PDAs) for the mobile solutions, such as *Handheld Benelux,* and *Motorola*. Apart from the hardware,

Motorola also develops mobile data management, wireless technology, and barcode scanning systems. Motorola could be an interesting network node in connecting Sigmax with potential implementation partners in Germany. The reach of Motorola as a connection node is astonishing, for it appeared in almost any partner list of the identified competitors. Sigmax is an Independent Software Vendor of Motorola's mobile solutions.
Moreover, Sigmax has managed to receive Microsoft's gold Mobility Solutions Competency certificate, which signalizes competency in developing applications that smoothly run on the Windows Mobile operating system. The last technology partner is ORTEC (Sigmax, 2011).

Amongst all the different partners, ORTEC has to be elevated, because it's a strategic partner. ORTEC develops software solutions aimed at providing customer organizations with the most efficient planning as concerns the allocation of incoming orders to service technicians, the optimization of fleet routes, etc. Hence, expressed in mobile solution terms, ORTEC provides the technology for the back-end part of a mobile solution, that is, the planning system used in the back office, whereas Sigmax develops the front end part of a mobile solution, that is, the software running on the technician's PDAs. Both elements are to be linked to the ERP system of the organization in order to give an integrated solution.
Given that customers are usually in need of the benefits that reside in both parts of the technology, Sigmax and ORTEC often team up and seal deals together.

Generally, all ERP implementers for the BES segment are *potential* partners, because an ERP system constitutes the basis of all planning systems in an organization. Partnering with an ERP provider gives an edge over competition, since, should the customer organization of the ERP provider decide to implement a mobile solution in the future, one has a priority notice, as one can guarantee a seamless integration with the ERP system due to the partner status.
The ERP provider could also hint at the benefits to be gained from a mobile solution of the partner company, in case that provider discovers a latent need at the customer organization in question.

However, potential partners are irrelevant when it comes to the theory of Coviello & Munro (1997), which provided the major incentive for integrating the network factor in our model, at all.
Therefore, potential partners are not taken account for in this part of the analysis. After all, it is the business partners with which one has had a long lasting relationship, which ultimately provide the stepping stone for internationalizing into a new country (Coviello & Munro, 1977), not the ones which could theoretically be a business partner sometime in the future. For an overview of ERP consultants and implementers, refer to appendix W.

Availability of associates in Germany

The only partner of Sigmax' current partner list, which is available in Germany is also the most important one, namely ORTEC. ORTEC has three affiliates in Germany, one in Wildeshausen, which is

near Bremen, one in Heidelberg, which is near Mannheim, and one in Kreuztal, which is near Lüdenscheid and close to the Ruhr.
ORTEC could prove a viable node in expanding to the German market given that, as mentioned, ORTEC and Sigmax often sell their products jointly. Suppose that ORTEC strikes a deal with a new German customer in which ORTEC is to deliver a planning system. If this customer was in the BES segment, ORTEC could for example inform them about SFM's field mobility solution, the benefits it would bring, and how nicely it could be integrated to the planning system. Or they could inform SFM about their deal with the new customer and leave the approaching to them. Of course, ORTEC could also inform SFM about current customers, if one had reasonable assumptions about the customer in question being in need of a field mobility solution. But most importantly, teaming together gives an edge over competition and enhances the probability of success in acquiring new customers. Either way, ORTEC theoretically is an interesting option for boosting sales in Germany.

Practically, however, ORTEC in Germany unfortunately focuses solely on the industry segment, which has low if any overlap with any of the four segments targeted by SFM.
Specifically, ORTEC separates their market into the seven segments *transportation, retail, consumer packaged goods, heath care, professional and public services, Manufacturing and Construction*, and *Oil and Gas Chemicals*. Indeed, only the segment *professional and public services* is of interest for SFM. As said, ORTEC does not focus on this segment in Germany, which is represented by the fact that they do not possess a single German referent for this segment.

Still, ORTEC might prove to be an important partner for doing business in Germany, in case SFM decides to extent their segments to include those which are also focused by ORTEC in Germany.
Moreover, a contact person of ORTEC signalized that they'd like to increase the focus on the *professional and public services* segment in Germany. In order to do so, it has further been said, they'd welcome "incidents" that make such a growth happen. Clear cut, this means that ORTEC would be happy and willing to strike deals together with SFM in Germany in the future, which means that SFM keeps one of their differentiating features, the integration with ORTEC's planning system, for the German market.
Even though not included in SFM's current partner list, Kraan Bouwcomputing BV, Qurius and MACS are also currently important business partners for the Dutch territory.
Of the three, Kraan Bouwcomputing BV is the only one which is exclusively operating in the Dutch territory. Qurius and MACS both have got affiliates in Germany. However, in Germany, Qurius, a developer and implementer of ERP system, already partners with ePocket Handyman, one of the bigger European mobile solution providers (Qurius, 2011). MACS, a consultant for, and implementer of integral solutions for (preventive) maintenance management, IT Service Management, and time registration, has its affiliate in Düsseldorf. Unfortunately, the website of MACS does not provide any information regarding their customers. Thus, judging from the limited information, among those three parties, one

can only classify MACS as a theoretically useful stepping stone into the German market.

4.2.6.2 Evaluation of Network Relationships

Sigmax has a considerable amount of partners, most of which, however, are limited to the Dutch territory. Partners that are also active in Germany are ORTEC, MACS, and Qurius, the latter of which already partners with a direct competitor of SFM. MACS has already undertaken mutual product development attempts with Sigmax in the Netherlands and they could also play an important role for internationalizing to Germany. However, the role it'd play is likely to favor all modes of entry equally well (enhanced probability of success in customer acquisition due to a superior product based on mutual development). Moreover, MACS most likely is not the kind of partner that'd shape the market entry mode decision of Sigmax. ORTEC, as a strategic partner, on the other hand is. As has been stated, ORTEC in general is interested in extending their focus on the *professional service* segment in Germany. The business development manager of SFM even pointed that they could imagine setting up a joint venture together with ORTEC in Germany.
Therefore, the factor *network relationship* moderately to strongly favors *equity joint venture* over the other modes of entry. The resulting priority weights are 0.143, 0.143, 0.571, and 0.143 for export, licensing, equity joint venture, and sole venture, respectively. See table 4.20 for the pairwise comparison matrix.

Network relationships

Alternative	*Export*	*Licensing*	*Equity Joint Venture*	*Wholly Owned Subsidiary*
Export	1	1	1/4	1
Licensing	1	1	1/4	1
Equity Joint Venture	4	4	1	4
Wholly Owned Subsidiary	1	1	1/4	1

Table 4.20 – *Pairwise comparison for Network relationship*

4.2.7 Home Country Factors

This factor group comprises political factors, as well as the factors of market size and competitive structure.

4.2.7.1 Description of Home Country Factors

Political Factors

Without going into too much detail, one can safely say that the Netherlands does not restrict export or FDI in any way. Like Germany, the Netherlands tries to foster international business, which is mandatory for them in order remain competitive globally. The open attitude towards international business becomes evident by the following statement of the Dutch *Ministerie van Economische Zaken* formulated by Gennip (2004):

"Niet alleen export, maar ook Nederlandse investeringen in het buitenland en andere vormen van internationale samenwerkingen tussen bedrijven dragen bij aan de versterking van de Nederlandse economie. Het opzetten van vestigingen in het buitenland en het aangaan van joint ventures met buitenlandse partners leidt tot groeimogelijkheden die veelal via export alleen niet bereikt kunnen worden […] Door middel van buitenlandse invsteringen kunnen schaalvoordelen en kostenreducties worden bereikt die nodig zijn voor het overleven op de concurrerende internationale markten."

Given that Germany is by far the most important trade partner for the Netherlands (accounting for 24.3% of the total export in 2009) and vice versa, it does not come as a surprise that the climate for export and FDI between the two countries is one of openness. This also translates into the variety of double tax agreements between Germany and the Netherlands as has been discussed in section 4.2.4.1 (*political factors* paragraph).

Market Size

Comparing the total amount of customers within the BES segment of Germany with those in the Netherlands according to the Kompass database, we see that the Dutch market (about 4,039 potential customers) is about one sixth of the German market size (about 26,368 potential customers).
This quite closely converges to the business development manager's estimation of the German market size. According to him, the German market would be about five times the Dutch market (Sigmax Mobile Solutions BV).

Judging from the gut instinct of the business development manager, the Dutch market itself is quite saturated. Statements of colleagues confirm this instinct when claiming that customer acquisition in general is much harder than it has been before. Of course, reasons for difficulties in customer acquisition do not necessarily have to be related to the demand side of the market (e.g. saturated market), but could also stem from the supply side of the market, which brings us to the following section.

Competitive structure

Although the competitive field in the Netherlands has not been studied as thoroughly as the German competitive field, one can safely say that the competitive structure in the Dutch mobile solution market is not an oligopolistic, let alone monopolistic one. A draft of competitors that are active in the Dutch market include Tensing, Dalosy, PCA Mobile Solutions, Navara, Freebility, Odyssee, Celesta, and Irmato.

4.2.7.2 Evaluation of Home Country Factors

The open FDI climate of the Netherlands enables and thus favors equity modes of entry. It does so, however, only slightly, because it does not (apart from the prepare2start program) provide any major incentives for doing so. Moreover, in the light of supporting internationalization, the remaining entry modes (licensing and exporting) are also embraced by the Dutch government. Licensing is usually used to forgo internationalization barriers set up by the government and is therefore, as such, not favored by the political factors in this case.

As stated in the theoretical discussion, the home country market size influences the size a company may take on in the first place and therefore, consequently affects the probability of whether a company decides for an equity mode of entry when entering a foreign target country (the probability increasing with market size). Compared to the European average, the Dutch market size with about 4039 companies is located at the low end. Therefore it will generally favor low commitment modes. Specifically, in an ascending order of favor, it benefits sole venture, joint venture, exporting, and ultimately licensing.

Conform to the theoretical discussion, the atomistic competitive structure in the Dutch market favors exporting and licensing over equity modes of entry.

Applying the weighted average method again, the priority values for exporting, licensing, equity joint venture, and wholly owned subsidiary, are 0.327, 0.322, 0.184, and 0.168, respectively.

Refer to appendix X for the pairwise comparison matrices.

4.3 Most suitable market entry mode

Executing the last step of the analysis, that is, computing the utilization values of the decision alternatives, we come to the answer of what, according to this analysis, should be the most suitable market entry mode for SFM to enter the German country. See table 4.21 for the utilization values. According to this analysis *Equity Joint Venture* is the most suitable market entry mode. Refer to the following chapter for a more detailed discussion.

				Criterion (factor group)				
	Product Factors	*International Experience*	*Resource Commitment*	*Target Country Environmental Factors*	*Target Country Market Factors*	*Network Relationships*	*Home Country Factors*	**Total**
Criterion priority	0.085	0.057	0.176	0.266	0.266	0.115	0.036	**1.001**
Priority score of decision alternative								
Export	0.114	0.324	0.308	0.199	0.335	0.143	0.327	0.2527
Licensing	0.274	0.505	0.508	0.109	0.089	0.143	0.322	0.2220
Equity Joint Venture	0.244	0.104	0.119	0.324	0.239	0.571	0.184	0.2698
Wholly Owned Subsidiary	0.368	0.067	0.064	0.369	0.337	0.143	0.168	0.2565

Table 4.21 – *Utilization of decision alternatives*

5 Conclusion

The core question of the thesis was: **What according to internal and external factors that had yet to be identified would be the most suitable entry mode for Sigmax Field Mobility to enter the German market?** In order to answer this question, a model has been set up based on the revision of literature on market entry mode. Even though this model has its roots in the manufacturing context, it has been adapted considerably to suit the contributions that researchers have made in the service context of the market entry mode discipline. The final model is composed of the internal factors *product factors*, *resource commitment*, *international experience*, and the external factors target *country environmental factors, target country market factors*, *network relationships*, and *home country factors*. Findings on subquestion 1 and 2, which relate to competitor analysis, were integrated in the analysis to come to an answer of the central research question. We'll turn to the conclusion of that central research question immediately.

First, however, we'll provide a conclusion about the country ranking, which has been carried out at the outset of the analysis to investigate whether Germany would indeed be a feasible country to enter.

Based on the SMART-analysis Germany has been identified as *the* most suitable target market. Most importantly, Germany features the biggest market size. With about 26,368 companies fitting the activity description of a typical field mobility customer recorded in the Kompass database for the German territory, the amount of potential German customers is way bigger than the amount of potential customers of the residual thirteen European countries that have been included in our list. The attractiveness of the German market also resides in its physical proximity. Enschede being close to the German border, the Rurgebiet, the heart of the West German industry, is only about 90km away. Speaking of proximity, the cultural difference between Germany and the Netherlands is low as well. The only remarkable difference is in Hofstede's cultural dimension *masculinity.* Here the difference with respect to the Netherlands was 52 points. The average difference along the four remaining dimensions was only 8 points. Other factors that attribute to the superiority of Germany as a target country include its strong economy, its relative expansive labor costs, and its stable government.

Turning again to the analysis of the most suitable market entry mode – the major contribution of this thesis – we come to the following conclusion. According to the analysis, *Equity Joint Venture (EJV)* has been identified as the most suitable market entry mode. See table 5.1 for the utilization scores of the different entry modes.
Summarized, EJV made the race with a score of 0.2698, because it best leveraged the factors to which a high importance has been attributed. As a basis, this mode leads to a physical proximity to the customer, which meets the requirements of the soft service component. Customers can be treated more

flexibly, immediate, and time efficient. Within the factor group *product factors* EJV is also favored by the high degree of differentiation of the Field Mobility Suite, which adds to the probability of success of the venture (internationalizing to Germany) in general.

				Criterion (factor group)				
	Product Factors	*International Experience*	*Resource Commitment*	*Target Country Environmental Factors*	*Target Country Market Factors*	*Network Relationships*	*Home Country Factors*	***Total***
Criterion priority	0.085	0.057	0.176	0.266	0.266	0.115	0.036	**1.001**
Priority score of decision alternative								
Export	0.114	0.324	0.308	0.199	0.335	0.143	0.327	0.2527
Licensing	0.274	0.505	0.508	0.109	0.089	0.143	0.322	0.2220
Equity Joint Venture	0.244	0.104	0.119	0.324	0.239	0.571	0.184	0.2698
Wholly Owned Subsidiary	0.368	0.067	0.064	0.369	0.337	0.143	0.168	0.2565

Table 5.1 – *Utilization of decision alternatives*

EJV benefits from the openness of the German government as concerns the FDI policy. There are a lot of incentives associated with setting up a legal entity in Germany (the attractiveness of which differs per federal state). Having a legal entity in Germany greatly adds to the trade securities for both, the customer and supplier. Also, by choosing certain forms of legal entities such as the GmbH & Co. KG, it enables the option of loss compensation – the transfer of a negative balance to the domicile company for tax reduction purposes. Also, operating as a German legal entity adds to the overall image of a company, which brings us to the following point – culture. According to Hofstede, Germany is a more collectivistic country. This means that Germans rather rely on, and are more loyal to local fellow men. This converges to the point raised by Mr. Holtrop (an ambassador of the EBS), who thinks that a German legal entity is absolutely mandatory for operating in Germany. Overall, the German and Dutch cultures are fairly similar which according to literature is very important in a service context and favors EJV, because it, again, adds to the success of making business in Germany and takes away some of the risk associated with equity modes of entry. Moreover, the mode EJV leverages the overall strong economy in Germany, and the great market size and growth in particular. The German market is about six times the size of the Dutch market and the forecasts for the upcoming three years are promising. This favors equity modes of entry (including EJV), since, even though the financial outlay associated with this mode is higher than that of other modes (e.g. exporting and licensing), equity modes of entry are more advantageous for establishing and manifesting a leading market position and leveraging competitive advantage. The bigger share of the big cake then outweighs the greater costs associated with setting up those entry modes.

However, all of the above described benefits also pertain to the entry mode *wholly owned subsidiary (sole venture)*. What gives EJV an edge over sole venture is the reduction of resources needed. As came

forth in the analysis, resource commitment was clearly a restraining factor and as such favors EJV more than sole venture. Moreover, network relationships favor EJV, since ORTEC is a potential partner for setting up a joint venture in Germany.

The entry mode that made it on the second rank is sole venture with a utilization score of 0.2565. Both making up the family of integrated/equity/investment mode of entry, sole venture, shares a lot of characteristics with EJV. Therefore, sole venture leverages the factors in a fashion similar to that of EJV. It even leverages some of the factors enumerated above better than EJV. Given that sole venture is associated with the highest degree of control, it for example scores higher on the subfactor market size because the profit that is associated with the German market (which is bug in terms of size and moderate in terms of growth), wouldn't have to be shared with a partner company. For the same reason, the service intensity associated with a mobile solution also favors sole venture, for its high degree of control allows for a more direct, flexible, and dedicated servicing of customer needs. However, this entry mode falls short of attractiveness compared to EJV, given that it requires the highest financial investment to get the mode running. It also doesn't take advantage from Sigmax' current partner network.

Scoring 0.2572 points, export resides on the third rank. In general, this mode is favored by the proximity of the German market in general, and the proximity of North Rhine Westphalia in particular, which along with Bavaria and Baden-Württemberg proved to be one of the three biggest economic agglomeration areas. This mode is also favored by the low amount of resources it consumes and the fact that, as of now, Sigmax exhibits a rather low degree of international experience. It suffers, however, from falling short of utilizing those factors which (as outlined above) favor rather integrated modes of entry.

Licensing scores the lowest with 0.222 points. Seen as a mode which in general is rather used to strike incremental revenue from technology that has already been written off, or which is used to circumvent trade barriers and restrictions this mode can be discarded, because none of those circumstances is applicable in our case.

6 Recommendations

This section gives a number of recommendations, some of which relate to the limitations of this research. It opens with a discussion of the surveys returned from management regarding their attitude towards the five factors resource commitment, risk, control, payback time, and return.

First of all, it has to be stressed that the choice of the market entry mode is one of tradeoffs, which management has to realize. In two of the four questionnaires returned, respondents assigned a high importance value (six out of seven) to both risk and return (which translates into an *agreement* with both statements: “My primary concern is to keep the risk exposure as low as possible”, and; “My primary concern is to strike a return as high as possible”). As came forth multiple times during the paper, an entry mode that satisfies both conditions at the same time (high risk and high return) does not exist.
Other incompatible values attributed include a high value for ownership (seven out of seven, which translates into a *total agreement* with the statement: “My primary concern is to attain full control over foreign operations”) and a moderately high value for the risk factor (five out of seven, which translates into a *slight agreement* with the statement: “My primary concern is to keep the risk exposure as low as possible”). Again, such a score is incompatible, since as a rule of thumb, high control and return is always accompanied by high risk and return commitment.

As a second point, I’d recommend management to jointly communicate and debate about what they expect from internationalizing to Germany. The overall high standard deviations, which are especially high for the factors resource commitment (1.414), control/ownership (2.082), and return (1.915) suggest that management has quite conflicting visions on how the internationalization to Germany should actually take place. This is not only indicated in the numerical values assigned to the five factors, but is also reflected in the open question of what their strategic orientation for the German market is. Whereas some uttered a preference for a rather aggressive style, others voiced that they’d go for immediate inconspicuous sales so as to approach the market step by step.

As a third point I’d like to refer to figure 2.3 again. This figure depicts the different elements of a Market Entry Strategy. As can be seen, objectives and goals of the management play an important role in choosing a market entry mode. So whether or not the entry proposed in this paper is actually taken is another story. The value that this paper adds is in identifying the most *ideal* market entry mode (as emphasized in section 2.2), and that should be kept in mind when actually deciding on a market entry mode. Another recommendation that flows from this figure is *to think about and design a market entry strategy that suits the market entry mode chosen*.

Fourth, the competitor analysis in this paper neglected indirect competitors. However, due to the fact that awareness about those kinds of competitors by nature is low (because of the low resource similarity) they, along with potential competitors, eventually pose a bigger threat than do direct competitors, because the former two are likely to be overlooked until it's too late (e.g. they launch a competitive attack which can't be defied because the competitor has had too much time to build up a competitive imbalance in his own favor). Therefore, even though easier said than done, the advice is to be knowledgeable and take serious the threat that is posed by those kinds of competitors that seem harmless at first.
Speaking of competitor analysis, one should be aware that the action of market entry itself is considered a competitive attack by indigenous competitors. However, according to Deshpandé & Gatignon the probability of retaliation by competitors is low, given that the market concentration (amount of competitors) and degree of product standardization are low, while the market growth is moderate.

The last question that remains is whether or not I'd personally recommend Equity Joint Venture as a market entry mode. Not surprisingly, the answer is yes. For reasons summarized in the preceding chapter it leverages the benefits associated with most of the factors (e.g. market size, open investment policy, attractive economic position in general, cultural proximity, image of and benefits associated with a German legal entity, etc.), while limiting the impact of the most restraining factor (e.g. resource commitment) by sharing the financial investment, thus also meeting management's risk averse attitude (risk turned out to be the most important factor according the management attitude survey - it scored the highest mean of 5.5 and lowest standard deviation of 0.577).
Even though exporting (e.g. unsolicited orders) may be used to get a preliminary feeling *for* and a rough knowledge *about* the German market, I'm convinced that an integrated mode of operation (that is joint venture or sole venture, with preference to the former given the current financial situation) is absolutely mandatory for competitively making business in Germany in the long run.

When it comes to the different submodes of EJV, there are six variations resulting from the combination of the two variables degree of equity investment, and whether acquisition or a new establishment is chosen as an option to realize localization in the target country.
As concerns the former variable, there are three options, namely minority EJV, 50-50 EJV, and majority EJV depending on the portion of equity that one invests in the new venture. As was true for the general decision of the most suitable market entry mode, the decision on the most suitable EJV submode is again a tradeoff between resource commitment, risk, and control. Eventually, the choice is a matter of preference of the two partnering companies. From the point of view of Sigmax, given the size of the German market, I would discard the minority option. The majority option is also rather unfavorable when considering the current financial situation of Sigmax. Apart from that, I suppose that the 50-50 option is most vital in the sense that it gives both partners an equal stake in the venture and prevents the scenario in which one company feels pushed to the edge, excluded or passed over when it comes to

decision making. After all, it is full commitment of both parties that is required to make the venture a successful one.
As for the latter variable, acquisition, that is, buying into an established organization (which could be a potential competitor or supplier of complementary technology) has the primary advantage of acquiring an existing customer base and being integrated into an existing network. Moreover, one would get access to new human capital, technology, and so forth. All those advantages would boost the payback time which seems to be in the interest of SFM, given that this factor scored the highest importance along with the risk factor (both with a mean value of 5.5 and a standard deviation of 0.577) in the management attitude survey. Clearly, buying partly into an organization is to be differentiated from a complete merger or acquisition. On the disadvantages side, acquiring part of an organization is always more costly than contributing half the equity to a new establishment joint venture, as the market value of (part of) a running organization will always outweigh the costs of contributing half the equity to a new establishment. Moreover, the success of the acquisition is highly dependent on the performance and willingness to cooperate of the company subject to acquisition.

So again, the choice is a matter of own preference and conflicting objectives. Whereas the EJV acquisition variant speeds market entry, circumvents the *liability of outsidership*, that is, it grants immediate access into the foreign network (Johanson & Vahlne, 2009) and nullifies the current lack of market knowledge regarding the German market – all factors which are in the interest of the management (as indicated by the high important attributed to the payback factor), so is the factor to keep risk and resource commitment as low as possible (which would favor a new establishment).
Of course, this discussion does not pertain to an EJV with ORTEC, in which case a traditional 50-50 new establishment EJV would be most likely.

Summarized, I propose the following recommendations.

- Internalize the idea that the choice of market entry mode is one of conflicting factors
- Internal management debate about expectations and objectives regarding the German market entry – especially as concerns the factors risk, return, commitment, control, and payback
- Design a market entry strategy that suits the entry mode eventually chosen
- Enter the German market with the Equity Joint Venture mode of entry
- Acknowledge and keep track of the threat posed by less obvious forms of competition (indirect and potential competitors)
- Make use of cost free and/or low cost services of institutions such as the European Business Support (EBS) or EVD Internationaal to enhance market knowledge and/or get opportunities to join the mobile solutions network in Germany (the latter institution offers market scans for free, where they look for and establish links to potential customers and business partners).

7 Discussion

This last chapter discusses important limitations of this paper as well as its contributions to the market entry mode discipline.

There are a number of limitations that have to be kept in mind when reading the results.

The most important limitation is that the attribution of values is of course subjective. This is true for the assignment of priorities to the different decision criteria (that is, the importance weight assigned to the internal and external factor groups – e.g. product factors, target country environmental factors, etc.) as well as for the priority score assigned to the decision alternatives (that is, export, licensing, EJV, sole venture). While the numerical approach in this decision making process might give an objective impression, it is not. A different student would most likely come up with different ratings and hence perhaps even with a different result, the contention of which is supported by the closeness of the scores that have eventually been assigned to the decision alternatives (see table 4.21 or 5.1).

But what the methodology used in this paper does offer is a systematic and comprehensive approach to decision making. While I've seen approaches that solely attribute a cross to assign whether or not an entry mode is favored by a certain factor, the AHP process used in this paper is way more elaborate in actually differentiating to what *degree* the entry modes are favored by the influencing internal and external factors. Moreover, by comparing all decision alternatives in all combinations in a pairwise manner (that is, asking in how far export is to be preferred over sole venture judged by the criterion, say, international experience), one is forced to think about the problem more idiosyncratically. That is, the process of assigning values in broken down into smaller steps. This approach results in more valid values than one would get when simply assigning values in a more global manner (e.g. saying that export receives a value of say 0.1, licensing a value of 0.3, etc. – without further thinking about it). Moreover, as the subjectivity problem is concerned, there is obviously no way in such a problem to avoid subjectivity completely. After all, this is a decision making problem, which always involves some degree of subjectivity. Also, there is no standard available which objectively states to what *degree* a certain entry mode, say sole venture, is favored by say, a strong economy.

Other limitations include the small sample size (n=20) of the competitor analysis questionnaire, which reduces the generalizability of the findings. Refer to section 3.5 for more information on that matter.

This paper adds value to the market entry mode discipline in several ways. First of all this paper focuses on market entry mode decision in the service context, which has traditionally been receiving less attention than the manufacturing context. Specifically, it describes the contributions that have been made to this discipline in both the manufacturing as well as in the service context and discusses the applicability of findings from the former context to the latter. Based on that discussion, the author came up with a new, unique model. The uniqueness of the model resides in two features. The first feature is its *normative* character which differentiates it from other models in the literature which are usually

explanatory. The second feature is that this model takes account of the particularities that come along with a service company that wants to internationalize to a country nearby. For example, the proximity of customers has been integrated as a subfactor which would not have been of concern, had the company decided to internationalize to a country more far away.

Methodological wise, the paper contributes to the market entry mode discipline, because it shows by means of a case study to what extent and how insights of the discipline can be used to choose a market entry mode on one's own. Specifically, the case study shows how information about the different subfactors can be processed by means of the AHP process to arrive at a founded market entry mode decision.

Lastly, the case study in this paper adds to the market entry mode discipline by empirically confirming the theory that less internationally experienced firms indeed tend to enter countries that are physically nearby (Johanson & Vahlne, 1977; Erramilli, 1991; Johanson & Vahlne, 2009).

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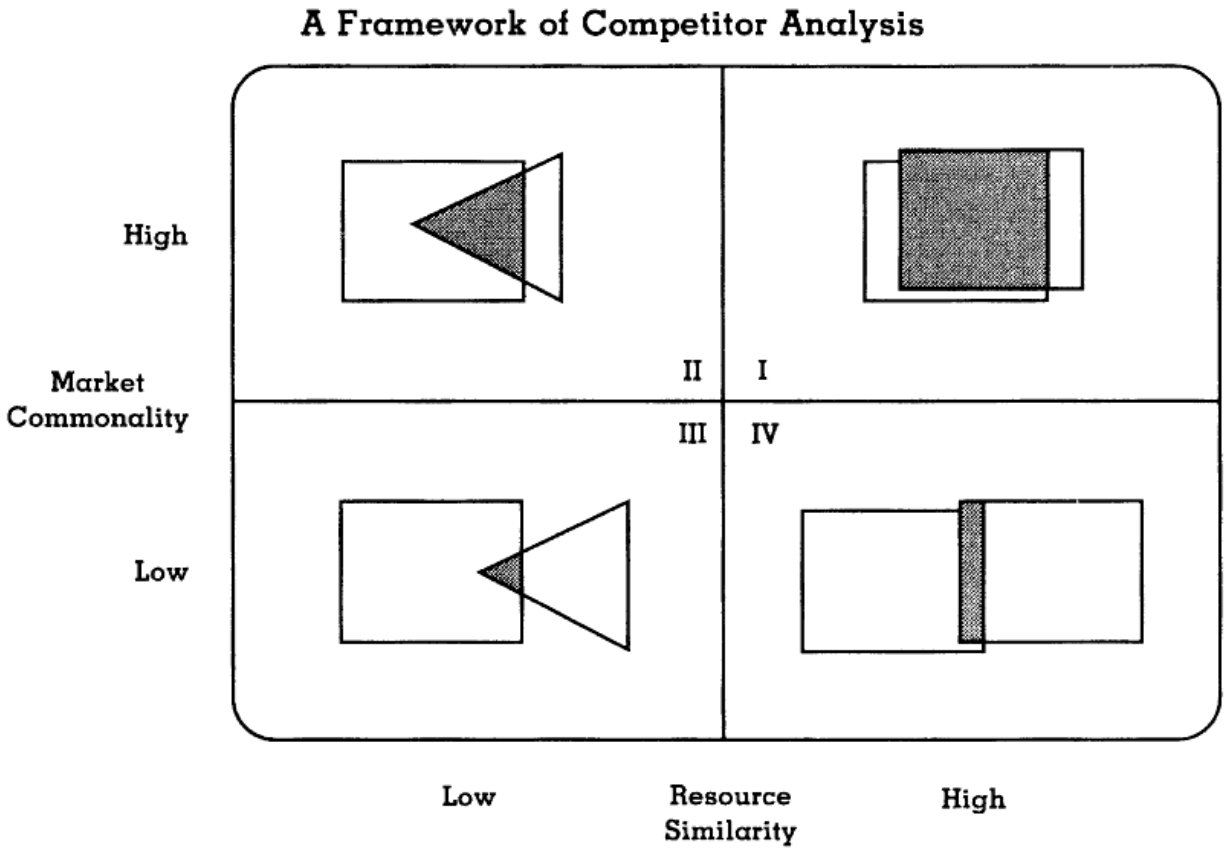
Appendices

Appendix A – Sales approach

Table 1
Entry Strategy Approach versus "Sales" Approach to International Markets

	"Sales" Approach	*Entry Strategy Approach*
Time horizons	Short-run.	Long-run (say, 3 to 5 years).
Target markets	No systematic selection.	Selection based on analysis of market/sales potential.
Dominant objective	Immediate sales.	Build permanent market position.
Resource commitment	Only enough to get immediate sales.	What is necessary to gain permanent market position.
Entry mode	No systematic choice.	Systematic choice of most appropriate mode.
New-product development	Exclusively for home market.	For both home and foreign markets.
Product adaptation	Only mandatory adaptations (to meet legal/technical requirements) of domestic products.	Adaptation of domestic products to foreign buyers' preferences, incomes, and use conditions.
Channels	No effort to control.	Effort to control in support of market objectives/goals.
Price	Determined by domestic full cost with some ad hoc adjustments to specific sales situations.	Determined by demand, competition, objectives, and other marketing policies, as well as cost.
Promotion	Mainly confined to personal selling or left to middlemen.	Advertising, sales promotion, and personal selling mix to achieve market objectives/goals.

Appendix B – A Framework of Competitor Analysis



Source: Chen, 1996

Appendix C – Chen's 7 propositions on competitor attack

Based on the foundation of the concepts of awareness, motivation, and capability, Chen (1996) voices seven propositions regarding the prediction of interfirm rivalry, which are valid only under the assumption that the other variables not mentioned in the propositions remain locked across the two competitors.

Firstly, contrary to common belief, the higher the market commonality between two firms, the lower the probability that any of the two firms will initiate a competitive attack. This prediction is based on the

logic that, the more markets shared with a competitor, the higher the probability of counter attacks in the various other markets. This is also known as the *forbearance hypothesis*.

Secondly, the higher the market commonality between two competitors, the more likely it is that, should one of the two companies decide to launch an attack against the other, the other company will retaliate. This proposition can be justified by means of the term *competitor dependence* or *market interdependence* between two firms which rises proportionally to market commonality. That is, the greater the overlap of markets with a certain competitor, the greater the impact of strategic moves of that competitor on the revenue of the focal firm. Therefore, because of the dependency of the focal company's revenue on the strategic moves of the competitor in general, the focal company will likely be willing to restore or improve the competitive balance, in case this balance has been shaken by an attack of a competitor with high market commonality.

Thirdly, the greater the resource similarity between two competitors, the less likely it is that any of the two competitors will initiate a competitive attack. This is due to the fact that the *motivation* to attack diminishes if the probability of retaliation by the target company increases. Given that the *capability* to respond is higher in case of high resource similarity, so is the *motivation* and probability to respond.

This leads us to the fourth proposition, namely that a given competitor is more likely to respond to a competitive attack if it shares great resource similarity with the attacking company (Chen, 1996).

Fifthly, according to Chen (1996) competitive movements are influenced more strongly by market commonality than by resource similarity.

The last two propositions made relate to the concept of *competitive asymmetry*, which suggests that if, for example, company B is a primary competitor of company A, this does not have to mean that company A is a primary competitor of company B as well. This underlying logic is similar to that of the triangular inequality, which holds that, given that B is a competitor of A, and C is a competitor of B, it does not necessarily follow that C is also a competitor of A. Summarized, the perception of who is a direct, indirect, primary, or secondary competitor, depends on the point of view one takes.
Thus, sixthly, any two firms are unlikely to have the same degrees of market commonality and resource similarity with one another.

Competitor asymmetry has important implications for the concepts of awareness, motivation, and capability. It implies that two competitors are most likely not equally aware of each other, have different motivations to attack each other, and differ in their ability to attack or defend themselves against one another. This asymmetry becomes apparent by considering the competitive relationship between a small company and a large key player in the market. Chances are high that the large player will not be *aware* of the small company, whereas the small company considers the key player as its main target.
Thus, this section concludes with the seventh proposition, which is that, generally, the likeliness that A

attacks B or responds to an attack by B, is not symmetric to the likeliness that B attacks A or responds to an attack of A.

Appendix D – Stage 2 – Competitor analysis

Having merely identified and classified the different competitors as in section in 2.3.3.1 offers no conclusive information. In order to enable the evaluation of information gathered in stage one, the authors introduced a third concept, *resource equivalence*. They define resource equivalence as

> *"the extent to which a given competitor possesses strategic endowments capable of satisfying the same customer needs as the focal firm" (Bergen & Peteraf, 2002).*

If two competitors score high on resource equivalence, they are both equally capable in serving the same customer needs. Symmetrically, resource inequality or low resource equivalence means that there is a competitive imbalance in the sense that one competitor is better able to address a certain market need than the other competitor. Therefore, competitive balance increases with resource equivalence.

By matching the variable resource equivalence with the three categories of competitors identified in stage 1, the authors create a framework with which one can evaluate competitive threats and weaknesses.

	Low	High
Indirect Competitors	e.g. Peapod vs. Albertsons	e.g. Wal-Mart vs. Albertsons
Potential Competitors	e.g. Canadian Safeway vs. Albertsons	(e.g. none)
Direct Competitors	e.g. Lunds/Byerly's vs. Albertsons	e.g. Kroger vs. Albertsons

Resource Equivalence

Framework for competitor analysis (Bergen & Peteraf, 2002)

Based on this framework, the authors make six propositions. The first two propositions are equal to proposition 3 and 4, made by Chen. Therefore only propositions 3-6 will be summarized below.

Firstly, in case of high resource equivalence between two competitors, the probability of attack increases as we move down the hierarchy of competitor awareness, that is, as we move from direct competitors

over potential competitors to indirect competitors. This follows from the fact that, given both competitors are equally strong in this scenario, awareness of the existence of the competitor is the only determinant for a competitive attack.

Secondly, also in case of high resource equivalence, the likeliness to respond to an attack decreases as we move down the hierarchy of awareness. This conclusion rests on the same logic from which proposition 1 is derived.

Thirdly, when resource equivalence is low, the likelihood to initiate an attack decreases as we move down the hierarchy of awareness. As also noted by Chen (1996) the likelihood to initiate an attack depends on the motivation to attack. This motivation in turn is affected by the likelihood of success of an attack. Given that this likelihood is greatest when the competitive imbalance is in favor of the attacker, the question of whether or not to attack a disadvantaged competitor is one of visibility.

Fourthly and lastly, in case of low resource equivalence, the likelihood to respond to an attack increases as we down the hierarchy of awareness. In other words, indirect and disadvantaged competitors are more likely to respond to an attack than are direct and disadvantaged competitors. What might seem odd in the first place is explained by the circumstance that indirect competitors simply are not as *aware* of the competitive imbalance, than are direct competitors. Therefore, indirect competitors are more likely to retaliate in case of disadvantageous competitive imbalance.

Appendix E – Competitor analysis questionnaire

Introduction

Dear Sir or Madam,

In front of you lies a survey containing questions that are targeted at gaining an insight into the attributes that you, as a customer, value about mobile solutions[2].
As a student undertaking this research in cooperation with Sigmax Field Mobility BV, I sincerely ask you to fill out this survey, which enormously supports me in finalizing my bachelor thesis need for graduation. Apart from that, making you systematically reflect on your own field service operations, the survey might benefit you in uncovering potential efficiency advantages that might currently be left unutilized by your organization.

Taking only a few minutes to fill out, this survey is split into two parts.
In the first part, I ask you to evaluate the importance you attribute to certain characteristics of mobile solutions. These characteristics will be divided into six categories, namely *hardware*, *features*, *software design*, *service*, *planning process benefits*, and *work-process benefits*. In the second part, I would like you to assess the performance of the provider of your current mobile solution on these six categories.
This information will solely be used for the collective judgment of the current market situation (e.g. the intersection of supply and demand, that is, a judgment about the capability of the suppliers to meet the needs of the customers).

Keep in mind that the gathered information will, of course, be handled strictly confidentially and used exclusively for the purpose of this research. It will not be made public in any sense or given further to any third parties, persons or whatsoever. Thank you in advance, for taking the time to fill out this survey.

Yours sincerely,

Tobias Kocks

[2] A mobile solution is a handheld device (e.g. PDA, Laptop, Tablet, etc.) which is used by employees in the field. It provides all the necessary information needed to more efficiently and reliably execute the work order. Moreover it communicates with back office in real time so as to make enterprise resource planning more effective and efficient.

General information

Company name	
Personal name	
Address	
Industry	
Total number of employees	o 0 – 50 o 51 - 100 o 101 - 150 o 151 - 200 o 201 – 500 o > 500
Number of field service employees	o 0 – 20 o 21 – 49 o 50 – 100 o 101 – 249 o 250 +
What ERP system, if any, do you use?	o SAP o Oracle o Microsoft Navision o Microsoft Axapta o Other, namely _____
What company assisted you in implementing the ERP system?	_____
What Operating System (OS) do you prefer (multiple choice possible)?	o Windows Mobile o Windows 7 o Apple iOS o Android o Symbian o Other, namely _____

Company name	
What platform/mobile device do you prefer (multiple choice possible)?	o PDA o Tablet o Laptop o Smartphone o Other, namely _____
a) What is the average number of work orders a service technician executes per day? *b) Please indicate the spread of values by providing the percentage value that each category takes on in deriving the average*[3]	a) Average number / b) Percentage value o < 1 ___% o 1 - 2 ___% o 3 – 4 ___% o 5 – 10 ___% o 11 – 24 ___% o 25 + ___%
a) What is the average number of objects that a service technician has to service per work order? *b) Please indicate the spread of values by providing the percentage value that each category takes on in deriving the average*[2]	a) Average number / b) Percentage value o 1 ___% o 2 ___% o 3 - 4 ___% o 5 - 9 ___% o 10 – 24 ___% o 25 – 49 ___% o 50 - 100 ___%
What company is the provider of your current mobile solution?	_____

[2] For example, 40% of your employees might execute an average of 4 work orders per day, while the other 60% executes 15 work orders per day, making up a total average of 11 work orders per day. Then you'd mark 10-24 under a), and fill in 40% in the row 3-4 under b), and 60% in the row 10-24 under b) as well. If such clusters are not available at your organization, simply mark the total average number under a), and assign 100% in the same row under b).

Part 1 – Importance of attributes

In order to get a meaningful insight into the prevalent needs of users of mobile solutions, the questions in this part are directed at the importance that you, in the name of your organization's field service employees, attribute to the following properties. Please mark the dot on the 7 point scale, accompanied by the various statements, which best represents your attitude towards the different statements.

The scale distribution looks as follows:

Attitude	Totally disagree	Disagree	Slightly disagree	Neutral	Slightly agree	Agree	Totally agree
Points	1	2	3	4	5	6	7

1.1 Hardware

These questions refer to the technical and physical components of the end device of a mobile solution.

*The **ruggedness** of the device is important to us*

Totally disagree ○ ○ ○ ○ ○ ○ ○ Totally agree

*The **weight** of the device is important to us*

Totally disagree ○ ○ ○ ○ ○ ○ ○ Totally agree

*The computing power/**speed** of the device in running applications is important to us*

Totally disagree ○ ○ ○ ○ ○ ○ ○ Totally agree

*The **visual design** / look of the device is important to us*

Totally disagree ○ ○ ○ ○ ○ ○ ○ Totally agree

*The **initial costs** per handheld device are important to us*

Totally disagree ○ ○ ○ ○ ○ ○ ○ Totally agree

The **total cost of ownership (TCO)** per handheld device are important to us

Totally disagree ○ ○ ○ ○ ○ ○ ○ Totally agree

1.2 Features

The upcoming questions deal with the options and functional capabilities that an end device should feature.

*The ability of the device to feature **Email** is important to us*

Totally disagree ○ ○ ○ ○ ○ ○ ○ Totally agree

*The ability of the device to feature a **Web Brower** is important to us*

Totally disagree ○ ○ ○ ○ ○ ○ ○ Totally agree

*The device has to feature a **reporting** mechanism, that is able to create a **transparant** overview for the customer containing **relevant information** on executed work as well as optional agreements and comments being made in dialogue with the **customer***

Totally disagree ○ ○ ○ ○ ○ ○ ○ Totally agree

Are there any other features important to you? If so, please name the feature and mark the importance on a scale from 1 to 7.

Feature #1: _____ Unimportant ○ ○ ○ ○ ○ ○ ○ Important

Feature #2: _____ Unimportant ○ ○ ○ ○ ○ ○ ○ Important

Feature #3: _____ Unimportant ○ ○ ○ ○ ○ ○ ○ Important

Feature #4: _____ Unimportant ○ ○ ○ ○ ○ ○ ○ Important

1.3 Software design

This category encompasses questions related to the architecture of the software, installed on the user device that is used in the field.

*The ease of use (**usability**) is important to us*

Totally disagree ○ ○ ○ ○ ○ ○ ○ Totally agree

*The ease with which the software can manually be adapted by an application manager (**configurability**) is important to us*

Totally disagree ○ ○ ○ ○ ○ ○ ○ Totally agree

*The ease with which new capabilities can be added to the software (**extensibility**) is important to us*

Totally disagree ○ ○ ○ ○ ○ ○ ○ Totally agree

*A flexible **linkability** (which is also given in times of structual, organizational changes) with **ERP systems** (SAP, Oracle, Axapta, etc.) is important to us*

Totally disagree ○ ○ ○ ○ ○ ○ ○ Totally agree

*The **stability** /reliability of the mobile solution is important to us*

Totally disagree ○ ○ ○ ○ ○ ○ ○ Totally agree

*The **security** of the system is a primary concern for us*

Totally disagree ○ ○ ○ ○ ○ ○ ○ Totally agree

*The software of the mobile solution must be **tailored to the special needs** of our organization*

Totally disagree ○ ○ ○ ○ ○ ○ ○ Totally agree

*The solution implemented by the supplier has to be **primed for major upcoming technological trends***

Totally disagree ○ ○ ○ ○ ○ ○ ○ Totally agree

1.4 Service

Pre- and postpurchase services that, according to you, should be delivered by any provider of a mobile solution.

*The quality and expertise of the provider in consulting on the most suitable mobile solution (e.g. **identifying** the **specifications** that the end device ought to feature in order to best meet the needs of your employees in the field) is important to us*

Totally disagree ○ ○ ○ ○ ○ ○ ○ Totally agree

*The quality and capability of the provider in **implementing** the mobile solution is important to us*

Totally disagree ○ ○ ○ ○ ○ ○ ○ Totally agree

*The assistance of the provider in running and **maintaining** the mobile solution is important to us*

Totally disagree ○ ○ ○ ○ ○ ○ ○ Totally agree

*The **solution** provided by the supplier has to be an **integrated** entity of both software and hardware*

Totally disagree ○ ○ ○ ○ ○ ○ ○ Totally agree

*The supplier of the mobile solution has to offer **support** in adapting the solution to **future technological changes***

Totally disagree ○ ○ ○ ○ ○ ○ ○ Totally agree

1.5 Benefits associated with mobile solutions

The benefits are split into planning process and work process optimization.

1.5.1 Planning process optimization

The optimization of the planning process is primarily concerned with streamlining back office processes so as to make the planning more efficient.

***Reducing** the **dependance** on a central planning person (**dispatcher**) is important to us*

Totally disagree ○ ○ ○ ○ ○ ○ ○ Totally agree

*The **reduction** of the **travel time** of our service technicians is important to us*

Totally disagree ○ ○ ○ ○ ○ ○ ○ Totally agree

*The electronic recording of travel-, break-, and actual working time of our service technicians, so as to **cristallize** the extent of **nonvalue adding activities** is important to us*

Totally disagree ○ ○ ○ ○ ○ ○ ○ Totally agree

*The consistency with which our service technicians service our customers according to the management vision and philosophy (**uniformity**) is important to us*

Totally disagree ○ ○ ○ ○ ○ ○ ○ Totally agree

*The **variety of channels** (e.g. web browserser, Email, callcenter, etc.) with which a customer can make an appointment, is important to our **customer***

Totally disagree ○ ○ ○ ○ ○ ○ ○ Totally agree

__Allocating__ the available __capacity__ of the service technicians to work orders in the most __efficient__ manner is important to us

Totally disagree ○ ○ ○ ○ ○ ○ ○ Totally agree

__Distributing__ the __workload fairly__ over the service technicians is important to us

Totally disagree ○ ○ ○ ○ ○ ○ ○ Totally agree

The __reduction__ of the __lead time to service__ (the time interval between reception and finalization of the order) is important to us

Totally disagree ○ ○ ○ ○ ○ ○ ○ Totally agree

1.5.2 Work process optimization

Work process optimization is chiefly concerned with streamlining the work of the service technicians in the field so as to make the actual execution of work orders more efficient.

An __accurate navigation__ of our service technicians to the target location is important to us

Totally disagree ○ ○ ○ ○ ○ ○ ○ Totally agree

__Reducing__ the __paperwork__ of our service technicians is important to us

Totally disagree ○ ○ ○ ○ ○ ○ ○ Totally agree

A __detailed__ location __overview__ of the __objects__ to be serviced is important to us

Totally disagree ○ ○ ○ ○ ○ ○ ○ Totally agree

An __overview__ of the __materials__ to be used per work order is important to our us

Totally disagree ○ ○ ○ ○ ○ ○ ○ Totally agree

An efficient and reliable material planning that results in an __optimal stock level__ of materials in the service technician's van is important to us

Totally disagree ○ ○ ○ ○ ○ ○ ○ Totally agree

*The omnipresent access to up to date information in the field regarding **work instructions** and **manuals** is important to us*

Totally disagree ○ ○ ○ ○ ○ ○ ○ Totally agree

*The omnipresent access to up to date **price** information (regarding e.g. materials used in the field) is important to us*

Totally disagree ○ ○ ○ ○ ○ ○ ○ Totally agree

1.6 Comments

Are there any other features of mobile solutions that you perceive as important, that have, however, not been treated in the questions so far? If so, please mention the item and indicate a score.

Part 2 – Score of current provider

Having gained an idea of what the six categories are about by having filled out the questions above, I would now like you to assess the performance of the provider of your current mobile solution on these six categories. Please mark the box, which best evaluates the performance of your current mobile solution provider per category.

	Score						
Category	*Poor*	*Bad*	*Below average*	*Average*	*Above average*	*Good*	*Outstanding*
Hardware							
Features							
Software Design							
Service							
Planning-process benefits							
Work-process optimization							

I truely appreciate the effort and, again, want to thank you for the time taken to fill out this survey!

- End of the survey -

Appendix F – Management attitude questionnaire

Dear management,

As you (may) know I am currently conducting research at SFM aimed at identifying the most suitable market entry mode for Germany.

According to literature, the advantages and disadvantages of the different entry modes are characterized by how the different modes score on the five different factors *resource commitment*, *risk*,

ownership/*control*, *payback period,* and *return.*
Even though the names of the factors speak for themselves, a very short outline will be given.

Resource commitment refers to the extent of financial -, human-, technological- and marketing resources needed for executing a certain entry mode.
Risk, or rather *risk exposure*, is associated with the severity of financial loss that is at stake in a certain entry mode.
Control is about the firm's need to influence systems, methods and decisions in the target market, especially in the field of marketing. Full control in marketing equals full independence with regard to decisions in distribution, pricing, promotion, product services, etc.
Control is especially important to improve the competitive position in the target market.
The factor *payback period* denominates the pace with which the whole market entry project breaks even.
Return concerns the overall profit made in the long term.
Given that these five different factors are somewhat working against each other (low resource commitment can't be accompanied by high levels of control), the act of choosing an appropriate entry mode is usually a tradeoff between these five factors.
As an example, licensing features very low costs of initiation and thus has a low risk exposure. However, the full marketing control is (usually but not necessarily) also given to foreign companies.

Of course, there are internal and external factors that affect the appropriate choice of the market entry mode. However, independent of the objective choice of entry mode on the basis of such internal and external factors, I'm very interested in how the management of SFM feels about the five factors identified above. Are you rather concerned with risk and want to keep it as low as possible, or do you want to build up physical presence in Germany as soon as possible?

In order to get an insight into your attitude towards these factors, I want you to a) assign a score to each factor and b) write a comment outlining your attitude towards these factors.

Apart from that, two more open questions regarding your personal international experience and strategic orientation will be raised.

Your weight of the resource commitment factor

My primary concern is keeping the resource commitment as low as possible

Totally disagree ○ ○ ○ ○ ○ ○ ○ Totally agree

Your weight for the risk factor

My primary concern is keeping the risk exposure as low as possible

Totally disagree ○ ○ ○ ○ ○ ○ ○ Totally agree

Your weight for the control/ownership factor

My primary concern is to attain full control over foreign operations

Totally disagree ○ ○ ○ ○ ○ ○ ○ Totally agree

Your weight for the payback time

My primary concern is to break even as soon as possbile

Totally disagree ○ ○ ○ ○ ○ ○ ○ Totally agree

Your weight for the return factor

My primary concern is to strike a return that is as high as possible

Totally disagree ○ ○ ○ ○ ○ ○ ○ Totally agree

Please provide a wirtten statement beneath that motivates the choice you made in assigning the values to the four factors:

International experience

What is the extent of your personal international business experience in general? For example, with what countries did you already have contact with? How intense was the contact? Have you had lots of face to face contacts with foreign business partners, or has it been rather remote (e.g. via telephone or video conferencing)? What languages do you speak? Feel free to voice anything that sheds light on your international experience

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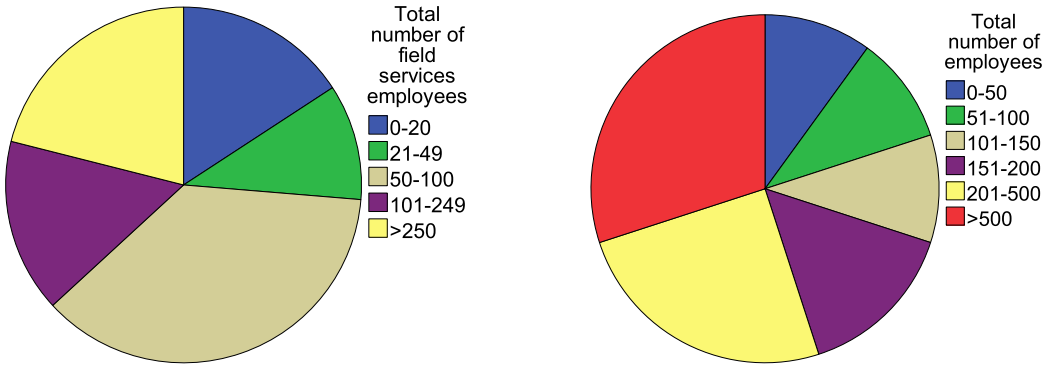
Strategic orientation

What are your strategic objectives for entering the German market (for example, you might either go for inconspicuous immidiate profit on sales or for aggressively trying to establish a leading market position)?

Appendix G – Representativeness of company sizes



Appendix H – Interview with a customer of a mobile solution

Interview mit dem Service Manager der Organisation A

Interviewer: Tobias Kocks
Interviewte: Service Manager

Tobias (Frage 1): **„***Guten Tag. Im Voraus vielen Dank dafür, dass Sie sich Zeit für dieses Interview genommen haben. Bitte stellen Sie doch zunächst einmal kurz Ihren Betrieb vor.“*

Service Manager: *„Organisation A besitzt eine Dreizahl an Tochterunternehmen. Zusammen mit diesen Tochterunternehmen bildet Organisation A ein Konglomerat, welches auf den Verkauf und Service von Spielautomaten spezialisiert ist.*

Tobias (Frage 2): *„Bitte schildern Sie uns zunächst einmal die gegenwärtige Struktur des Außendienstes und den Ablauf der Außendienstprozesse.“*

Service Manager: *„Organisation A verfügt bundesweit über 20 Niederlassungen, wobei jede Niederlassung über einen Service Manager und ca. 2-7 Techniker/Außendienstmitarbeiter verfügt. Dabei sind die einzelnen Niederlassungen weitestgehend selbstständig in der Außendienstplanung. Das spiegelt sich auch in dem Umstand wider, dass lediglich nur 30% der Aufträge zentral, die verbleibende 70% aber dezentral, das heißt bei den Niederlassungen vor Ort, entgegen genommen werden.“*

Tobias (Frage 3): *„Welche Aktivitäten werden in den meisten Fällen vom Techniker vor Ort ausgeführt?“*

Service Manager: *„In 95% der Fälle verrichten die Techniker korrigierende Wartung. Solche Wartungen sind meist standardisiert, da häufig komplette Einzelteile ausgetauscht werden. Wir beschäftigen uns nicht mit dem Auslesen der Gerätschaften, da wir nicht befugt sind, das Innenleben der Maschinen zu manipulieren.“*

Tobias (Frage 4): *„Nun sind Sie ja in der Phase einen Anbieter für eine mobile Lösungen auszuwählen. Gab es vor der Entscheidung eine mobile Lösung zu implementieren bestimmte Hürden, die Sie davon abgehalten haben selbiges zu tun?“*

Service Manager: *„Nein, es gab zu diesem Zeitpunkt keinerlei Hürden.“*

Tobias (Frage 5): **„***Was waren letztlich die Beweggründe für den Schritt hin zu einer mobilen Lösung?“*

Service Manager: *„Der primäre Grund war der, dass die Kapazitätsgrenzen unter dem alten Planungssystem erreicht waren. Durch die Einführung einer mobilen Lösung erhoffen wir uns nun, dass diese Grenze weiter aufgestockt wird. Zur Zeit schaffen unsere Außendienstmitarbeiter 3 Aufträge am Tag pro Außendienstmitarbeiter. Wir würden diese Leistung gerne um 100% auf 6 Aufträge pro Tag steigern wollen. Darüberhinaus denken wir alle Voraussetzungen zu erfüllen, um den Schritt hin zu einer mobilen Lösungen zu machen.“*

Tobias (Frage 6): *„Ausgedrückt in eine top 5, was sind die wichtigsten Vorteile, die Sie sich durch die Implementierung einer mobilen Lösung erhoffen?“*

Service Manager: *„Das wären zunächst einmal die Prozessoptimierung, und Erhöhung der Datenqualität. Die Techniker müssen schnell und präzise im Außendienst auf relevante Daten wie z.B. Auftrags- und Kundendetails zugreifen können. Sie müssen vor Ankunft am Kundenstandort bereits wissen, welche Materialien für den Kundenauftrag gebraucht werden. Das erspart Zeit und Kosten. Darüberhinaus sollen die verschiedenen Niederlassungen durch die Einführung einer mobilen Lösung entlastet werden. Das soll z.B. dadurch geschehen, dass man durch eine mobile Lösung besser fähig ist, Aufträge auf eine zentralere Weise zu allokieren. Das ist heute noch nicht der Fall, da die Niederlassungen größtenteils selbst für ihre eigene Planung zuständig ist. Das soll sich ändern. Zuletzt erhoffen wir uns, bedingt dadurch, dass durch die mobile Lösung eine Echtzeit Kommunikation zwischen Innen und Außendienst stattfindet, eine Steigerung der Transparenz. Bisher haben wir nur wenig Einsicht und Kontrolle über die Geschehnisse im Außendienst. So liegt z.B. keine Information über die genau Fahrt und Arbeitszeit der Techniker vor. Auch das soll sich in Zukunft ändern. Aus all diesen Faktoren, die Optimierung der Prozesse, sowie die flexiblere und transparentere zentrale Planung, versprechen*

wir uns letztendlich auch einen Anstieg der Kundenzufriedenheit, da wir mit einer mobilen Lösung den Kunden schneller und zielstrebiger helfen können.

Tobias (Frage 7): *„Anhand welcher Kriterien wird zwischen potentiellen Anbietern differenziert?“*

Service Manager: *„Der wichtigste Faktor und damit Grundvoraussetzung ist die Partnerschaft mit SAP. Da wir selbst ein ERP System von SAP benutzen und auch ein internes SAP Entwicklerteam vorweisen können, suchen wir nach einer mobilen Lösung von einem Anbieter, die bestmöglich mit SAP harmoniert. Zwei weitere wichtige Faktoren sind zum einen die Softwarearchitektur der mobilen Lösung sowie die daraus resultierende Benutzerfreundlichkeit der Lösung.*

Tobias (Frage 8): *„Gibt es eine bestimmte Präferenz der Betriebssysteme für die mobilen Endgeräte? Falls ja, warum?*

Service Manager: *„Negativ.“*

Tobias (Frage 9): **„***Wird ein bestimmter mobiler Endgerätetyp bevorzugt? Falls ja, warum?“*

Service Manager: *„Diesbezüglich haben wir keine besonderen Plattformen im Auge. Wichtig ist nur, dass das mobile Endgerät letztlich ein gutes Handling vorweisen kann. Die Außendienstmitarbeiter müssen schließlich gut und vor allem komfortable mit diesen Geräten arbeiten können. Sie dürfen keine zusätzliche Last für den Techniker darstellen, sondern sollen die Arbeit im Außendienst vereinfachen. Daher wir die Entscheidung bzgl. der Auswahl der Endgeräte auch von den Außendienstmitarbeitern selbst entschieden. Ob das letzten Endes durch ein PDA oder ein Laptop realisiert wird, spielt keine Rolle.*“

Tobias (Frage 10): *„Was sind gegenwärtig die größten nicht-wertschöpfenden Aktivitäten im Außendienst?“*

Gregor: *„Ein großes Problem ist das nicht vorhanden sein der Möglichkeit, einen nicht mit dem ursprünglichen Auftrag zusammenhängenden, konstatierten Defekt an bspw. einen anderem Automaten, direkt zu beheben. Dieser muss gegenwärtig erst auf einem Zettel notiert werden und bei der entsprechenden Niederlassung hinterlegt werden. Darüberhinaus ist der Zettelaufwand im Außendienst momentan zu groß. Die Techniker sollten mit technischen und nicht mit administrativen Tätigkeiten beschäftigt sein.“*

Tobias (Frage 11): *„Welche Aspekte der Hardware sind besonders wichtig?“*

Service Manager: *„Die mobilen Endgeräte müssen von der rechnerischen Leistungsfähigkeit nicht unbedingt stark sein, dass sind sie ja von Natur aus schon nicht. Wichtiger ist für uns, dass die Akkulaufzeit möglichst lang ist. Selbstverständlich hat es wenig Sinn, wenn diese schon nach einem halben Tag abgelaufen ist. Darüber hinaus müssen die Endgeräte wie schon bereits erwähnt gut im Handling sein. Sie müssen gut zu bedienen, griffig, und generell komfortabel sein. Unsere Techniker müssen im Außendienst schon genug Werkzeug mit herumschleppen, da darf das mobile Endgerät keine zusätzliche Last darstellen.“*

Tobias (Frage 12): *„Welche Aspekte der Software sind besonders wichtig?“*

Service Manager: *„Auch hier verweise ich nochmals zu der Benutzerfreundlichkeit. Die Architektur der Software*
muss so aufgebaut sein, dass der Außendienstmitarbeiter komfortabel und leicht durch das Menü navigiert wird. Die Handhabung der Software muss intuitiv erfolgen können. In dem Sinne wäre es vorteilhaft, wenn die Menüführung der von einem Windows Betriebssystem ähneln würde, da die Außendienstmitarbeiter damit vertraut sind.“

Tobias: „Damit sind wir auch schon am Ende des Interviews angelangt. Vielen Dank nochmals, dass Sie sich die Zeit für das Interview genommen haben.”

Service Manager: „Kein Problem, gern geschehen.“

Appendix I – Pairwise comparison of criteria

Pairwise Comparison	*More Important Criterion*	*How much more important?*	*Numerical Rating*
Product Factors vs. International Experience	Product Factors	Slightly more important	2
Product Factors vs. Resource Commitment	Resource Commitment	Moderately more important	3
Product Factors vs. Target Country Market Factors	Target Country Market Factors	Moderately more important	3
Product Factors vs. Target Country Environmental Factors	Target Country Environmental Factors	Moderately more important	3
Product Factors vs. Home Country Factors	Product Factors	Moderately more important	3
Product Factors	Network relationship	Slightly more	2

vs. Network relationships		important	
International Experience vs. Resource Commitment	Resource Commitment	Moderately more important	3
International Experience vs. Target Country Market Factors	Target Country Market Factors	Moderately more important +	4
International Experience vs. Target Country E. Factors	Target Country Environmental Factors	Moderately more important +	4
International Experience vs. Home Country Factors	International Experience	Slightly more important	2
International Experience vs. Network relationships	Network relationships	Moderately more important	3
Resource Commitment vs. Target Country Market Factors	Target Country Market Factors	Slightly more important	2
Resource Commitment vs. Target Country E. Factors	Target Country Environmental Factors	Slightly more important	2
Resource Commitment vs. Home Country Factors	Resource Commitment	Moderately more important +	4
Resource Commitment vs. Network relationships	Resource Commitment	Slightly more important	2
Target Country Market Factors vs. Target Country E. Factors	Equally important	Equally important	1
Target Country Market Factors vs. Home Country Factors	Target Country Market Factors	Strongly more important +	6
Target Country Market Factors vs. Network relationships	Target Country Market Factors	Moderately more important	3
Target Country E. Factors vs. Home Country Factors	Target Country Environmental Factors	Strongly more important +	6
Target Country E. Factors vs. Network relationships	Target Country Environmental Factors	Moderately more important	3
Home Country Factors vs. Network relationships	Network relationships	Moderately more important	3

Appendix J – Cultural similarity of selected countries with the Netherlands

Country	*Power - distance*	*Individualism*	*Masculinity*	*Uncertainty-avoidance*	*Longterm-orientation*	Total deviation	**Score**
Netherlands	38	80	14	53	44	0	**100**
Germany	35 (3)	67 (13)	66 (52)	65 (12)	31 (13)	93	**47**
Belgium total	64 (26)	75 (5)	52 (38)	95 (42)	38 (6)	117	**33**
Belgium Flemish Reg.	61 (23)	78 (2)	43 (29)	97 (44)	38 (6)	104	**40**
Belgium Wallonia	67 (29)	72 (8)	60 (46)	93 (40)	38 (6)	129	**26**
France	68 (30)	71 (9)	43 (29)	86 (33)	39 (5)	106	**39**
Italy	50 (12)	76 (4)	70 (56)	75 (22)	34 (10)	104	**40**
Spain	57 (19)	51 (29)	42 (28)	86 (33)	19 (25)	134	**23**
Denmark	18 (20)	74 (6)	16 (2)	23 (30)	46 (2)	60	**66**
Norway	31 (7)	69 (11)	8 (6)	50 (3)	44 (0)	27	**85**
Sweden	31 (7)	71 (9)	5 (9)	29 (24)	33 (11)	60	**66**
Finland	33 (5)	63 (17)	26 (12)	59 (6)	41 (3)	43	**75**
Austria	11 (27)	55 (25)	79 (65)	70 (17)	31 (13)	147	**16**
Switzerland	48 (10)	66 (14)	65 (51)	63 (10)	40 (4)	89	**49**
Luxembourg	40 (2)	60 (20)	50 (36)	70 (17)	31 (13)[4]	88	**50**
Greece	60 (22)	35 (45)	57 (43)	112 (59)	38 (6)[5]	175	**0**
UK	35 (3)	89 (9)	66 (52)	35 (18)	25 (19)	101	**42**

[4] The values of longterm-orientation for Luxembourg and Greece have not been available in the original index of Hofstede. In order to still be able to compute a total for these countries, substitute values have been implemented. Those values are copied from the longterm-orientation scores of those countries which are culturally most similar as measured by the index scores on the other four dimensions. Those countries are Germany and Belgium for Luxembourg and Greece respectively.

[5] See footnote 4.

Appendix K – List of economic activity codes that best fit the BES segment

- 18400 - Regionale diensten voor levering van verwarming, koeling, stoom en samengeperste lucht (BES)
- 40800 - Industriële koelinstallatie en koeluitrusting. Vriesdrooginstallaties (BES)
- 40840 - Onderdelen en hulpstukken voor koelinstallaties (BES)
- 40900 – Brandbestrijdingsuitrusting (BES)
- 40950 - Signalisatie en waarschuwingsuitrusting (BES)
- 40970 - Systemen voor detectie van indringers en toegangscontrole (BES)
- 41800 - Machinerie en uitrusting voor drankindustrie, NES (BES)
- 41950 - Installaties en uitrusting voor voedingsindustrie, NES (BES)
- 48900 - Herconditionering, reparatie en onderhoud (BES)
- 49650 - Apparaten met muntinworp, verkoopautomaten (BES)
- 49670 - Gokmachines en uitrusting voor lunaparken. Biljartuitrusting, pooluitrusting en snookeruitrusting (BES)
- 52350 - Aannemers voor de installatie en het onderhoud van gasinstallaties, waterinstallaties, verwarmingsinstallaties en airconditioningsinstallaties (BES)
- 52480 - Aannemers voor de installatie van veiligheidssystemen en bewakingssystemen, branddetectiesystemen, slotenmakers (BES)
- 52940 - Onderhoudsdiensten voor gebouwen (BES)
- 54600 - Onderhoud van rioolsystemen, schoonmaak van buizen en tanks
- 80820 - Diensten voor de ontwikkeling van eigendommen, het beheer en de verkoop
- 81800 – Veiligheidsdiensten (Sequrix)

Appendix L – Amount of potential customers per activity code per country

Country	*18400*	*40800*	*40840*	*40900*	*40950*	*40970*	*41800*	*41950*	*48900*	*49650*
Germany	391	253	184	222	396	482	76	348	3883	147
Belgium Total	0	133	77	84	207	276	23	77	751	88
Belgium Flemish reg.	0	94	51	53	116	146	17	55	451	48
Belgium Wallonia	0	35	20	21	64	82	2	16	235	28
France	147	676	280	384	560	720	47	432	7600	207
Italy	29	420	157	404	439	569	24	331	6152	243
Spain	8	307	188	221	190	216	43	360	2231	85
Denmark	17	149	140	94	102	99	17	116	593	44

Norway	11	106	139	198	177	108	17	61	913	51
Sweden	146	167	93	302	178	250	37	132	2794	51
Finland	64	47	35	67	94	72	6	36	280	34
Austria	1	24	4	14	12	29	3	8	84	7
Switzerland	12	166	120	129	217	286	33	150	1191	82
Luxembourg	1	8	1	8	9	16	1	1	38	12
Greece	0	24	2	15	32	9	0	12	272	4
UK	6	497	465	1014	2272	1462	101	719	6640	447
Netherlands	16	211	98	99	172	230	22	142	971	44

Table #1

Country	*49670*	*52350*	*52480*	*52940*	*54600*	*80820*	*81800*	***Total***
Germany	34	10692	685	1225	310	5714	1326	***26,368***
Belgium Total	13	468	287	212	117	278	116	***3,207***[6]
Belgium Flemish reg.	7	270	157	109	66	144	43	***1827***
Belgium Wallonia	4	156	92	60	40	43	37	***937***
France	26	3916	2298	2501	1153	3363	1264	***25,574***
Italy	102	4146	1069	1184	527	2955	645	***19,396***
Spain	46	1064	468	209	107	645	90	***6,478***
Denmark	4	968	114	107	46	418	25	***3,053***
Norway	6	1000	729	152	60	505	52	***4,285***
Sweden	7	2396	315	2160	191	7545	1414	***18,178***
Finland	7	523	84	204	25	1077	54	***2,709***
Austria	6	532	51	47	29	68	13	***932***
Switzerland	13	1309	411	324	160	822	261	***5,686***
Luxembourg	1	39	39	36	2	94	10	***316***
Greece	1	281	244	32	34	208	25	***1,195***
UK	246	2173	1795	844	659	2951	912	***23,203***
Netherlands	18	602	672	208	83	351	100	***4,039***

Table #2

[6] The difference between Belgium total and Belgium Flemish region plus Wallonia resides in the score of Brussels, which is part of neither of the two regions.

Appendix M – Descriptive statistics

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Ruggedness of device	20	2.0	7.0	5.725	1.2924
Weight of device	20	2.0	7.0	5.225	1.1059
Computing power	20	2	7	6.25	1.372
Device design	20	1	6	3.20	1.795
Initial costs of solution	20	3	7	5.30	1.302
Total costs of ownership of solution	20	4	7	6.25	.851
Email feature	20	1	7	5.25	2.221
Webbrowser feature	20	1	7	5.00	1.806
Reporting feature	20	2	7	6.00	1.556
Usability	20	5.0	7.0	6.675	.6129
Configurability	20	1	7	5.55	1.538
Extensibility	20	2	7	6.05	1.276
Linkability with ERP system	20	2	7	5.70	1.490
Reliability	20	5	7	6.55	.686
Security of solution	20	4.0	7.0	6.175	.9635
Degree of customization	20	3	7	5.80	1.281
Solution primed for trends	18	4	7	5.89	1.079
Speccing	19	4	7	6.00	1.000
Quality provider implementing	19	2	7	6.11	1.329
Quality provider maintaining	19	2.5	7.0	5.658	1.3950
Integratdness of solution	18	4.0	7.0	5.972	.8484
Support	17	5	7	6.18	.809
Reduce dependence of dispatcher	19	1	7	4.74	1.759
Reduce travel time	18	3	7	5.89	1.023
Crystallize nonvalue activities	19	3	7	5.37	1.461
Uniformity	19	3	7	5.68	1.250
Amount of channels	18	3.0	7.0	5.361	1.2811
Optimal capacity allocation	18	3	7	6.44	.984
Fair workload distribution	18	3	7	5.61	1.195
Optimize lead time	18	3	7	5.44	1.247
Accurate navigation	17	2.0	7.0	5.088	1.6416
Reduce paperwork	18	4	7	6.39	.850

Clear overview location objects	18	5	7	6.33	.686
Clear overview of materials	18	2.0	7.0	5.972	1.3336
Optimize stock level	18	2.0	7.0	5.694	1.4866
Manuals and instructions	17	4	7	5.71	1.105
Omnipresent access price info	17	1	7	4.41	1.770
Valid N (listwise)	16				

Appendix N – Score that respondents assigned to their suppliers of mobile solutions

Company	Hardware	Features	Software	Service	Planning	Work
Sigmax	5.5	4.5	6	6	5.5	6.5
Competitor A	4	4	5	4	4	4
Competitor B	6	6	6	6	6	6
Competitor C	6	6	6	6	5	5
Competitor D	4	3	4	3.5	4.5	3.5
Competitor E	4	4	6	6	6	6
Competitor F	6	6	6	7	6	6
Customer A	6	6	6	6	6	6
Customer B[7]	1	6	1	3	4	5
Customer C[8]	6	5	4	5	4	4
Customer D[9]	5	5	4	4	3	3
Customer E[10]	4	4	3	6	4	4

[7] Solution developed internally in cooperation with a software vendor which is not named

[8] Solution developed internally

[9] Provider of MS not named

[10] Customer E is the only respondent which was customer of a mobile CRM solution.

Appendix O – Pairwise comparison matrices for the factor group Product Factors

Hard vs. Soft Services

Alternative	*Export*	*Licensing*	*Equity Joint Venture*	*Wholly Owned Subsidiary*
Export	1	1/3	1/4	1/5
Licensing	3	1	1/2	1/3
Equity Joint Venture	4	2	1	1/2
Wholly Owned Subsidiary	5	3	2	1

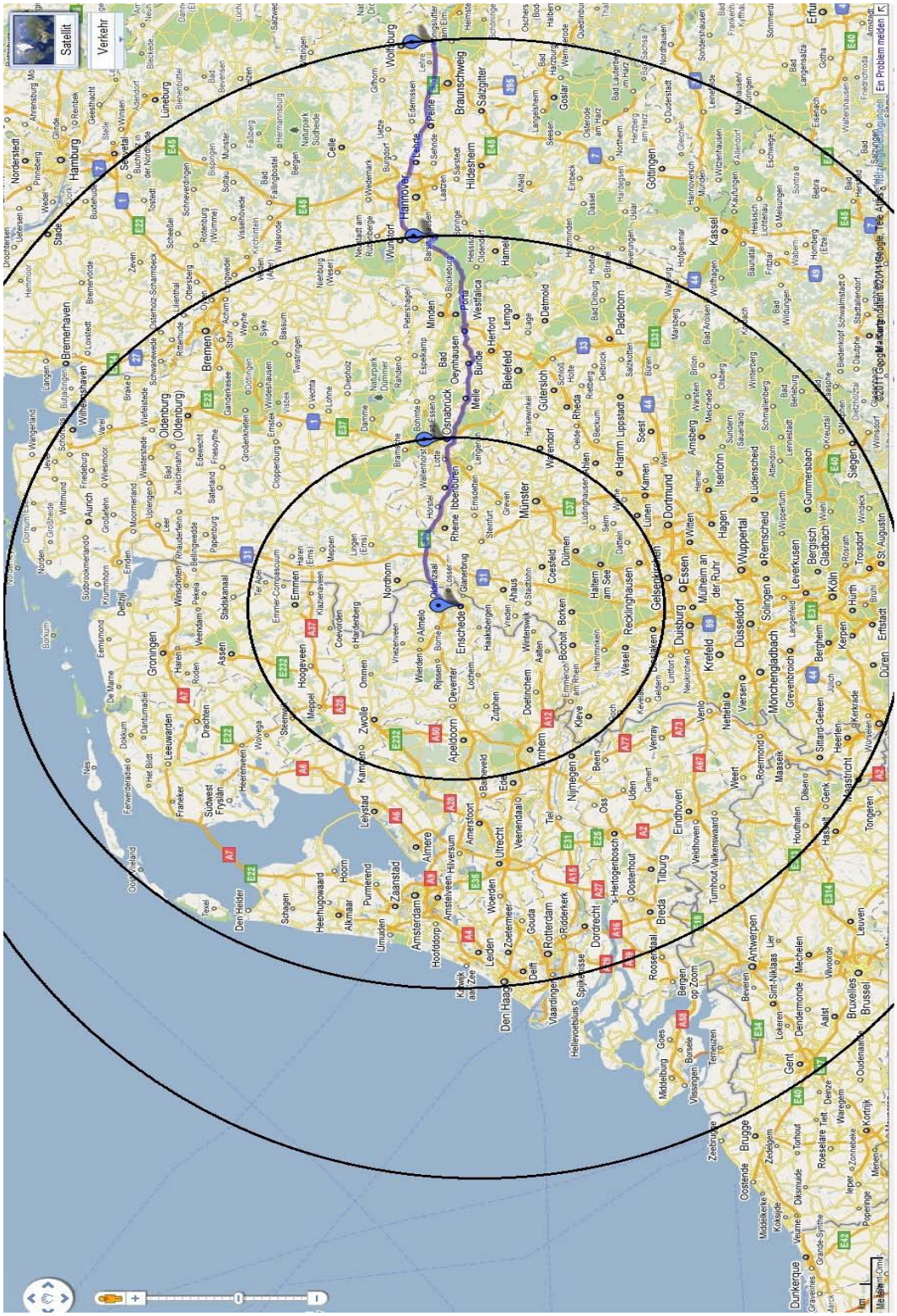
Degree of differentiation

Alternative	*Export*	*Licensing*	*Equity Joint Venture*	*Wholly Owned Subsidiary*
Export	1	2	1/3	1/4
Licensing	1/2	1	1/4	1/5
Equity Joint Venture	3	4	1	1/2
Wholly Owned Subsidiary	4	5	2	1

Technological intensity

Alternative	*Export*	*Licensing*	*Equity Joint Venture*	*Wholly Owned Subsidiary*
Export	1	1/4	1	1
Licensing	4	1	4	4
Equity Joint Venture	1	1/4	1	1
Wholly Owned Subsidiary	1	1/4	1	1

Appendix P – West German region coverage by means *of 1, 2, and 3 hours of car travel time*



Appendix Q – Pairwise comparison matrices for the factor group Target Country Environmental Factors

Political factors

Alternative	*Export*	*Licensing*	*Equity Joint Venture*	*Wholly Owned Subsidiary*
Export	1	1/3	1/8	1/8
Licensing	3	1	1/4	1/4
Equity Joint Venture	8	4	1	1
Wholly Owned Subsidiary	8	4	1	1

Socio economic factors

Alternative	*Export*	*Licensing*	*Equity Joint Venture*	*Wholly Owned Subsidiary*
Export	1	1	1/5	1/6
Licensing	1	1	1/5	1/6
Equity Joint Venture	5	5	1	1/2
Wholly Owned Subsidiary	6	6	2	1

Cultural proximity

Alternative	*Export*	*Licensing*	*Equity Joint Venture*	*Wholly Owned Subsidiary*
Export	1	1/3	1/8	1/8
Licensing	3	1	1/4	1/4
Equity Joint Venture	8	4	1	1
Wholly Owned Subsidiary	8	4	1	1

Physical proximity

Alternative	*Export*	*Licensing*	*Equity Joint Venture*	*Wholly Owned Subsidiary*
Export	1	5	5	5
Licensing	1/5	1	1	1
Equity Joint Venture	1/5	1	1	1

Appendix R – Competitor desk research example

2	Factoren	GML
3	*Partners*	>Microsoft certified partner >PTV AG: For routeplanning >T-Mobile Germany >B+S Card Services: Veilig afrekenen als geintegreerd proces >Vodafone
4	*Segments/positioning*	> Develop standardsoftware for mobile workforce > Systeem is modular, configurable >Segments for 2Bmobile Service: Energy utility, system operator, manufacturer and operators of elevators, facility management > Advertise with the high usability and the resulting high degree of acceptance of their solutions
5	*Products/solutions*	> 2Bmobile System (standard solution for linking mobile employees with the back end IT of the organization. For smartphones only, intended for sales and field service technicians). > 2Bmobil*Sales (mobile solution for sales agents, which can access work order information, market data, mobile work order registration, category management, mobile signature, foto documentation, navigation, registration of travel costs and allowable expenses, etc.) > 2Bmobil*Services (their mobile solution especially for the technical field staff. Displays machine history, keeps track of spare parts, online stock checking, foto documentation and signature, time registration, locating, allowable costs and travel costs registration, tour optimization and navigation, online status of any work order in the main office. > 2bmobil*MDK (mobile solutions for the health care sector)
6	*(Multi)platform*	> Smartphone for 2Bmobile*Service > Tablets for 2Bmobil*MDK

Picture # 1

7	*Quality marketing material*	>HP loos rather bad
8	*References*	>Customers mostly SME's: Coty (fragrance), Marley, Lugato, Steinel, emsa, Gieseke, Marabu, SPA, Sanitop Wingenroth, Queisser Pharma, LG, kwb, TRB Chemedica, wolfcraft, EON, Gah Alberts, Madaus, Coloplast, etc.
9	*#FTE*	>16+ > according to Kompass 11-20
10	*Countries in which they are active*	> Münsterland, Germany
11	*Miscellaneous*	> Seemless integration into established ERP systems like SAP, Microsoft Dynamics, Navision, and Groupware systems, etc.
12	**Nice to know**	
13	*Financing*	> No info
14	*Turnover*	> 1-2 million according to Kompass
15	*HP*	>http://www.2b-mobil.de/
16	*Year of origin*	> 2001
17		
18	**Conclusion/comment**	> **Direct competitor** with a high market and resource commonality. However, the company seems to be somewhat smaller and doesn't make that good of an impression
19	One of the most important players? X = Strong player, highly relevant Y = Average relevance Z = Low relevance	Y

Picture # 2

Appendix S – Map of location of German direct and potential competitors

Appendix T - Amount of companies per economic activity code per federal state

Federal state	18400	40800	40840	40900	40950	40970	41800	41950	48900	49650
Baden Württemberg	54	51	48	39	65	83	18	73	466	26
Bavaria	42	30	20	28	55	58	10	44	473	27
Berlin	6	6	7	3	15	26	1	3	101	9

Federal state	18400	40800	40840	40900	40950	40970	41800	41950	48900	49650
Brandenburg	26	2	3	6	5	7	0	4	110	1
Bremen	6	4	2	3	4	5	1	3	50	0
Hamburg	5	8	3	8	19	21	1	9	88	6
Hessen	19	18	17	21	25	34	9	31	234	8
Mecklenburg-West Pomerania	20	5	2	3	6	4	2	4	78	2
Lower Saxony	31	18	12	14	35	35	3	28	293	10
North Rhine-Westphalia	32	56	37	47	95	101	12	80	501	32
Rhineland-Palatinate	11	11	6	18	14	20	3	18	142	4
Saarland	10	1	2	4	2	3	0	1	37	2
Saxony	32	13	5	9	9	22	4	9	268	4
Saxony-Anhalt	28	4	6	3	7	10	0	2	115	5
Schleswig – Holstein	19	14	6	15	31	30	8	19	152	5
Thuringia	23	5	6	0	6	12	1	11	111	2
Total	**364**	**246**	**183**	**221**	**397**	**482**	**76**	**339**	**3523**	**147**

Table #1

Federal state	49670	52350	52480	52940	54600	80820	81800	Total per federal state	Per cent of Germany
Baden Württemberg	4	1142	85	137	34	550	135	**3010**	**13.6**
Bavaria	8	1471	98	185	52	808	175	**3584**	**16.2**

Federal state	49670	52350	52480	52940	54600	80820	81800	Total per federal state	Per cent of Germany
Berlin	1	363	31	79	11	402	67	**1131**	**5.1**
Brandenburg	0	331	20	52	13	163	46	**789**	**3.6**
Bremen	0	64	7	14	5	53	10	**231**	**1**
Hamburg	0	200	19	39	9	221	41	**697**	**3.2**
Hessen	3	629	48	89	20	402	109	**1716**	**7.8**
Mecklenburg-West Pomerania	0	185	17	26	9	124	30	**517**	**2.3**
Lower Saxony	3	918	56	100	22	397	92	**2067**	**9.4**
North Rhine-Westphalia	8	1691	93	88	52	282	84	**3291**	**14.9**
Rhineland-Palatinate	3	450	29	39	15	173	37	**993**	**4.5**
Saarland	1	121	9	19	5	53	19	**289**	**1.3**
Saxony	0	521	43	79	21	307	64	**1410**	**6.4**
Saxony-Anhalt	0	244	29	47	8	137	39	**684**	**3.1**
Schleswig – Holstein	1	352	38	37	14	173	33	**947**	**4.3**
Thuringia	0	251	24	34	11	152	40	**689**	**3.1**
Total	**34**	**686**	**686**	**1225**	**310**	**5200**	**1234**	**22045** [11]	**100**

Table #2

[11] When comparing the total amount of companies for whole Germany just computed with the cipher identified in section 4.1, we see that there are about 4000 companies missing here. A shortcoming of the database also noted in section 3.5.

Appendix U – Pictorial overview of customers per federal state

Appendix V – Pairwise comparison matrices for Target Country Market Factors

Market size/growth

Alternative	*Export*	*Licensing*	*Equity Joint Venture*	*Wholly Owned Subsidiary*
Export	1	2	1/4	1/5
Licensing	1/2	1	1/6	1/8
Equity Joint Venture	4	6	1	1/2
Wholly Owned Subsidiary	5	8	2	1

Competitive structure

Alternative	*Export*	*Licensing*	*Equity Joint Venture*	*Wholly Owned Subsidiary*
Export	1	7	5	5
Licensing	1/7	1	1/2	1/2
Equity Joint Venture	1/5	2	1	1
Wholly Owned Subsidiary	1/5	2	1	1

Location potential customers

Alternative	*Export*	*Licensing*	*Equity Joint Venture*	*Wholly Owned Subsidiary*
Export	1	3	3	3
Licensing	1/3	1	1	1
Equity Joint Venture	1/3	1	1	1
Wholly Owned Subsidiary	1/3	1	1	1

Appendix W – List of German ERP consulters/implementers

- Accenture (also explicitly consulting on mobility)
- SPV (Solutions, Products, Visions AG)
- EXACT SOFTWARE GMBH
- ITELLIUM
- Bayer Business Services GmbH
- Deloitte & Touche GmbH
- BTC Business Technology Consulting AG
- Capgemini Deutschland Holding GmbH
- IDS Scheer AG
- Logica Deutschland GmbH & Co. KG
- Alpha Business Solutions AG
- Materna – Information and Communication
- Vision Consulting Group GmbH & Co. KG
- amball business-software (Navision)
- Asseco Germany AG
- cbs Corporate Business Solutions Unternehmensberatung GmbH
- enmore consulting ag
- PRO CONSULT Management- und Systemberatung GmbH (website under construction)
- Sage bäurer GmbH
- ComTRI GmbH
- DV-RATIO NORDWEST GmbH
- ISTEC Industrielle Software-Technik GmbH (Oracle)
- Wassermann AG
- Centric IT Solutions GmbH (Oracle, SAP)
- COMSOL Unternehmenslösungen AG (NAV)
- DTM Datentechnik GmbH (Oracle)
- BDS Systemberatung für Organisation & Methodik GmbH
- Regiocom (energy market)
- Großbecker und Nord (GID)
- Softwareschmiede (Rockstroh one of their customers)
- 2COM (for facility management)
- CTI Consulting AG
- Dr. Westernacher & Partner Unternehmensberatung AG
- HIR Hoff Industrie Rationalisierung GmbH
- I.C.M.E. GmbH Management Consultants (No IT consultation but consultation specifically for facility management)
- Alpha FM (No IT consultation, but consultation specifically for facility management)
- Lufthansa Systems Network GmbH
- mind solutions GmbH
- C G S mbH Consulting Gesellschaft für Systementwicklung
- SOFT-CONSULT (SAP channel partner, rather small)
- SYCOR Cogimo GmbH
- Wolf IT Consulting GmbH
- Unit4agresso
- IPAS Software GmbH
- UNIORG Solutions GmbH
- CO-MITT GmbH & Co. KG
- ORGAPLAN Informationssysteme GmbH
- IDAP GmbH (SAP Channel partner)

- klickwerk GmbH
- Vater ERPteam GmbH (Sage, SAP)
- RESET Consulting GmbH (small)
- Vexxus Gesellschaft für Consulting und Service mbH
- GSD Software mbH
- Krämer Anwendungssysteme
- Abels & Kemmner Gesellschaft für Unternehmensberatung mbH
- Hubertus Schott (small)
- entiac
- SMC IT solutions
- ITML GmbH

Appendix X – Pairwise comparison matrices for the factor group home country factors

Political factors

Alternative	*Export*	*Licensing*	*Equity Joint Venture*	*Wholly Owned Subsidiary*
Export	1	3	1	1
Licensing	1/3	1	1/3	1/3
Equity Joint Venture	1	3	1	1
Wholly Owned Subsidiary	1	3	1	1

Market size

Alternative	*Export*	*Licensing*	*Equity Joint Venture*	*Wholly Owned Subsidiary*
Export	1	1/2	3	4
Licensing	2	1	4	5
Equity Joint Venture	1/3	1/4	1	2
Wholly Owned Subsidiary	1/4	1/5	1/2	1

Competitive structure

Alternative	*Export*	*Licensing*	*Equity Joint Venture*	*Wholly Owned Subsidiary*
Export	1	1	3	3
Licensing	1	1	3	3
Equity Joint Venture	1/3	1/3	1	1
Wholly Owned Subsidiary	1/3	1/3	1	1