Bachelor Thesis M.W.B. Oude Lansink

‘Improving the market share of Helios Solutions in Western Europe’

A study into the creation of new products by Helios Solutions for expanding their market share in Western Europe.

Personal Information
Maarten W. B. Oude Lansink
Plataanstraat 2a
7545 MX Enschede
The Netherlands
+31613675939
m.w.b.oudelansink@student.utwente.nl

Company Information
Helios Solutions
S-7 National Plaza
R.C. Dutt Road
Vadodara – 390005
India
+91 265 302 5265
jigar@heliossolutions.in

Supervisors
Dr. R. Harms University of Twente
M.R. Stienstra Msc. University of Twente

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1. Preface

This bachelor assignment was created as part of an internship in Baroda, India. During this internship I worked as a project manager for Helios Solutions on the Western European market. During this internship I created a better insight in the working process of Helios Solutions. On the basis of the knowledge gathered here, in combination with the existing literature, this bachelor assignment tries to provide the reader with a conceptual framework for the process of new product creation. On the basis of this new product creation, Helios Solutions should be able to generate more market share on the Western European market, on which they already operate. By taking this framework as the basis for the yet to be developed new products, their existing market share should be able to grow substantially.

2. Introducing Helios Solutions in the international market

The aim of this chapter is to give a description of Helios Solutions. It will consist of a part describing the context of the problem, which will be done by describing Helios Solutions itself, its sales, their place on the European market and by creating a framework for the development of new innovative products. After this, the task at hand, enlarging their market share, is defined. This is done by answering the research questions, and by setting clear boundaries of this research.

Helios Solutions is an IT company, formed in India based on the principles of: "providing the highest business value at the lowest total cost of ownership to their partners in Europe for the services of End-to-End customized software development and web design and development (Helios Solutions, 2009)". Helios Solutions was founded in India only 7 years ago. By keeping a young working force, the company will keep on learning and by that, staying on top of technologies and trends, which has led to an incredible growth rate. Helios Solutions, with a staff of 55+ highly skilled software engineers and designers, has seen a growth of up to 221% of the annual turnover during the last two years.

Helios Solutions was one of the first movers based in India to move onto the European market. They have seen the possibility for an Indian company, with highly skilled and low cost staff, to enter the European market, with a comparative cost advantage compared to the already existing software suppliers. The other advantage Helios Solutions has over its Dutch competitors, is that the conditions for employees are different than the ones in Europe. The last three years have been a continuous improvement of the presence in the market of the Netherlands and Germany. Along with providing the highest technological quality solutions, Helios Solutions provides a professional project coordination and guidance. This is done by gapping the bridge between culture and language differences between the Indian and Western European culture, by hiring several Dutch and German employees. Helios Solutions is at the moment thinking about entering the Scandinavian market, and the same strategy will be used, hiring a native employee, so that communication with this market will improve.

The mission of Helios Solutions is different every year due to changes is the markets, for the year 2009-2010 the following mission is stated: *"To be a multinational company in the true sense through collaboration and coordination with ICT companies with similar goals across Europe".* This is a mission, that combined with one of Helios' frequently used sayings, shows how they see themselves in the European market. The phrase just referred to is: "Helios is an IT company formed in India on the principle of providing the highest business value at the lowest total cost of ownership to our partners in Europe for the services of End-to-End customized software development and web design and development". When this is combined with that mission, this can be translated into the following values:

1. *Product Quality*
   Keeping a high standard of products, that meet all the demands of the customer
2. *Continuous Improvement*
   Keeping a young and learning organization, which keeps on improving and growing
3. *Cultural Understanding*
   By hiring several Dutch and German employees, they close the cultural gap, and are assured of understanding the exact client demands
4. *Enlarging European market share*
   Trying to gain a large market share in Western Europe

The just stated values are translated into the following vision of Helios Solutions; “To partner with companies in a spirit of collaboration to evolve and grow in today’s dynamic marketplace together (Helios Solutions, 2009)”.

The products they offer range from custom made Content Management Systems and entire websites to specialized custom made software to manage client databases and sending staff abroad to manage specialized IT problems for customers. The products Helios Solutions produces can be separated into three different groups, Software Development, Design Services and International Staffing Services (Helios Solutions, 2009). All of these three groups have been present since the founding of Helios Solutions. Due to specific customer needs, every product that is produced, before this research is custom fitted for every customer. Looking a little closer at the product groups, should provide a clear overview of the types of products Helios Solutions has to offer.

The development of software is one of the main products at Helios Solutions at the moment, and can vary from designing a complete system from the ground up, to the maintenance of existing applications. Here Helios Solutions tries to ensure the customer that the technology they offer, helps the customer increase effectiveness of their current IT infrastructure. Because of experience and exposure to various technologies, such as PHP, MySQL, XHTML, AJAX and CSS(Appendix A), Helios Solutions has the right knowledge to provide each customer with a series of options, and help select the right one for each customer. Due to this expertise of the employees, they can overcome challenges and complex problems that come with a customer, and provide this customer with a tailored design. Because of the present knowledge, customers are easily understood and helped. Helios Solutions uses offshore resources to deliver services on time, keeping the overall budget in scope of initial estimation.

Helios Solutions offers skilled Information Technology resources to a variety of national and multinational clients across the globe, which they refer to as international staffing services. Helios Solutions provides recruiting solutions and IT hiring services for permanent staffing and temporary staffing. They offer highly skilled IT employees to meet clients placement priorities, and they manage to do so at optimum cost. The international recruitment of Helios Solutions is somewhat time consuming, due to bureaucracy and the complexity of Indian and European work visa processes. But these rules are going to change in the near future, so it will be easier to hire staff from India for countries in Europe. Helios Solutions handles this entire process, which means, a customer just has to point out the qualifications of an employee, and Helios Solutions will take care of the rest. Again allowing the company to focus on its core competences, and therefore saving time and money due to enjoying the high price/quality standard India is used to.

For customers it is important that its content truly represents the business they're in and gives the visitors of the site the information they're looking for. For this reason, Helios Solutions has its own design department. Helios Solutions tries to focus on the customer, and tries to give the customer all the freedom in the design of the websites, so the customer can design the website in the way they want to have it. The client gives the details of the design to one of the business development executives working for his market, and from there on, the translation is made to the designers. The design team comes up with primary drafts, which are checked by the business development executive on the project, and then send to the customer. The customer is then able to reply in his native language, and changes will be made until the customer is satisfied. Up until this point in time, they have designed 350+ custom websites for a global list of clients, big and small. Besides this, the website maintenance service offers customers the opportunity to focus on their core business, and Helios Solutions takes care of a good representation of the client organization on the internet.

The market Helios Solutions is in, is still growing at a fast pace. Every day the internet grows with two million new web pages, there are ten billion instant messages, nineteen billion e-mail messages and twelve billion spam e-mail messages. The world wide web is still doubling in size every 120 days. Which means that 80% of the sited that will exist a year from now, don't exist today (Yuce Zerey, 2009). Therefore the request for software developers and website constructers is even during this economical crisis still not declining. Especially since saving money for organizations doesn't have to imply that no money can be spend. But by reducing the budget on advertising and website, this can lead to more work for Helios Solutions, who can do the same work as Western IT organizations, only cheaper. Since Helios Solutions is located in India, the labor is also that cheap, that companies can still afford outsourcing the entire process of developing, creating and implementing a new website. Therefore, for many companies trying to survive the economic crisis, outsourcing to India, can be a key factor for survival.

3. Problem Statement

Even during this economical slowdown of the world economy, Helios Solutions isn't struggling to keep its head above the water. They continue to growing in size, and are still seeking for new ways to improve their business. Therefore this research is looking for ways to increase the market share of Helios Solutions in Western Europe. More specifically, Western Europe in this context is Germany and The Netherlands. A "problem" such as this, can be tackled from several points of views. One of the ways to do this, is by looking at the four P method, which is part of the marketing mix (Piercy, 1997). By looking at the marketing mix, an analysis can be made, to see how a company can improve by looking at the way they market themselves. This includes looking at Promotion, Placement, Price and Product. A review of what these four P's can mean for a company as Helios Solutions can be found in Appendix B. After having consulted with Helios Solutions and Dr. R. Harms it was found that the best opportunity for Helios Solutions to improve their market share, was to focus on the product part of this marketing mix.

Therefore, to ensure that Helios Solutions can keep on growing, and increase the existing market share, this study will focus on how Helios Solutions can improve its market share by looking at new product development. This has lead to the following research question:

How can the market share, in the Western European market, of Helios Solutions can be improved with an emphasis on the products they offer?

This management question at hand, is too difficult to answer at once. Therefore several research questions are set up, to get a full view of what this management question implies. These research questions need to cover the total aim of the management question. The following research questions are formed:

- H*ow can Helios Solutions increase sales levels by focusing on new product development?*
- *What should the new product or technology comply to, in order to generate a large customer base?*
- *How can the new product or technology be brought to the market as soon as possible?*

The research question looking at how Helios Solutions can increase sales levels by new product development looks how the new product should be developed. Not all the factors influencing the sales levels will be analyzed. The factor product, is said to be the most important factor in the increase in sales levels. Therefore this research question will only address the development of a new product. This research question will try to provide a framework for Helios Solutions to use in order to create new products.

The next research question tries to unclose the critical aspects the requirements for the new product development. This questions will try and find the most important aspects for a successful new product or technology based on looking at the customer side of the new product development. By gaining theoretical insight into this, a good analysis can be made to find out how the product will be adopted by the customers.

The final research question tries to gain insight into how the newly developed product or technology can be brought to the market as soon as possible. By answering this question Helios Solutions can reduce the time to market of the new product, therefore gaining from the new profit as soon as possible, and maybe also gaining from first mover advantage.

3. How can Helios Solutions increase sales level by focusing on new product development

Many firms these days derive much of their sales and profits, from recently introduced products and services. The danger about this is that product innovation is high and product life cycles are short. But for a company such as Helios Solutions, which is in a market that is almost satisfied, this is one of the most important aspects to look at. With shorter product life cycles every time and fast technological change, for a company it is important that they keep values as speed and agility central in the innovation process (Hamel and Getz, 2004).

For Helios Solutions, and IT business in general a particular technology may provide the foundation for several products. This is a certain technique, which puts all products related to each other in a so called product family (Meyer and Utterback, 1993). In a company as Helios Solutions, they work on several product families, since most of the delivered products are based on open source IT technologies such as Drupal, Wordpress and Joomla(Appendix A). By expanding on technical skills, market knowledge and manufacturing competetencies, entirely new product families can be formed, thereby creating new business opportunities. Strategist literature suggests that firms should move away from planning on single products, and focus more on entire families which can grow from a common platform.

A general scheme to follow, when dealing with innovation, is provided by Cooper(Appendix C). This scheme is based on the fact that the innovation must be disruptive to all competitors on the market. In the case of Helios Solutions, as will be shown in a later section, the innovation is classified as discontinuous, which implies the same sort of differentiation from the market as disruptive. The model provided by Cooper(1990) identifies three factors that are of influence on the performance of a new product. These are; new product development process, new product strategy and resource commitment. For Helios Solutions, the development process is the most important, just as the new product strategy. The resource commitment is valued less, due to the fact that the funds are so limited at Helios Solutions, that the resource commitment is already at its full capacity. To make the new product as successful as possible, Helios Solutions will have to start by developing a new product process. This step, is described in the following section.

For firms, continuous, radical and discontinuous new product innovations play a significant role in creating competitive advantage, growth and profitability. Therefore for an organization such as Helios Solutions, new product innovation is a suitable solutions to the problem of generating more sales and market share in the software segment in Western Europe. Before a path can be set out to determine how this new product has to be developed, it should be determined if the innovation that is at hand, is a continuous innovation, or a radical discontinuous innovation. For both types of innovation, specific set plans exist in the literature, but they differ significantly.

To manage the process of the new innovation properly, it should be determined what kind of innovation Helios Solutions is dealing with. When this difference isn't made, the process will not be able to be managed efficiently. Continuous innovation, comes from an innovation that logically follows from the current business. It is a process of logical steps, in which the product of the organization grows into the current market share. Discontinuous innovation on the contrary, refers to a dramatically new product that involves large leaps in terms of customer recognition and use(Meyers et al., 1989). Usually these types of innovations involve the development or application of new technologies. For Helios Solutions, the new product should be one of discontinues nature. The need for this new product, should be able to be fulfilled with the expertise of the workers that are currently on the job there, but the product should be different from what the competition offers.

For Helios Solutions, it is important to find out what type of innovation they require. A good way to find out what type of innovation an organization is dealing with, is provided by Veryzer(1998). According to Veryzer(1998) product innovations can be viewed as lying along two dimension. These two dimensions are the product capability and the technological capability dimension. The product capability dimension here, refers to the benefits a customer or end client perceives from the innovation. The technological capability of the innovation referrers to the degree to which new technologies are required to produce the innovation at hand. All the discontinuous innovation have advanced capabilities that do not exist in current products. This view by Veryzer(1998) indicates that there are four levels of innovation. The first category are the products that are viewed as continuous innovations. These innovations use similar technologies and provide the same benefits as existing products. This type of innovation creates products that are regarded as new, but not very innovative. The other three kind of innovation on the other hand, may be discontinuous with respect to technology, the perceived benefits or both. The second category of products, are referred to as commercially discontinuous. This means that the perceived value of the product on customers is that they are really new, but the underlying techniques aren't. The third group is when customers perceived benefits from new technologies, this is referred to as technology and commercially discontinuous. The final group in this scheme are the technologically discontinuous product innovations, where the consumers don't perceive major benefits, but the technologies of the product are drastically changed. Following these dimensions, for Helios Solutions it indicates that the innovation that has to take place in order to create a new product, would have to be of discontinuous nature.

Various models in the literature exist for continuous innovation. For radical and discontinuous innovations processes the structure is rather limited. But research done by Veryzer(1998) indicates that the chance of success with radical new product development increases significantly when certain steps are followed. This research indicates, that even though there is no formal structures process, there was a consistent pattern for the development of radical discontinuous products. On the surface, this research indicates that the process for discontinuous product development doesn't differentiate that much from the continuous process. But there are some very important differences. One of the main differences is the fact that the discontinuous process involves higher levels of technological uncertainty, due to the newly developed technologies. Additionally factors such as applicability for the technology and the greater distance from the market from customer point of view and time also affect the development process. As a consequence of the just mentioned factors, the development of a discontinuous product doesn't follow the same procedures as the conventional or stage-gate(Cooper, 1979)system. It also isn't suitable to do it in such a manner, due to more insecurities. Due to the fact that the traditional models aren't suitable, a new model is developed to be able to structure the process of discontinuous innovations more. This because the empirical research done by Veryzer (1998) on discontinuous innovation indicates that a certain level of structure has huge benefits on the success of the innovation at hand. The theory indicates that for discontinuous radical product innovations a preset number of steps must be followed. These steps are listed in the chronologically correct order and explained in the following section. A graphical representation of the steps to be undertaken can be found in Appendix D.

The first step in order to come to successful discontinuous product development, according to Veryzer (1998), is called the dynamic drifting phase. This phase involves the exploration of the various available technologies. This exploration is often undertaken separately in independent programs in research and development labs. In this step, several different technologies are developed, for non existing problems. This may go on for years, before one of the created technologies is actually used to solve an existing problem. The explorations undertaken in this phase, provides the organization with an opportunity to expand its boundaries of technological options and serve as a motor for the incubation of new technologies. The theories of Cooper and Kleinschmidt(1986) disagree with this. In order to come to successful new product development,

according to them, first an idea has to be present. In organizations that are continuously in the process of innovation, an idea isn't required, and the just prescribed step can be followed. But in the case of Helios Solutions, an idea is required in combination with the existing technologies, in order to create a discontinuous innovation with at little funds as possible. Because when there is no idea, this would lead to the creation of an abundance of non required innovations, and this would increase the price of the development of products that are required.

The next phase in the development is the convergence phase. As the name of the phase indicates, it converges the technologies that have been explored in the previous phase. In this phase, the discontinuous products begin to emerge. This convergence of technologies is driven by two forces, an idea champion also referred to as a visionary and a critical of contextual factors. The visionary is the person who has the role to put all the relevant technologies together and should see how they can form a particular application. It is therefore for a good visionary required to have a good sense of the technologies at hand, as well as a general insight into the market. In some cases it is possible that there are two visionaries working alongside each other, but this is usually not the case. The convergence phase is also driven by the fore mentioned contextual factors. These contextual factors include technology interactions that push technologies to the next phase, organizational turbulence, cross-fertilization, failed projects, funding and resource availability that encourages work to be done in specific areas and competitive pressures. These two factors play a crucial part in the direction of the innovation process. According to the model described by Cooper and Kleinschmidt(1998), the secondary step in this process should involve a screening of the idea that was created in the previous phase. If the techniques found in the previous step, with the help of an idea champion has come to an idea, in this step it should be evaluated, at least for the first time. Especially in small organizations, where these kind of processes take a lot out of the capacity of the organization, initial screening as the process is called, is an important step.

Following this phase, is the formulation phase. This phase is there to put the focus on how to formulate the technology into a product. The previous step has involved the combining of certain technologies to create an idea, but in this phase this is actually done. In this phase, the requirements of the new product are analyzed. In addition to conceptualizing the these requirements, attention is also given to the requirements of the end customer/user. In contrast to normal product development process, the new discontinuous process isn't entirely driven by the requirements of the end customer(Cooper, 1990). Cooper and Kleinschmidt(1998) state that the next two steps in their model should be preliminary market assessment and preliminary technical assessment. This follows the formulation phase, in some more detail. In this phase, according to Veryzer(1998), the focus should lie on differentiating the new product. In accordance with Cooper and Kleinschmidt(1998), this differentiation will be mainly based on the preliminary market and technical assessment. This is also referred to, by Veryzer, as technical differential advantage, where an organization should look to differentiate themselves technologically from their competitors.

After this, the next step in new discontinuous product development can be taken, which is the preliminary design phase. This phase involves developing the preliminary designs for the new product. In this step, the application of the product will evolve further. Here the specifications of the product are further developed and user information is gathered. The method described by Veryzer(1998) states that the information gathered should come from informal research methods, analyzing the products that are on the market. This informal research can be on the other existing products that are already on the market, or informal research about what customers are missing in a particular niche. When working for Helios Solutions, this was done on the basis of the products existing in the market. An analysis was made of the existing mobile website creating tools(Appendix E), which contributed to the development of a new tool for creating mobile websites by Helios Solutions.

The phase following is the evaluation preparation phase. This lies in a continuum of the preliminary design phase, and formally reviews the new product development project. In one of the first steps, an evaluation has already taken place under the influence of the literature of Cooper and Kleinschmidt(1998). But this was the first preliminary review, and of an informal nature. Therefore in order to prepare for the official evaluation, some additional preparations must be undertaken. In this phase of the new product development the project approaches the formal project review and is determined whether or not the project is allowed to continue. To prepare for the formal review, the design of the product becomes much more specified. Also the technical differentiation of the product is elaborated, in order for the project to continue and a business analysis is put together. Basically, this phase prepares the idea champion, and maybe the team working with him on the innovation, for the official evaluation phase. In order to pass this, Cooper and Kleinschmidt(1998) argue that several analyzes have to be performed. One of these analysis should be a detailed market study. Here a specific focus should be on the target market that the new product is aiming at. This should be done on the basis of a large study. And when conducting this analysis, it should be clear what the aim is of this analysis, since the literature indicates that this can lead to wrongfully interpreted analysis.

After the new product development project has successfully advanced through the previous phase of formal review, the phase of formative prototype phase is at hand. In this phase the focus lies on the building of a prototype. This could result into more design work. In this phase the technologies should be applied. The prototype that is being developed in this phase is also called the formative prototype. This prototype in contract to other prototypes is much more exploratory of nature. This exploratory prototype is used to determine the sustainability of these new technologies converged into this product. Unlike normal prototypes, it consist of all sorts of technologies, and doesn't have to consist of technologies that are used in the end product(Ulrich et al., 1995). These prototypes are usually built on a combination of already existing systems and newly developed technologies. During this phase, the need for the requirements of the customers is felt. The target groups and a good understanding of requirements should create insight into how the end product should take shape. These research activities are usually quite informal, but this can provide a key to partnerships with customers in the development of the new product for a good relationship in the future.

After this phase, the new product has taken a good shape, the following phase is the testing and design modification phase. According to Cooper and Kleinschmidt(1998), this should take place in-house. When doing this, the major errors can be taken out, so that the customer doesn't lose confidence in the new product before it's taken to the market. The formative prototype developed in the previous phase can be tested in this phase and the technology can be modified if it is required. The focus in this phase is on the evaluation and validation of designed technical solution. When the tested prototype is found sufficient, it can also be tested with potential customers. Also referred as product testing with the customer. The input that is gathered from these test by customers is then used to improve and modify the product. This process can be repeated several times in order to come to the required end product that is sought by Helios Solutions.

When this phase is completed, the final phase of prototyping and commercialization phase can start. During the entire process, many questions regarding the product and especially the users of the newly developed product have been asked and answered. The development process now moves to the production of the product. For the case of Helios Solutions, this isn't applicable, since the product that is being developed will be one in the segment of software. In this final phase of commercialization a number of important activities have to be undertaken. In this phase, a transition should take place in which the focus of the development effort shifts from technical differential advantage to one that is more customer driven. Following this, customer use issues and product interfaces that up to this point have received little attention are now carefully examined. In this final phase, a last prototype or series of prototypes is produced to better represent the new product that will be sold. At this point in the new product development process, the input of the customers is becoming increasingly important in the development of the final product. Following from this, the acceptance of the new technology by customers is the next step to evaluate. Therefore the following section will address the specific needs of the customers in more detail in order for the new product to be successful.

Both the research done by Veryzer(1998) and by Cooper and Kleinschmidt(1998) finish the product development phase with formal production, or trial production. For Helios Solution, this phase isn't required. Since the product that is being developed, is one of information technology. Therefore when the all the steps previously described are followed correctly, it leads to a sellable product, so real "production" isn't required. Therefore also no testing has to be done for the production phase. Also in order for the product to be successful on the market, a good market entry strategy must be coordinated. This will be described in a later chapter.

4. What should the new product or technology comply to, in order to generate a large customer base?

For new products to be successful, customer acceptance of the new product or new technology is required. To create an acceptance level as high as possible, the specific needs of the customers are needed. In the last few decades, a lot of research has been done in order to explain and predict the customers acceptance towards certain technologies. There is especially a lot of empirical support for the Technology Acceptance Model(Davis et al., 1989). The technology acceptance model, has proven to be such a strong model, because it compares favorably with models such Theory of Reasoned Action and the Theory of Planned Behavior(Venkatesh, 1999). But Chang and Hung(Chang and Hung, 2004) indicate in their article about user acceptance of WAP services that this isn't always true. They state that the theory of planned behavior is superior to the technology acceptance model in its ability to predict behavioral intention, and with that increasing the acceptance of the new technology of the customer. It is also argued in their article, that previous research found that technology acceptance model and theory of planned behavior are limited in their explanatory ability. Yet another research that they refer to states that all of the just mentioned models are roughly equivalent. This indicates that several authors and researchers see, that there is not one best way to look at the customers adoption of new technologies. Therefore for the case of Helios Solutions, an analysis will be made in order to find the models that has the highest value for Helios Solutions in creating the highest possible adoption rate. First the three models will be described briefly, in order to find the major features. Then the research done by Hung and Chang(Chang and Hung, 2004) will be used to find out which of these models would prove to be the most effective one for Helios Solutions.

The technology acceptance model is a powerful and parsimonious model for explaining and predicting much of the variance of new IT acceptance(Davis, 1989). Since the business of Helios Solutions is the IT business, this appears to be a valuable model. The technology acceptance model is an adaption of the theory of reasoned action model. The original technology acceptance model has the following features:

- Exclusion of social norm and perceived behavioral control on behavioral intention
- Perceived usefulness and perceived ease of use determine attitude towards behavioral intention
- Behavioral intention is directly affected by perceived usefulness and attitude
- Through two belief factors, numerous external factors can affect behavioral intention
- Two belief factors are easy to understand and manipulate in information system design and implementation
- The use of self report measurement may cause low ability to predict actual behavior(Davis et al., 1989)

The second model that will be addressed here is the theory of planned behavior. This model extends the theory of reasoned action to consider perceived behavioral control for reflecting user perceptions regarding possible internal and external constraints for behavior(Azjen, 1985, Azjen, 1991). The theory of planned behavior emphasizes that behavior includes non volitional aspects under certain circumstances. Some of the most features of this model are described here and are the following:

- Theory of planned behavior includes the possible influence of perceived behavioral control on behavioral intention and actual behavior
- Behavioral intention and perceived behavioral control can directly affect behavior
- Attitude and perceived behavioral control both determine behavioral intention
- In the early IT implementation phase, the factor subjective norm is important for users with limited direct experience(Hartwick, 1994)

The final model addressed in looking at user acceptance and the relevance of a certain model for the case of Helios Solutions is the decomposed theory of planned behavior. The decomposed planned behavior model is created by Taylor and Todd(Taylor and Todd, 1995). This model focuses on decomposing three sets of belief structures into a multidimensional belief construct. Of course this model also has a few advantages:

- Clear, easy and understandable representation of beliefs
- Easily operationalizing these beliefs
- Focus on more managerially relevant beliefs(Taylor and Todd, 1995)

The research in these three models done by Hung and Chang(2004) is based on a statistical analysis of the adoption of WAP services in Japan. This creates a link with the IT services Helios Solutions already sells, and is planning to develop and sell in the near future. Their research indicates that all of the three models display a good fit with the data, implying that all of the three models would seem suitable in this case. Looking at the models more precise, the following has been found on the models.

All the paths in the technology acceptance model(Appendix F) are considered to be significant accept the path from perceived ease of use to attitude. For the theory of planned behavior the path from perceived behavioral control to intention was unexpectedly low. Also the path between perceived behavioral control and use indicated that perceived behavioral control significantly suppresses actual WAP usage. Looking at the decomposed theory of planned behavior, again the path of perceived behavioral control to intention turns out to be insignificant. Also, because the decomposing approach used in this model, some additional observations can be made. For instance that the path from current service costs to attitude, is one that is also considered to be insignificant. For subjective norm, the significant determinant is peer influence, while the path from external influence to subjective norm is insignificant. Also the path from facilitating condition to perceived behavior control is insignificant.

When comparing these three models, it is found that both theory of planned behavior and the decomposed theory of planned behavior have one or multiple paths that are insignificant. Evidence on the other hand is found that the technology acceptance model is more parsimonious(Davis et al., 1989) and provides a more efficient method of assessing individual attitude. This combined with the fact that the technology acceptance model is one of the best models to identify variances among new IT products, leads to the adoption of the technology acceptance model. Only there is still the problem, that the technology acceptance model, in the way that it is shaped at the moment, also has a few fallbacks. One of the major disadvantages, according to Hung and Chang(2004) is the fact that it doesn't incorporate the subjective norm aspect, which is incorporated in the other two models. Also the fact that only perceived usefulness appears to be the single significant determinant for the adoption, is seen as a drawback of the technology acceptance model. Therefore, in order for Helios Solutions to use this model, a new technology acceptance model should be created, in which another factor should be incorporated which has an effect on the user acceptance of new technologies. Also attention should be given to the social influences on the acceptance of the new technology. First some more explanation will be given about the first technology acceptance model, then the new model will be introduced and explained.

The technology acceptance model states that an individual's behavioral intention to use a certain system comes from two beliefs; the perceived usefulness and the perceived ease of use. The perceived usefulness is in the definition of the technology acceptance model the extent to which the user of the system or product will perceive this to enhance their current job. The perceived ease of use can be explained as the extent to which the user believes that using this product or technology will be free of effort. both of these aspects are influenced by external factors. The first technology acceptance model is represented in the following way(Appendix F). The current literature, by Venkatesh and Davis(2000) states that there are more factors influencing the customers acceptance to new products and technologies. First the two characteristics of the technology acceptance model will be explained.

The relationship between perceived usefulness and perceived ease of use have been examined and supported intensively in the IT/IS literature(Al-Gahtani and King, 1999). As thought, there is a direct impact of perceived ease of use on perceived usefulness, since when a job is easy to perform it is beneficial for the usefulness. Research provides evidence of a positive relationship between perceived usefulness and the behavioral intention over and above attitude(Davis et al. 1989). More importantly the technology acceptance model has shown that perceived usefulness fortifies the attitude of users towards the acceptance and usage behavior. The technology acceptance model can be used in a wide variety. It has already been used for, for instance mobile phone technology and acceptance of mobile web technology, so this model should give a good framework for Helios Solutions to work by. This framework should give insights to the factors that can make a new product, a product that people would like to use.

After this model has been in use for several years, it has been empirically tested by Davis et al. and this analysis suggested an improvement of the existing model. This in accordance with the previous findings with the comparison with the other two models. The first technology acceptance model was lacking of social influence. The technology acceptance model was claimed to be a powerful model for predicting and explaining user behavior based on only three theoretical constructs; behavioral intention to use, perceived usefulness and perceived ease of use. Due to the fact that empirical research by Venkatesh and Davis(2000) has shown that this would limit the technology acceptance model, a revised model is established. In the revised model created by these authors, experience and voluntariness are found as different usage settings, the social influence. Voluntariness determines how adopters of the new technology are required to use the new technology. The experience factor refers to experience the user has in general that will be of influence on the intention to use and the perceives usefulness. In the following section all the factors influencing the perceived usefulness of the new product or technology will be addressed, where if all these factors have positive influence, this would lead to an increase the intention to use. In the following section, the determinants of the revised technology acceptance model are mentioned. A graphical representation of the model can be found in Appendix G.

The first factors that are of influence on the perceived usefulness are social influences. This is the required addition that comes from the comparison with the other two models for customer acceptance. The subjective norm relates to a person's perception that most people who are of influence on him, think he should not perform the behavior in question. This comes directly from the theory of reasoned action and the theory of planned behavior. In the case of Helios Solution, the subjective norm isn't of major influence, since the products that are being developed, go to small mostly one person companies in Western Europe. In these cases the impact of subjective norm will not be as high as it will be when larger corporations are tackling an issue of new technologies. This is mainly due to the fact that subjective norm is considered important when there are multiple hierarchical layers in an organization. This is also the reason that voluntariness and experience are also of influence on the intention of use caused by subjective norm. If the change is mandatory, subjective norm will have a positive effect on the intention to use. When the acceptance is based on

voluntary grounds, the effects of the subjective norm on the intention to use are moderated. Looking at the clientele of Helios Solutions, the smaller firms will almost all chose the new technology out of voluntary bases. This new model has two ways by which subjective norm can influence intention indirectly through perceived usefulness. These two are internalization and identification. Internalization is defined as "influence to accept information from another as evidence from reality." This means that if a co-worker would advice another to use a particular technology, that he has identified, he would be more likely to use it. This is relevant to Helios Solutions. Since the target group are the small to medium sized organizations, the clients will discuss the adoption of a new technology with each other. Due to these reasons, subjective norm will have a positive direct effect on perceived usefulness. Subjective norm will also have a positive effect on image. If influential important members of people in a person's group believe something is favorable, this would have a positive effect on the image of the product or technology. This image in turn, will also generate a positive effect on the perceived usefulness. When an individual with power finds a certain technology good, this would have positive effects on the image. This could lead to greater productivity when people adopt the same technology due to the enhancement of the image, that has perceived usefulness as a consequence of the new technology. The experience people have, also contributes to the effectiveness of the subjective norm, when more strengths and weaknesses are known about the system through direct experience, the normative influence subsides.

The just mentioned aspects influencing the perceived usefulness, are all listed as social influences. These are additions compared with the old technology acceptance model. Beyond this, lie four cognitive instrumental determinants of perceived usefulness; job relevance, output quality, result demonstratability and perceived ease of use. To evaluate the theoretical basis for these four determinants, theories from the field of work motivation(Vroom, 1964), action theory from social psychology(Fishbein et al., 1975) and task-contigent decision making from behavioral decision theory(Beach et al., 1998) are used. The combination of these theories, according to Venkatesh and Davis(2000) share the view that for engaging in specific behavior comes from a mental representation linking instrumental behavior to higher-level goals or purposes. The revised technology acceptance model follows this line of reasoning and therefore assumes that people use a mental representation for assessing the march between the goals and the consequences of performing the act of using a system as a basis for judgments about perceived usefulness. Therefore it is important, that the four cognitive determinants are addressed in a correct manner, to increase perceived usefulness.

The first key component of this matching process that has just been discussed, is the judgment of the potential user on the job relevance. This is defined as the applicability of the new technology on the job of the user. In other words," job relevance is a function of the importance within one's job of the set of tasks the system is capable of supporting". Users have distinct knowledge about their own job situation and this is used as a base for determining what tasks can be performed within the given system. Venkatesh and Davis(2000) regard this job relevance as a cognitive judgment that has a direct effect on the perceived usefulness, distinct from the social influences described in the previous section. From this comes the conclusion that job relevance, when above the threshold of being influential in the performance of the task of a user, will have a positive effect on the perceived usefulness and therefore a positive effect on the adoption of the new technology or product.

The second cognitive determinant of perceives usefulness is output quality. This referrers to how well the technology is capable of performing those tasks that match their job goals, finding a link with job relevance as well. In contrast with the job relevance, where if something is not relevant is eliminated immediately, judgments about output quality are less likely to be used for excluding options for consideration. To assess whether it is useful, it is more likely that it will be put to the test using a profitability test. In this test, multiple relevant systems are compared, and the one with the highest output quality will be selected. Considering the importance of the output quality, this is also of influence on the perceived usefulness, and a higher output quality therefore would lead to a positive effect on the perceived usefulness.

The third cognitive determinant of perceived usefulness is result demonstratability. This is defined as "the tangibility of the results of using the innovation(Moore and Benbasat, 1991)". This in term directly influences the perceived usefulness. This means that users can expect to form more positive perceptions of the usefulness of the system if the covariation between usage and positive results is discernable. On the other hand, if the new technology does produce the desired results, but does this in a way that the users don't really understand it, it becomes difficult to evaluate the actual usefulness of the system. A significant correlation between the usage intentions and the demonstratability is found(Agarwal and Prasad, 1997). This is consistent with the job characteristics model(Judg et al. 2000) that understanding the work activities benefit the actual results from the work activities. Therefore the result demonstratability, if it is regarded positive, will have a positive impact on the perceived usefulness.

The final cognitive determinant of perceived usefulness is perceived ease of use. Perceived ease of use, refers to how easy it is for a user to handle the new technology. Technology acceptance model 2 or revised technology acceptance model "retains perceived ease of use from technology acceptance model as a direct determinant of perceived usefulness(Davis et al., 1989) since all else being equal, the less effortful a system is to use, the more using it can increase job performance." A decade of research on the technology acceptance model has shown a significant link between direct and indirect influence of ease of use on perceived usefulness. Therefore also perceived ease of use will have, if regarded positive, a positive effect on the perceived usefulness of a new technology.

In summary, the technology acceptance model 2 or revised technology acceptance model encompasses social influence processes such as subjective norm, voluntariness and image. The second processes influencing the second generation technology acceptance model are the cognitive instrumental processes, which are job relevance, output quality, result demonstratability and perceived ease of use. These are all determinants of the perceived usefulness and intention to use. Over time, the social processes will decrease when increasing experience is created under its users.

5. How can the new product or technology be brought to the market as soon as possible?

To be able to introduce a new product into a market, an entry strategy for this specific product needs to be formulated. CHoosing the right entry mode for a target country is a critical managerial decision and affects the long term success of a firm(Bradley and Gannon, 2000). For new product several questions arise for managers, but the most important one for new products is the question of will this technology actually take off, at what speed and what is the appropriate market entry strategy to accelerate the takeoff? This theoretical framework tries to integrate literature in multiple disciplines to identify market entry strategies that Helios Solutions can use to reduce the time to takeoff of the innovative product. The issue at hand with the theoretical framework, is that most of the studies in the field of international entrepreneurship have mainly examined the choice of entry mode of software firms using the network approach, transaction costs analysis or a firms strategy(Ojala and Tyrvainen, 2007). The problem with these theories and analysis is that they see all the software firms as one homogenous group, whereas little attention has been ascribed on how various types of software firms choose their entry strategy(Hooch et al, 2000).The product can be defined as innovative if they are technically superior and have an ability to meet the customers' needs better than the previous product or technologies(Chandy and Tellis, 1998, Xuereb and Gatignon, 1997).

In order to be able to use the theories on rapid take off, the flaw that was found needs to be discussed first. As just pointed out, the flaw that is on almost all analysis about choice of entry strategy, is the fact that the analysis done on the basis of eclectic theory, network approach, transaction cost analysis or a firms strategy all are based on the assumption that the analyzed small software firms are homogenous(Ojala and Tyrvainen, 2007). To be able to create a proper mode of entry, attention has to be paid to how various types of software firms target their foreign operations. In the high tech sector, business models are used to describe how the various types of organizations execute their business(Currie, 2004). In general the term business model is used to define who the customers are, what the customers value and how this value is delivered to them(Margretta, 2002). By combining the literature related to technological entrepreneurship, international business and business models, the gap between business models and choice of entry will be filled in order to make these two compatible, and therefore create a basis for long terms success of the firms at hand.

The study of Brouthers and Nakos (2004) found that SME's with greater asset-specific investments preferred equity modes whereas those with less asset-specific investments were handled through non-equity modes. They have also revealed that environmental uncertainties are connected to the use of non-equity entry modes. This supports the earlier findings of Brouthers (1995) that suggested that software firms who where perceiving increased international risk would favor non-equity modes of entry. By using the transaction cost theory, McNaughton (1996) has found that channel volume, asset specificity, volatility and requirements for product customization were important determinants for the choice of entry. Brouthers (1996) also discovered that a firms ownership and location advantage also affect the choice of entry mode. Firms that have a high ownership or location advantage prefer more integrated modes of entry such as sales subsidiaries. Another assumption based on the Uppsala internationalization model suggests that the choice of entry depends on a firms experience in the international market. The choice of entry mode here is seen as a learning process and increasing commitment to the market. The network approach (Moen et al. 2004) implies that the choice of entry mode depend on firms' formal and informal network relationships that have evolved over time. This can be seen as a sort of relationship that benefits both, and where the software company tries to make its product compatible with the existing hardware on the market.

To be able to analyze the business models used in firms, and from that viewpoint look at the mode of entry, the framework of Rajala et al. (2003a,b, 2004) is used. This model is used because it is motivated by observations suggesting that software firms' business models differ from those of other types of firms. This can be caused by for instance the intangible nature of software products and the short product life cycles. It is of course also important for software firms to be able to respond to fast changes and requirements in target markets. The just mentioned framework divides the business model into different categories to analyze, which are product strategy, revenue logic, distribution model and service and implementation model.

First the product strategy of a firm describes the core product that a firm is offering. This part is focused on the product development and the way this is organized. This can vary from customer specific software solutions to the development of highly standardized software products. For the case of Helios Solutions, this can also imply both. The firm makes custom fit software on demand, but the innovative product that is under development, should be one of large standardization. According to the book of Hoch et al. (2000) software firms can be categorized in three broad categories. The professional service firms who have the lowest level of standardization and have almost entirely custom made software. The second category is the enterprise solution firm, that offers software products for business users. And the final category is the mass-market software firms that have a high degree of standardization and mainly targets the consumer market. From this categorization, it would appear that for the rest of this analysis, Helios Solutions can be regarded as an enterprise solution firm, since it matches this one the most. These characteristics lead to a finding of Bell (1995, 1997), where he has found evidence for a relationship between the characteristics of a category and the entry mode that firms use in a foreign market. He has found that when a software firms is into the tailoring of the needs of a business, which is also the case for the enterprise solution firm of Helios Solutions, the firm used their own expert sales staff in dealing with the end users. The findings from Ojala and Tyrvainen (2007) on this first category are that the product strategy has a strong connection with the entry mode to operate in the market. The findings indicate that when an organization works with tailored products in close cooperation with the customer, representatives are used as the entry mode in the target country. Is was also found that organizations which has a core product that was customized or localized on the grounds of customer needs, a sales subsidiary mode as entry mode was used. Since Helios Solutions is categorized as an enterprise solution firm, the conclusion can be drawn that upon this theory, the sales subsidiary is the most relevant entry mode.

The revenue logic looks at the source of the profits of the software company by selling it products and services. Because the production of a certain product usually has the highest costs, and the reproduction is almost nothing, the pricing in the software industry is different from that of other industries. Low reproduction costs and the intangible nature of the software enables various pricing models such as effort based pricing, licensing, revenue sharing or a combination of these. The research findings of Ojala and Tyrvainen (2007) reveal that the revenue logic of a firm has some connection with the entry mode that is selected. For the case of Helios Solutions, this implies that the revenue logic used is that of maintenance fees, direct sales and licensing

The distribution model describes channels that a firm uses for marketing and selling the products and services to the end user. The model can vary from direct sales to customers to decentralized distribution independently from the entry mode. In the case of Helios Solutions, direct sales are applied in Western Europe to software businesses. This means that Helios Solutions will never address an end client/customer, but only focuses its business on other software and website suppliers. The research done by Ojala and Tyrvainen (2007) indicate that there is no direct link between the entry mode chosen, and the selection of a distribution channel. Selecting the distribution model seems to be more related to a firms' strategic choice on how to deliver the products to the end user than the selected entry mode.

Finally the service and implementation model explains us how the product will be installed, implemented, maintained and supported. This can vary from self-service to the execution of these services in the host country by the firms who offers the software. Another option is still eminent, which is that the partner in the country where the firm is operating in, offers their services. Of course there is a relation between the customization of the software, and the service that should be accompanied with this. The higher the degree of customization, the more service the product requires. If a software product is complex, is requires extensive installation, training, upgrading and after sales services, this would lead to a close relationship between the software firm and the customer. On this final segment, some connection between the choice of entry mode and the service and implementation has been found. This because firms who use representatives, are able to provide better after sales support.

The section above has sketched that product strategy is an important determinant for the entry strategy. But there are more factors of influence on the entry strategy than the ones that have just been mentioned. Something of great importance to Helios Solutions, is the fact that the new technological innovation that is being brought to the market using a certain entry strategy, is accepted by its customers as soon as possible. in order to find the right entry strategy to reduce this time to market, the following section will address some factors that are of influence on the take off time of a new product using certain entry strategies.

Rogers (1995) argues that the diffusion process begins when innovators who have a higher propensity to engage in trial adopt an innovation. This framework developed by Rogers argues that a new product innovation or technology takes off when it passes from introduction to growth phase. In looking at the take off process, firms are in a better position than consumers. Firms have access to private information, whereas consumers do not. In addition to this, the R&D marketing integration of organizations helps reduce the market uncertainty. This leads to the fact that both consumers and producers are faced with uncertainty when making adoption decisions. In this case, firms are in a better decision to reduce this uncertainty. Another important behavioral dimension in the acceptance of new product and technologies is identified by Howard (1983). He states that when an innovative product of technology passes from the introduction phase, the consumers' choice process moves from extensive to more limited problem solving where less information and cognitive processing are required. In accordance with these views, the time to takeoff is viewed as a phase characterized by a high level of market uncertainty and therefore of high information requirements. When this takeoff phase if completed, the learning requirements change and uncertainty is reduce which in turn leads to a more predictable demand.

Looking at the adoption side of customers for new products, there are according to Gatignon and Robertson (1991) three major factors that determine this adoption process of new product and technologies by customers. The factors determined by them are: awareness, willingness to pay and product availability. This because a consumer must be aware of the innovation. The customer will also only pay the price for the product if the perceived use of the innovative product is greater than the existing product and the product must be available to the consumer to purchase.
When an organizations main objective is to increase the rapid takeoff of the innovative product, the driving force should be the consumers. This implies that the focus of the organization should be on the early adopters. To reach the early adopters, an organization should develop awareness of the innovation, increase utilities and reduce uncertainty(Chatterjee and Eliashberg, 1990, Jensen 1982). To be able to reach the just mentioned goals, an organization should reduce the learning requirements by communicating information about the innovative product. Besides this, the new product should be positioned in such a way that it shows its superiority over the existing products and it should be aggressively priced or provide higher customer value. To be able to achieve the rapid takeoff, the following entry strategy is formulated: follow a penetration approach, achieve

compatibility with existing products, preannounce the product and follow an eternal route to market. In the following section the just mentioned strategy will be explained.

The penetration strategy to enter a new market encompasses aggressive pricing and high resource commitments in advertising, sales force and promotional activities. For starters, a penetration strategy must be chosen, this strategy is driven by multiple factors. The first factor is the to attract a critical mass of adopters. When a critical mass of adopters is determined and attracted, this can be used for the diffusion effect(Kalish, 1988). Secondly the selected penetration strategy should be able to benefit from learning effects, which implies that the process continues to improve. The last effect of the penetration strategy should be that it discourages competitors from entering the market with a similar product. The objective of the penetration strategy at the consumer level is to create maximal awareness about the technology and to increase the customers willingness to pay(Kim & Mauborgne, 2000). The penetration strategy tackles two important issues of the takeoff strategy for new product introduction in the market.

Another entry strategy is the compatibility strategy. The compatibility entry strategy implies "the pursuit of compatibility can allow an organization to achieve superior positioning in the market, since customers assign value to the possibility of accessing a larger network or to assemble a product system that is closer to their ideal configuration"(Economides and White, 1994). Compatibility will increase the confidence that consumers will have in the innovation, and therefore increase their willingness to pay. When a product in incompatible with the current networks, the perceived value of the users will be lower, since it is not clear how it will work with the existing networks. Therefore compatibility will contribute to the acceptance of new product innovation, and will increase new product takeoff.

The third strategy addressed is the pre announcing entry strategy. This there strategy tries to provide information, but most importantly increase awareness about the upcoming innovation. The pre annunciation of innovative product may have two effects on consumer adoption decisions: it provides pre launch information and awareness in the targeted market segment, and it may help reduce uncertainty and therefore unwillingness to pay. Another aspect of pre announcing an innovative product is the discouraging effect it might have on competitors. Due to the mentioned aspects, pre annunciation of an new innovative technology or product will have a positive effect on the takeoff.

The fourth tries to achieve rapid takeoff in the market with the new innovation by means of external route to market. The problem with most organizations, is that they have difficulties to commercialize the found innovations. There are two ways for organizations to get their innovation on the market, the internal and external route. The internal route is one that is time consuming, resource intensive, where an own sales force is created. The external route to market is one of marketing alliances, sometimes horizontal with other manufacturers. Therefore for smaller, less capital intensive firms, the external route is more viable for new product innovations and technologies(Tripsas, 2000).

The just mentioned entry strategies will not always prove to be effective. The effectiveness of an entry strategy depends on three broad varying categories; technological characteristics, the competitive environment and firm specific factors. The conceptual model(Appendix H), created by Montaguti et al. (2002) shows the relationship of these three categories with the entry strategy. In the following section, the effect of these three categories on the entry strategy of an organization will be explained.

The nature of the innovation at hand, affects the value of the possible actions an organization can undertake. As indicated in the model of Montaguti et al. (2002) the effect of technological characteristics on the entry strategy depends on the network externalities and the appropriateness

of the technology. For technology based innovations, such as for example the internet and conference call, a critical number of adopters is required. The same goes for the case of Helios Solutions. All the organizations at the moment, are involved in some sort of network. In the presence of these network externalities, the takeoff time depends on the uncertainty amongst customers regarding the dominant design. This results in the fact that the effectiveness of an entry strategy depends on how this uncertainty is taken away by this particular entry strategy. According to Montaguti et al. (2002) penetration strategies have greater value in markets with network externalities. Another important characteristic of technology, as stated before is compatibility. Technology compatibility plays an important part in the acceptance of the innovative product by consumers. By pursuing compatibility of an innovative technique or product, organizations eliminate network rivalry, without eliminating other aspects of innovation. Looking at the network, the effectiveness of compatibility reduces the takeoff time of new innovations. the findings of the research by Montaguti et al. (2002) about the relationship between network externalities and the entry strategy can be summarized as follows: *"The effectiveness of a penetration strategy, product compatibility, pre announcement and the use of an external route to market increases with network externalitities".*

The other technology related factor that is considered here, is the appropriateness. This refers to attributes that make an innovation profitable to an organization. It is suggested that low appropriateness leads to difficulties to protect a new innovation because the innovation can be copied or replicated easily by competitors. Appropriability will be a key variable influencing the effectiveness of an entry strategy for innovations. It is found that high appropriateness increases the effectiveness of a penetration strategy. For innovations that are difficult to protect, a skimming strategy is suggested. This because imitation would seem inevitable. This leads to the following statement by Montaguti et al.(2002): *" The effectiveness of a penetration strategy, product compatibility and the use of an external route to market increases with appropriateness, but the effectiveness of pre announcing to reduce time to takeoff decreases with appropriatibility ".*

The effectiveness of entry strategies are also influenced by factors that are out of the hands of the managers of organizations. The effectiveness of an entry strategy also depends on the competitive environment an organization is in. This includes industry concentration as well as the level of incumbency. Looking at the industry concentration, you look at the number of competitors in the environment of the innovative product. The number of competitors, affects both the sales takeoff(Agarwal and Bayus, 2000) and the pricing strategy. The effects of market concentration on the effectiveness of an entry strategy are summarized by Montaguti et al. (2002) as follows: *"The effectiveness of compatibility and the use of an external route to market to reduce time to takeoff increases with industry concentration and the effectiveness of pre announcing to reduce time to takeoff decreases with industry concentration".*

The incumbency level refers to the impact that is being captured of an installed base on firms' conducted to accelerate time to takeoff. It relates to the process and costs of changing the current technology to the new innovative technology. In a market characterized by a high level of incumbency, incumbents generally will seek to increase the commitment to the status quo and therefore to promote standards compatible with the previous installed technology. This aspect of market entry strategy, is concluded with the following statement by Montaguti et al. (2002): *"The effectiveness of a penetration strategy and compatibility increases with the level of incumbency, and the effectiveness of pre announcing and the use of an eternal route to market to reduce time to takeoff decreases with the level of incumbency".*

Finally the firms specific factors are of influence on the entry strategy of new innovations. These factors include such things as superior resources/reputation and advantages acquired through previous moves. To start, the reputation will be addressed. Reputation can have a positive influence

on the future rents. The firm's reputation can be seen as an indicator for the market commitment of an organization and its willingness to defend. Most relevant is the organizations reputation when it looks at the reputation acquired in the different product categories. Is a firms has a positive reputation, it will be able to capitalize on this aspect, and get the benefits from previous good innovations and normal products. The following statement is made to conclude the reputation of an organizations reputation by Montaguti et al. (2002): *"The effectiveness of compatibility and the use of an external route to market to reduce time to takeoff decreases with a firm's reputation but the effectiveness of penetration strategies and pre announcing to reduce time to takeoff increases with a firm's reputation".*

Looking at the order of entry, as the final aspect influencing the effectiveness of the entry strategy a general remark can be made that usually the first mover will have lasting advantages. Looking at the entry of innovative products on the other hand, it seems less important to be the first mover. This seems to be due to the fact that due to the higher level of uncertainty with an innovative product, the prospect of higher market share in a new market is less attractive. Due to a lot of uncertainties that come along with a new innovative product, the following conclusion can be drawn regarding the order of entry: *"The effectiveness of a penetration strategy, compatibility, pre announcing and the use of an external route to market to reduce time to takeoff decreases with order of entry."*

To summarize the just handled issues regarding the impact on effectiveness of entry strategy, the following table(Appendix I) can be constructed to give a simple yet good view of what can be regarded as an effective entry strategy.

The just discussed entry strategies of penetration strategy, compatibility, pre announcing and use of an external route to market indicate that for an organization such as Helios Solutions, who is trying to enter the market with a new and innovative product, the best way to do this would seem the penetration strategy. Looking at the table in the appendix, the only two aspects that have a negative impact on the entry strategy are industry concentration and order of entry. But, they appear to be not as relevant as other factors, since the offer of custom made software by Indian companies in the Netherlands doesn't appear to be huge, the industry concentration effect would decrease. Also the order of entry for a completely new innovative products will most likely not be the greatest determinant of the success of an entry strategy.

In the following section, where the method for generating a larger market share by introducing a new product to the market, a combination must be found of the proper entry strategy in order to generate a long sustainable profit on this product with the right entry strategy to minimize the time to market in order to start generating sales as soon as possible.

6. Method to increase the market share by introducing a new product

This chapter will describe the method that should be used by Helios Solutions in the future when new products are created. The combined literature of the previous chapters will be used to generate a series of steps that should be followed by Helios Solutions to come to a successful product. The first step encompasses the basic steps Helios Solutions should follow when creating a new product. The second major step concerns the finding of the needs of the specific target group this product should address. The third step is there to make sure that the new product will brought to the market in a good way so that the public will embrace the new innovative product.

The basic new product development process

The first aspect on starting with the innovational process, is to analyze what type of innovation Helios Solutions is dealing with. The innovation that they are looking for, is one of a product that is drastically different and that is also drastically different in use and recognition of the customers use. According to the literature by Meyers et al.(1989) this can be regarded as a discontinuous innovation. To complete the picture of what type of innovation Helios Solutions wants to generate, the new innovation is put along two dimensions. The technology capability and product capability. Since the product that Helios Solutions want to create a product that isn't based upon a new technology, this side of the matrix is disregarded. The product that they wish to develop, should provide the customers with something new. The product that is created, should feel as if it was new. This type of innovation they are dealing with is called commercially discontinuous. Now that the type of innovation has been identified, the next steps can be undertaken in order the create this commercially discontinuous innovation.

Now that the type of innovation is known, the first step in order to come to a successful discontinuous innovation should be undertaken, which is the dynamic drifting phase according Veryzer (1998). In this phase, the various available technologies are explored. In this phase, usually various different technologies are developed, without the knowledge of an actual problem. But according to Cooper and Kleinschmidt, this isn't the way to come to a new innovative product. They state that first an idea is required. When the two theories are combined, this should lead to a good combination that limits the costs of development of a new innovative product for Helios Solutions. This process should take place in the research and development department of the organization. For a smaller firm such as Helios Solutions, this phase implies that the various existing technologies are mapped. This because Helios Solutions' products are almost all based on open source systems. Open source systems here, means that the technologies that are being used, and the programming lines, are free for use to everyone. By combining multiple elements of this open source technologies, products are created. It is of course also possible to create new elements, but this is done when the specific requirements of the discontinuous innovation are found. So in the first step, an idea about the new innovation in combination with all the existing technologies that are present to create this idea are combined and talked through with the research and development department.

The next step in this process is identified as the convergence phase. In this phase, the various technologies are brought together and the first beginnings of the discontinuous innovation start to take shape. This convergence phase is driven by two forces. The first force is the idea champion also known as the visionary. This will be the same person as the one in the first step who have identified the idea for the innovative product. This person should also have a good insight into the market, and the possibilities for Helios Solutions in this market. This person is the driving force behind the discontinuous innovation. The second major force in this phase are contextual forces. These are technological interactions that push technologies to the next phase. This phase also looks at the funding, previous failed projects and organizational turbulence. These two driving forces create the first basics for the discontinuous innovation. So in the second step, the options that have come up in

the first step are analyzed. Than a combination of technologies in order to come to the innovative product is made.

In addition to the normal model of Veryzer (1998), an extra step is added here, in order to achieve the rapid take-off of the new discontinuous product. From the literature about the new entry strategies, it has come clear, that in order to reduce this take-off time, the customers need to be aware of the creation of a new product. By making it clear, that a new product is being developed, and indicating the direction of the development, customers can get start seeking information about how they want to use this product, and what the benefits of the new development for them might be in the future. This also makes the customers think about their requirements for said product, and this can be used when the customers' input is required. By introducing the idea onto the target market and group, this would reduce the time the customers require to adopt the product.

The formulation phase is the next step in order to come to a successful discontinuous innovation. This step, is the first step in meeting some of the requirements by the customers. The theory states that for smaller firms, the compliance to the market is greater than for larger firms. The main point in this step, is that the discontinuous innovation should differentiate the organization from its competitors. Therefore, in this step, it is wise to find out the basic needs of the customers, and create general knowledge about the existing products in the market. When these basic needs are known by Helios Solutions, a preliminarily differential advantage can be created in comparison with their competitors.

Coming to the next step, the preliminary design phase. As the name suggests, in this phase a preliminary design is made. In addition to the next phase, an informal method should be used to analyze the products that are already on the market. In the case of Helios Solutions, this should also be done. This helps creating a differential advantage over existing products on the market.

When the first preliminary product is created, this can be evaluated, in the evaluation preparation phase. This phase formally reviews the previous phase. In this phase, the organization decides if the project is viable, and if it can go on. In order for this to happen, the idea champion should make sure, that the design of the product is more specified than before. The technical differentiation is elaborated and a target market analysis is also created in order for the management to see the opportunities for the new product. In this step also an estimation should be provided on the number of sales, even though this might be difficult due to uncertainties of the discontinuous innovation.

When the previous phase is passed, this means that the project has been formally approved by the organization. Now a formal prototype of the discontinuous innovation is created. In this phase, all the technologies required for the product have to be combined, and design work should contribute into making the prototype visually look the part. This prototype is of exploratory nature, meaning that this prototype is used to determine the sustainability of the new technologies converged into this product. Several prototypes are created, on the basis of already existing technologies combined with new technologies. During this phase, the need for the requirements of the end user is felt. Target groups and good insight into their requirements provide a great deal of insight into how the product should take shape. Therefore the relationship with existing customers is an important one. The existing customer database can provide Helios Solutions with input on the new innovative products. the new product can be tested and reviews of the customers are good input into the finalization of the new innovative product.

In order to successfully produce the discontinuous product innovation, there are still two steps to be taken in order to fulfill the discontinuous product design. But considering the importance of the acceptance of the new technology, the input of the customers is seen as a major aspect in order for this innovation to be successful. To find the needs of the customers, the literature prescribes the use

of the technology acceptance model. It has also shown, that this model is a little outdated, so for finding the specific customer needs at this moment, the revised technology acceptance model is used to analyze the specific needs for this new product development.

Identifying the customers' needs

To identify the needs and requirements of the customers, the revised technology acceptance model is used. This model is a powerful model to predict and explain user behavior based on the perceived usefulness of the customers, which is an important aspect for determining the behavioral intention to use the new technique or product. The revised technology acceptance model uses the same dimensions as the previous model, but adds experience and voluntariness as different usage settings. There are two major categories of influence on perceives usefulness and intention to use, these are social influences and cognitive instrumental determinants. In this section, all the aspects that are of influence on perceived usefulness and intention shall be addressed in order to see which are of importance in the case of Helios Solutions.

The social influences are considered to be voluntariness, experience and image. Voluntariness in this aspects refers to the end user. It refers to if the end user voluntary uses the new product or technology. If the end user voluntarily uses the new technology or product, this would increase the intention to use by this user dramatically. For Helios Solutions, this would seem to be a good thing. The products that are being sold are sold to small software organizations in Western Europe, that choose the product of Helios Solutions, therefore voluntariness of the product is high, increasing the intention to use.

The second social influence is the experience of the end user. This refers to the experience the end users has with a certain technology. Of course when starting out with the new product or technology, the experience will be rather limited. But when the new product is based on existing technologies, this experience will play an important role in the perceived usefulness and intention to use. When a user has already used something based on a similar technology, the intention to use will increase when the previous experience is high. The experience also influences the perceived usefulness, since if there is experience with the technology, and this is seen as an advantageous product by the end user, the perceived usefulness will also increase. For Helios Solutions, it therefore is important to talk to the end client about their previous experience with certain technologies that will be implemented into the new product.

The third influence is the subjective norm. This aspect has influence on the intention to use, perceived usefulness and the image of the new product or technology. This refers to the behavior of the user or employee who is going to use the new product or technology. In particular the way this persons behaves, because he is under the influence of some higher authority. This implies, that if the change is mandatory, this subjective norm will have a positive impact on the intention to use. But for most of the organizations in question, the people using the product, will do that out of their own movement. Therefore the subjective norm, in the case of Helios Solutions will not be of large interest in the adaption process.

Subjective norm, also has an influence on the fourth aspect that is part of the social influence, which is image. For instance, when an individual has influence over a lot of people, and he thinks a certain technique is a good one, this would have a positive effect on the image of the technology. Image could be of importance, especially since all the customers of Helios Solutions are in the same niche, the image of Helios Solutions' new products can be of influence on the adaption of the new product.

The other aspects that are of influence on the perceived usefulness of a new product or technology are the cognitive instrumental determinants. There are four in total and are, hence the name, not of social nature. These are job relevance, output quality, result demonstrability and perceived ease of use.

Starting with the first determinant, job relevance. This determinant refers to how the user judges the new technology or product to be relevant for his job. The more relevant a new technology or product appears to be to ones job, the more willing the consumers are to adopt the new technology or product. Job relevance is therefore an important aspect in creating perceived usefulness and contributing to the intention to use.
The second aspect is the output quality. This referrers to how well the technology is capable of performing those tasks that match their job goals, finding a link with job relevance as well. Comparing it with this first element, it appears that this is less important. When it is not relevant it isn't used, but if the output quality is somewhat lower, but the price is much lower, it could still come out favorably for the user. The element of output quality is therefore worth mentioning, but not the most important driver in the adoption process.
The third determinant is the result demonstrability. This is "the tangibility of the results of using innovation". In other words, how clear it is to the users that this new technology or product is the the determinant of the new success. It should demonstrate the success. When creating a discontinuous innovation, it is clear that when this is introduced, that the created new effect comes from this new technology or product. Therefore the demonstrability in the case of Helios Solutions isn't very important.
The final cognitive determinant of perceived usefulness is perceived ease of use. As the name says, this refers to how easy the user the new technology or product perceives in using it. This is of course of major influence on the perceived usefulness and also of direct influence on the intention to use. It is therefore a major determinant for the adaption of the new technology or product.

The just mentioned revised technology acceptance model, shows that not all of the determinants for the adaption of the end user according to this model, are of influence on the discontinuous product development of Helios Solutions. The major differences are that the acceptance of the new technology or product is always voluntary. Therefore this shouldn't be adopted in the specific model for Helios Solutions. Another aspect of the revised technology acceptance model that is of no use, is the result demonstrability. When an organization purchases the discontinuous innovation of Helios Solutions, the effect of this innovation is known, and the results are clearly due to this innovation. Therefore, for Helios Solutions, that wishes to create a discontinuous innovation, the following technology acceptance model (Appendix G) is suggested.

If all the determinants in this model will be addressed, the acceptance of the new technology or product will have a greater chance to succeed. Now that the model for creating a technology or product that will be accepted by the customer is followed, the last two steps in the creation of the discontinuous innovation can be addressed.

When these critical points for customer acceptance have been implemented into the prototype, the testing and design modification phase is the next step to be taken. In this phase, the product can be issued to some of the existing customers, and feedback on this can be acquired. This process of modifying has to be done, until the product is at a level that it can be introduced to the market in general. After this phase, according to the literature, comes the phase that the product is taken into production. For the discontinuous innovation at Helios Solution, no separate production is required. When the product is done, this would imply that no extra effort has to be done in order to create it. The next step is to take the newly innovated product to the market.

How to get the product to the market as soon as possible.

To get the new innovative product to the market as soon as possible, the focus of this process should be on the adopters of this product, the customers. In order to reduce the take-off time of the new product, the right entry strategy should be adopted for the new innovative product. For the case of Helios Solutions, the factors influencing the take-off of the new product, will be discussed in the following section.

According to the literature of Ojala and Tyrvainen (2007) one of the most important determinants for a successful introduction of a new innovative product is the product strategy. The product strategy has a strong connection with the entry mode to operate in the market. This implies for Helios Solutions that in order for their products to be successful, Helios Solutions requires for products that are custom made for customers to have a representative in the country where this is sold. For the majority of the products, that are being distributed to the more general businesses, a sales subsidiary should be present as a good entry method.

Looking at the literature described by Montauti et al. (2002) for the case of Helios Solutions, the penetration strategy should be applied to come to a good entry method. This strategy has according to the table (Appendix I) the most viable options to come t a good entry mode that leads to the successful adoption of an innovative product. The penetration strategy to enter a new market, is an aggressive method to be used in order to generate market share and clientele. The first step in the penetration strategy is to identify a target market. This has already been done in the previous part, so this can be used. When this is identified, a critical mass of adopters is required, in order to use the diffusion effect to generate large market share. The penetration strategy should use all the available resources of Helios Solutions, in order to create this successful critical mass. This penetration strategy increases the awareness of the customers of the new product, and because in the penetration phase the price is usually low, the willingness to pay is also high among customers. The industry concentration and order of entry have a negative impact on the penetration strategy. The industry concentration in the case of Helios Solutions, is rather a limited factor. Even though there are a lot of organizations outsourcing their work to India, not a lot of small to medium sized organizations are doing this at the moment. Therefore the industry concentration in the case of Helios Solutions is rather limited.

The other part of the literature described by Montaguti et al. (2002) is used in an earlier stage of the development of the new innovative product. The pre announcing strategy is used in order to create awareness of the upcoming innovative product and get input in the development process.

7. Boundaries on the Research

Due to the presence in India and the available time there, certain boundaries have to be set to be able to present a qualitative good in dept answer to the management question. As stated above, this research will focus mainly on the product part of the marketing mix. Other aspects of this, will also be addressed, such as promotion, but the focus will remain on improving the product side, to improve the market share of Helios Solutions. Due to the markets they're in, the focus of this research will be the Western European market of Helios Solutions, which in this case implies the Netherlands and Germany. The research will look at the existing market, where Helios Solutions is in. Again due to time restrictions, it is not feasible to look into new markets, because researching an entire new market will be too time consuming. Therefore the scope of the research will be limited to the existing markets.

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Presentations

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9. Appendices

Appendix A:

All of the mentioned abbreviations are used in the programming industry, here it will be listed what they stand for:

AJAX stands for Asynchronous Javascipt And XML and is a term that has been used for desinging interactive webpages where asynchronously requested data is being picked up from the webserver. This means these sort of pages don't need complete refreshment. AJAX has been introduced by Jesse James Garrett on the 18th of february 2005 and immediately implemented by large companies such as Google and Amazon.

CSS is a way to document the entire code of styling a website all at once. CSS stands for Cascading Style Sheets, which means that all the information of styling the document is added to it's HTML code. It is possible that the information is in the document itself, but it can also be in an external document, that will be imported. A imported document will is listed as a stylesheet. A stylesheet offers the possibility to sepperate content and styling of a document, and therefore allows the styling to be used in multiple documents.

HTML which is the abbreviation of Hyper Text Markup Language, is a language used for specification of documents on the world wide web. The most imprtant aspect of HTML is that it supports hyperlinks. Hyperlinks are documents linked through traceable links. HTML is a simple text, which uses mark signs, to show how the text should be interpreted.

MySQL is an open source relational database management system. This system is based on SQL. SQL in this content stands for Structured Query Language and is a standart language for relational databse management systems. The "My" part in the name is not clearly defined, generally it has been thought to come from the name of the daughter of the co-founder of Monty Widenius, called My. These type of systems allow automatical communication with servers, so it is possible for a user to send and receive data from the server.

PHP is a script language, intended to create dynamix webpages on webservers. Originally designed by Rasmus Lerdorf of IBM. When it was first used, the letters PHP stood for Personal Home Page, but the full name at the time was Personal Home Page/Forms Interpreter(PHP/FI). Ever since the third version(PHP 3.0) the meaning has become a recursive acronyme: "PHP: Hypertext Preprocessor". This name states the meaning where it is normally used for, which is processing informating into hypertext, which usually is HTML or XHTML.

XHTML is a language especially for designing websites, based on HTML, but has a stricter syntaxis, where this is where the X of XHTML comes in, which stands for Extensible. This means XML documents can be processed better, and this has formed the W3C standarts on 26th of January of 2000. W3C standarts stands for world wide web consortium, and sets a standart for the world wide web. This standart provides specifications for websitesm so they can be viewed in every webbrowser.

XML stands for Extensible Markup Language, and is a standard for defiing formal markup languages for representation of structured data in the form of flat text. This way of programming makes it for humans and machine capable to read the representation. This is the standard for all the programming languages that have just been adressed.

Appendix B:

A quick review of marketing tools to enlarge the market share of Helios Solutions.

Marketing can be broken down in four different categories, all of equal importance for improving or sustaining the existing market share of a company. The elements who make up this "marketing mix" are Product, Price, Promotion and Placement, also referred to as the four P's of marketing. To be able to improve the market share, there has to be a company specific mix of these elements. This is different for every company, because for certain products price, promotion or placement may be irrelevant due to market circumstances. To be able to improve the existing market share of Helios Solutions, and in depth analysis of one of these four elements is required, therefore not excluding the other elements, but by focusing on the most important element of this mix for Helios, the best strategy can be determined to increase their market share.

Product

To make the decision of which element is most vital to Helios a short description of the meaning of these elements is required. The principal issues which are seen as a part of product policy can be summarized as (Piercy, 1997):

- Defining the product itself
- Selecting an effective product mix to service target markets
- Creating a branding policy that will have meaning and identity to the customer
- Developing and launching new products to meet emerging customer needs
- Managing product deletions

There are a lot of tools available for analyzing these issues and for supporting certain decisions. For instance the augmented product model where different levels and resources are displayed, from which the value for the customer can be seen. As well as portfolio models to assess the completeness and balance of the product mix. The product mix refers to a mix of the issues stated above. For Helios Solutions product is an interesting aspect to enlarge their market share, since to array of products isn't that large, and the name Helios Solutions isn't yet a large name in the European market, a substantial contribution can possibly be made on the product mix. And therefore also increasing their market share.

Price

As well as product policy, for pricing there are certain issues which make op the so called "pricing mix". The issues at hand for pricing are the following:

- Price positioning in terms of level against competitors and customer expectation
- Price levels and relativities within the product mix
- Types and forms of price discounting
- Pricing in different customer markets

The problem with pricing is that it is difficult to find a good balance between competing internal interests against uncertain and risky external pressures. For developing a price, there are two major sets that shape a price, the marketing environment in the broadest sense and the organizational factors. The two major sets, define the boarders within a price can be set. Therefore the stated issues above are only issues that must be taken into consideration when a certain price level is established. But when determining a price, keep in mind that it price is just one of the many factors taking into account by customers. Because of the fact that Helios Solutions has all of their programmers in India, a high level of quality can be provided for a small amount of money. Therefore the factor price is an

important aspect of the marketing mix for Helios Solutions and plays rather large part in keeping and maybe improving their market share.

Promotion

Regarding the promotion area, it is important for the management to decide upon the objectives to be reached by the promotional program. The most important part on the promotional program is to get the sales forecast department and the promotional department on the same line of communication. There are several communication methods open to us, for trying to reach out to the customer, and just as before, striving to perfect mix, is what were looking for, to increase the market share of Helios. The following methods are present:

- Advertising using mass media
- Personal selling
- Sales promotion
- Public relations

For these methods of reaching out to customers, it is important to have a goal set up before trying to address them all. Therefore a couple of guidelines are set up to determine the best promotional mix.

1. Decide on the role of each form of communications in delivering the market strategy to the market place
2. Setting objectives for each form of communications which represent achieving the role they want to play
3. Managing the communication process
4. The integration of communications activities

As mentioned above, the name Helios Solutions hasn't broken through in Europe. Therefore increasing the market share of Helios Solutions by focusing on promotional tools, is an option that should require serious consideration.

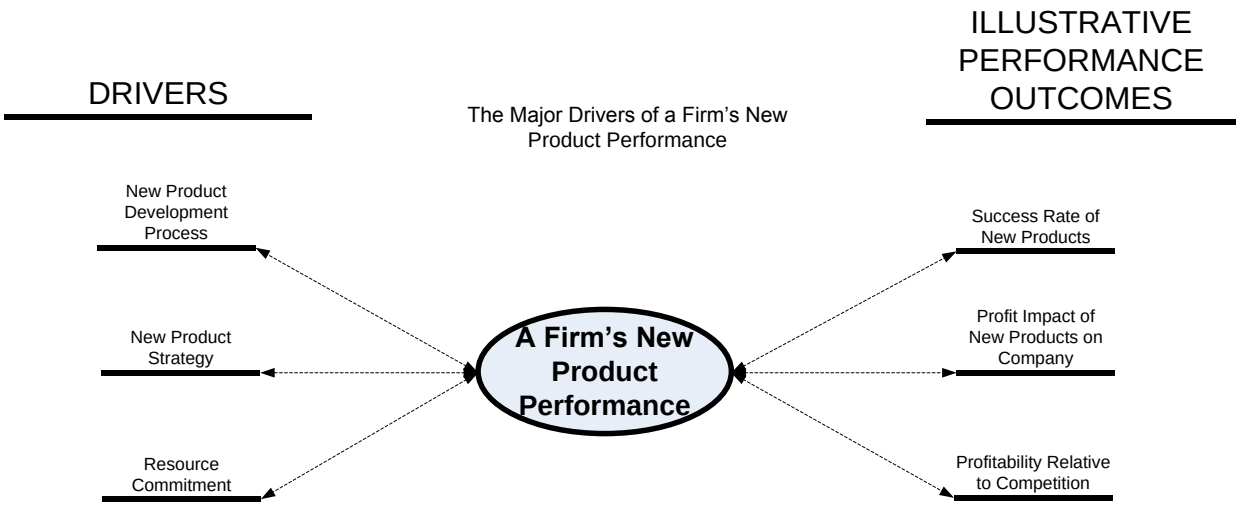
Placement

For a company selling products and services such as Helios Solutions placement can add up to a real advantage. Since they don't rely on raw materials to come in, and produce an outcome that requires large transportation facilities, it can be situated in a country where the people are cheap, yet have a high skills. Just as before, there are a couple of main questions, to determine how the placement mix is, or should be:

- How long do I have to wait to get delivery and how sure am I to receive it on time
- Can I get spare parts, maintenance and after sales service quickly and reliable

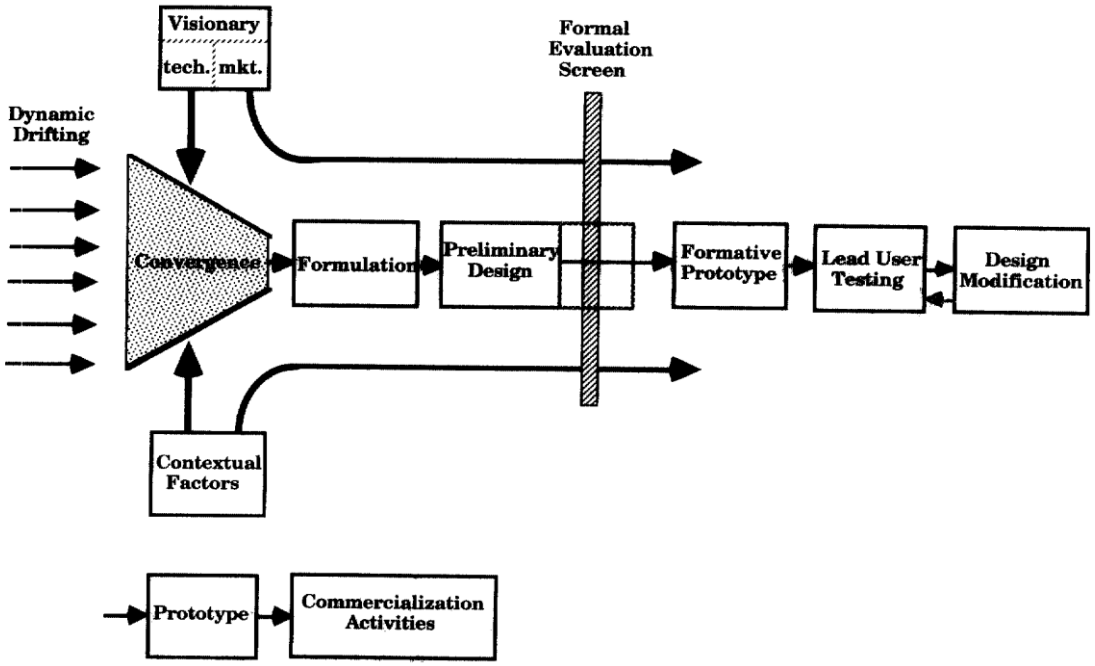
Looking at the products and services Helios Solutions offers to the market, located in India, not much has to be changed concerning the placement area. Maybe certain adjustments have to be made, concerning the access to the European market, but this can be seen as a promotional tool as much as it can be seen as a placement tool.

Appendix C:



Adapted from Robert G. Cooper and Elko J. Kleinschmidt, "Benchmarking Firms' New Product Performance and Practices," Engineering Management Review 23 (Fall 1995): pp. 112-120

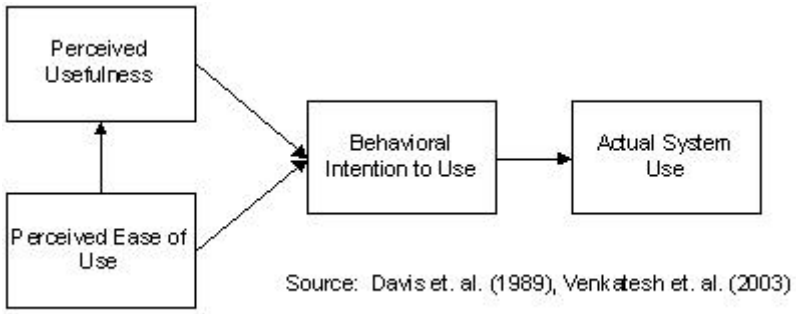
Appendix D:



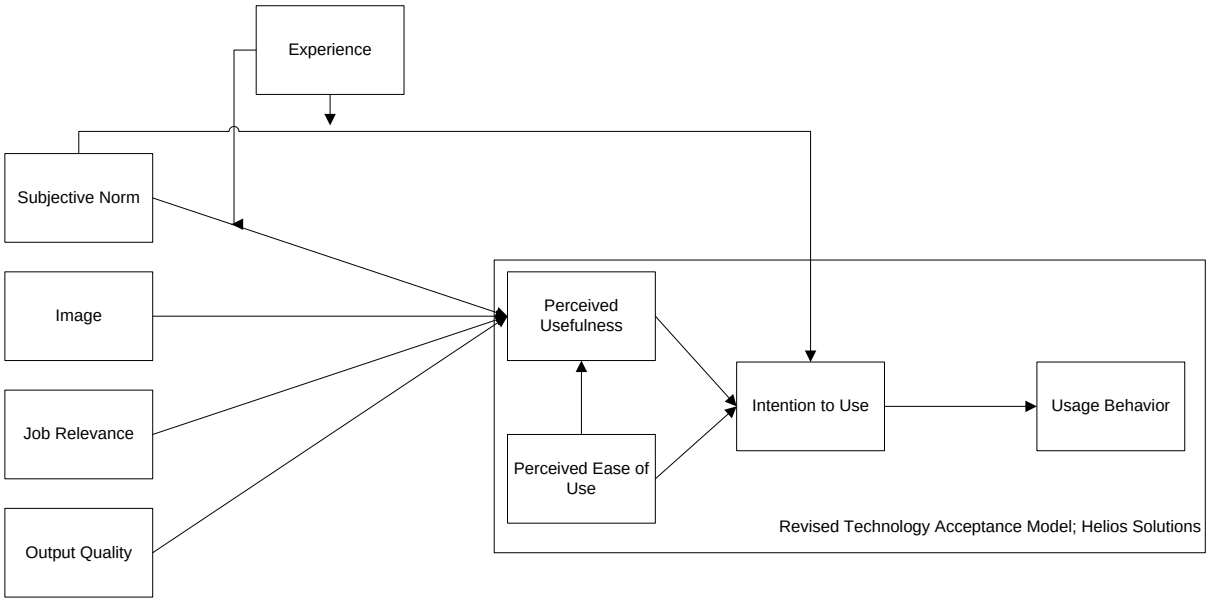
Appendix E:

	Company			
Tool	***Mobify***	***Mobilemo***	***Instant Mobilizer***	***2ergo Mobile***
User friendly	√	√	√	
Nothing to install	√	√	√	
SEO Friendly	√	X	√	
Works on Multiple Devices	√	√	√	√
Learn objective C	X	x	x	
Select and create images and text	√	√	√	√
Select and create login and search	√	√	√	√
Template feature	√			
Mobile stylesheet	√			
Device-Specific resizing	√	√		√
Free	x	x		x
Interactivity	x	√	√	
One click dialing	x	x	√	√
Google maps auto generated	x	x	√	
HCard Autogeneration	x	x	√	
Share link	x	x	√	
Multimedia support	x	x	x	√
Instant site preview	√	√	√	√

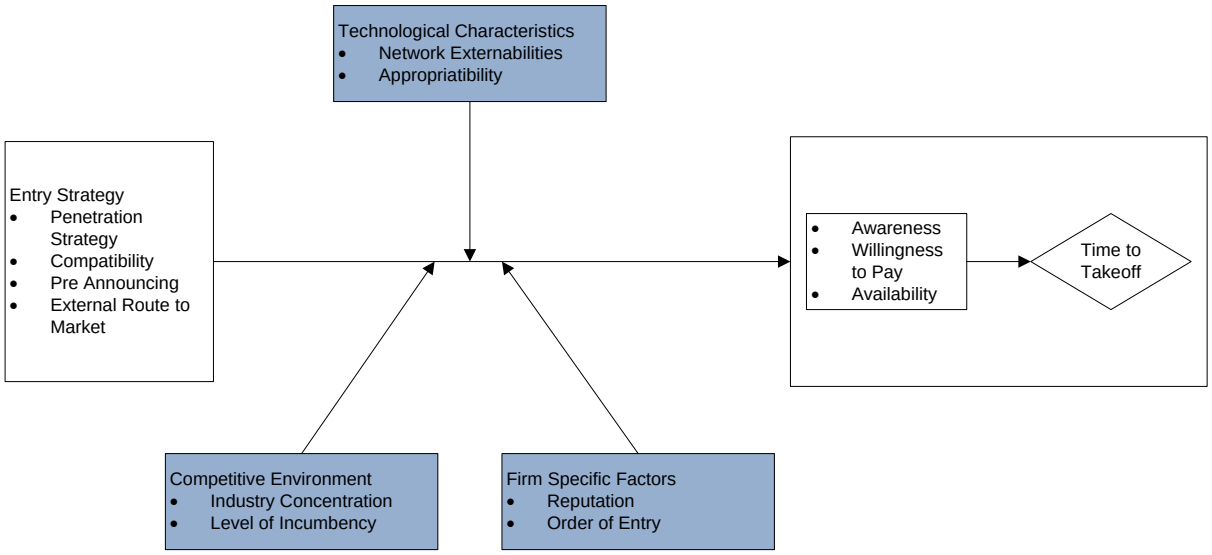
Appendix F:



Appendix G:



Appendix H:



Appendix I:

	Impact on effectivess of entry strategy			
	Penetration strategy	Product Compatibility	Pre Announcing	External Route to Market
Technology characteristics				
Network Externalities	+	+	+	+
Appropriatibility	+	+	-	+
Competitive Environment				
Industry Concentration	-	+	-	+
Level of Incumbency	+	+	-	-
Firm Specific Factors				
Reputation	+	-	+	-
Order of Entry	-	-	-	-