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FINAL THESIS REPORT

PRODUCT CONCEPT ANALYSIS FOR GUIDANCE MONITORING LIMITED

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## ABSTRACT

Organizations are currently operating in markets characterized by strong competition, small market segments, emergent technologies, substitute products and short product life cycles. The need for successful product development has never been greater and it can be seemed as a key to business growth and profitability.

Guidance Monitoring Limited is an English technology company, willing to expand its current business palette. The company is currently considering investing in a new product concept, but is unsure about its possibilities, especially within a totally new market area. The aim of this thesis is to investigate the characteristics of successful innovations, new product concepts and different market strategies as such, and to provide the company with the information about the concept's target market, financial prospects and recommended strategies. Finally, all this information is used to provide a justifiable decision whether to invest in the concept or not.

The thesis is divided into two different parts that are linked to each other. The first part provides a theoretical framework for the thesis, in which innovations, market planning, and target market strategies are discussed in theoretical level. All professionally approved theories are gathered from various different literacy and internet references. The second part of the thesis links the discussed theory into practise, analyzing the product concept, its target market, and financial view.

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**Key words:** Innovation    business opportunity    competition analysis  
marketing plan    electronic monitoring

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# **1 Introduction**

## **1.1 Thesis' background information**

The idea for this final thesis came from my practical training company Guidance Monitoring Limited (GML) that is an English technology manufacturing company. The managers of the company had been considering whether they should invest in new business concept, which technology would be in the core expertise of the company. The business idea, an electronic compliance-monitoring system to improve hand-hygiene, came from another English company and Guidance wanted to investigate it carefully. At this stage, it was already known that the concept would involve risk in expanding the company's operations to a totally new business area. However, the product's technology would be relatively easy to design and manufacture and the market for the concept could be very profitable. The business development manager of the company, Keith Phillips, asked me to research the concept's opportunities as my final thesis project. Together with the other directors of the company, we decided that the analysis would examine the concept's financial opportunities and reveal if there is already existing competition in the market. The decision whether Guidance Monitoring Limited will expand its product catalogue will be made later, based on this research.

## **1.2 Client company introduction**

Guidance Group is a leading supplier of sophisticated navigation and tracking technologies. The company's core expertise is in sensor design, signal processing and systems integration. With strong technical knowledge and a wide product range, the Guidance Group provides innovative solutions in a variety of challenging applications. Company's products are used globally in the marine, security and factory automation industries. As a subsidiary of the Guidance Group, Guidance Monitoring Limited specialises in the design and manufacture of sophisticated electronic tagging/tracking systems for personnel monitoring, especially in criminal justice applications.

### **1.3 Aims for the thesis**

The directors of Guidance Monitoring Limited have been looking for new opportunities to expand their current business palette. In spring 2008, the company received an interesting business idea and the company is now considering whether to invest in it or not. There are, however, few problems with the concept that exacerbate the investing decision. These include, for instance, that the company's normal business model is not that of distribution to a mass market and therefore the likely distribution channels are not currently in place. Moreover, the concept's market area is totally new for Guidance Group.

To ease the decision whether to invest in this product concept, the directors of Guidance Monitoring Limited hoped that this thesis would give them valuable information to assist the investing decision. The directors wished that the main emphasis of the thesis would be in investigating if there is already existing competition in the target market. Also, information about the target market and an analysis of the expected demand and profits would be necessary for the investing decision. All other information aiding the decision would be, of course, also highly appreciated.

### **1.4 Methodology and scope**

The first part of the thesis forms a theoretical framework for the analysis. In this part, innovations, competition, target markets and business strategies are discussed at a theoretical level. The intention of this part is to set guidelines how innovations can be measured and what are their characteristics of successful innovations. Moreover, the theoretical part will provide information related to the possible marketing strategies and introduce some potential market strategies that could be used with the concept. This theoretical framework is based on both literature and internet sources, with main emphasis on Everett Roger's book *Diffusion of Innovations* (2003) and Philip Kotler's and Kevin Lane Keller's book *Marketing Management* (2008).

The second part of the thesis concentrates to the client company Guidance Monitoring Limited and especially to the particular product concept. This part links the discussed theory in practise, in order to value the concept's opportunities at its target markets. The second part ends to a short marketing plan and financial view that will be used for providing a justifiable recommendation if GML should invest in the concept or not.

## **2 Attributes of innovations and new products**

### **2.1 Innovation**

According to Everett Rogers, “*an innovation is an idea, practice, or object that is perceived as new by an individual or other unit of adoption.*” Newness of an innovation does not need to involve just new knowledge – someone may have known about the innovation for some time but has not yet developed a favourable or unfavourable attitude toward it, nor have adopted or rejected it. Newness of the innovation can be expressed in terms of persuasion, knowledge or a decision to adopt (Rogers, 2003).

### **2.2 Measuring the value added by innovation**

Organizations are currently operating in markets that are characterized by strong competition, globalization, geopolitical instability, emergent technologies, smaller market segments, substitute products, shorter product life cycles, and the bargain of consumer’s power. At the same time, shareholders are putting increasing pressure in reducing costs and optimizing the investments. The two most common approaches to increase companies’ profits and create a sustainable competitive advantage are operational cost reductions (short-term) and differentiation and being innovative (long-term). In most cases, especially in periods of economic recession, organizations are following the cost reduction approach despite its results may disappear after only two or three years. In long-term basis, innovation can be seen as the only source of sustainable competitive advantage (Gama, da Silva and Ataíde, 2007).

Despite innovation is critical for organizations’ growth, measuring the benefits created by innovation projects is very tricky and most companies do not even try to do it. Many organizations do not have the internal structures to measure innovation or pay attention to the process of innovation management, although well managed innovations are the most important way to create long-lasting advantages for the company. Well-managed innovations are an integral part of organizations’ strategies and activities, and may even create new business strategies (Gama, da Silva and Ataíde, 2007).

Most companies do not actually understand the importance of innovation, and despite it would be understood, they are seen as a “black box” in which management tools cannot be applied. In many companies the typical innovation problems are actually not in a lack of innovations or in innovation

spending, but in a lack of measured and well managed innovation. Innovation should be aligned to the strategic objectives, create value to the organization, and support companies' internal procedures. It should actually be managed as any other project within the company (Gama, da Silva and Ataíde, 2007).

One method of judging innovations is based on innovation metrics that are defined before the project is even evaluated (and eventually approved), in order to help the project to create the intended benefits. Later, when the project is already implemented, the chosen metrics can be used to measure if the innovation project added the organization's overall value (Gama, da Silva and Ataíde, 2007).

### **2.2.1 Innovation metrics**

Innovation is a multidimensional and complex activity, which cannot be measured by only one metric. Moreover, lists of different metrics that are based on financial parameters are also insufficient because the evaluation methodologies are based on only tangible values. However, there are a few examples of metrics used in organizations that allow informed decisions and benchmark with the competitors (Gama, da Silva and Ataíde, 2007).

Various metrics for innovations are important for at least three reasons. First, the metrics demonstrate the value of the innovation and can be used to justify investments in long-run risky projects. These metrics support better investment decisions that are based on hard data. Second, good innovation metrics enable companies to evaluate objectives, programs, employees and projects, in order to concentrate the resources on the most important projects. Third, metrics affect human behaviour and support a common language, resulting in better communication throughout the corporation. However, if wrong metrics are chosen, they may lead to short-term, narrow and risk-avoiding decisions and actions. This means that selecting the right metrics for each innovation project is fundamental (Gama, da Silva and Ataíde, 2007).

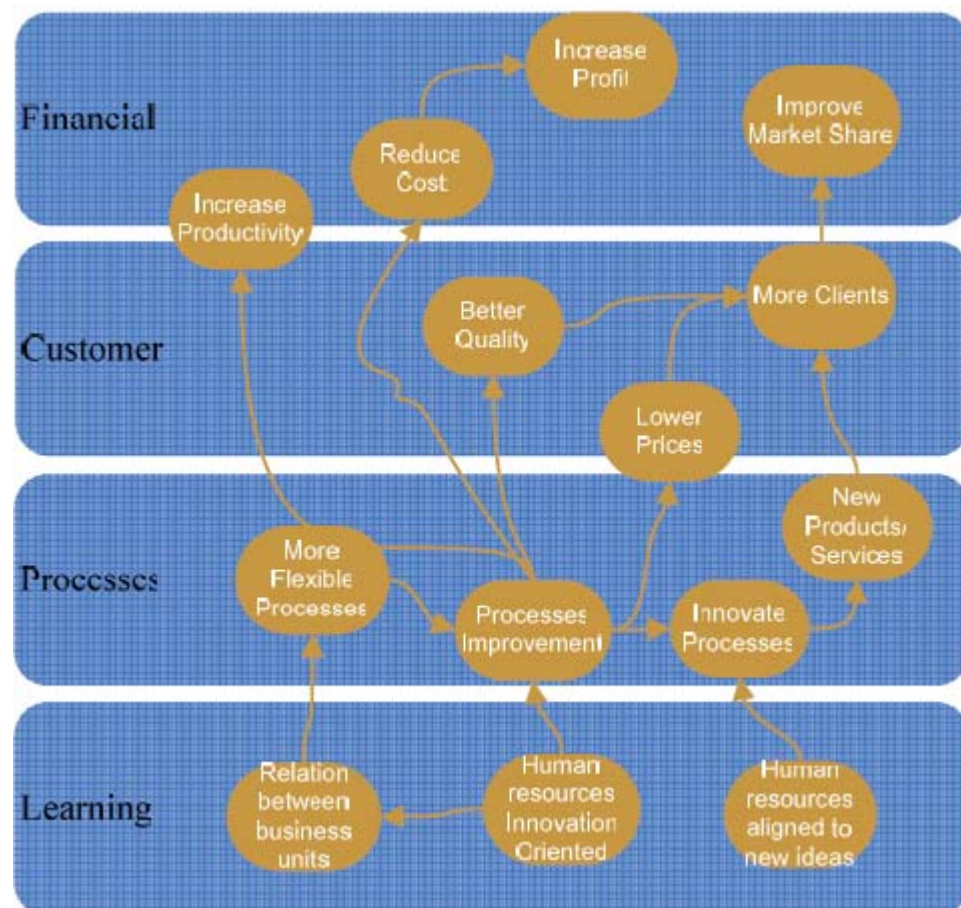
Traditionally, the innovation metrics measure outcomes such as increased satisfaction levels, sales or incremental profit. As a matter of fact, many generic metrics are similar within a chosen industry, despite each organization should choose them based on their own strategy. For example, one popular innovation metric is the profit generated by the new products, divided by the amount spent on innovation. When this metric is used alone, the profits would increase in short-term but it would also sacrifice the future. Besides the importance of financial metrics, they can only offer a limited view of the innovation's value, with an excessive emphasis in technological development,



compared to other types of innovation, such as changes to business processes. The only way to avoid this kind of “false rejection” is to set a bit lower weight on financial metrics, compared to some other metrics. However, financial metrics cannot ever be totally rejected (Gama, da Silva and Ataíde, 2007).

Innovation can be managed only if it can be measured – this is why innovation metrics are important. Without these metrics, innovation management is based only on common sense, personal feelings or political interests. This is why innovation metrics should be combined with the company’s overall strategies, not only to measure the value added by innovation but also to align innovation projects with strategic objectives (Gama, da Silva and Ataíde, 2007).

Figure 1 shows an example of strategic objectives that can be used in innovation planning.



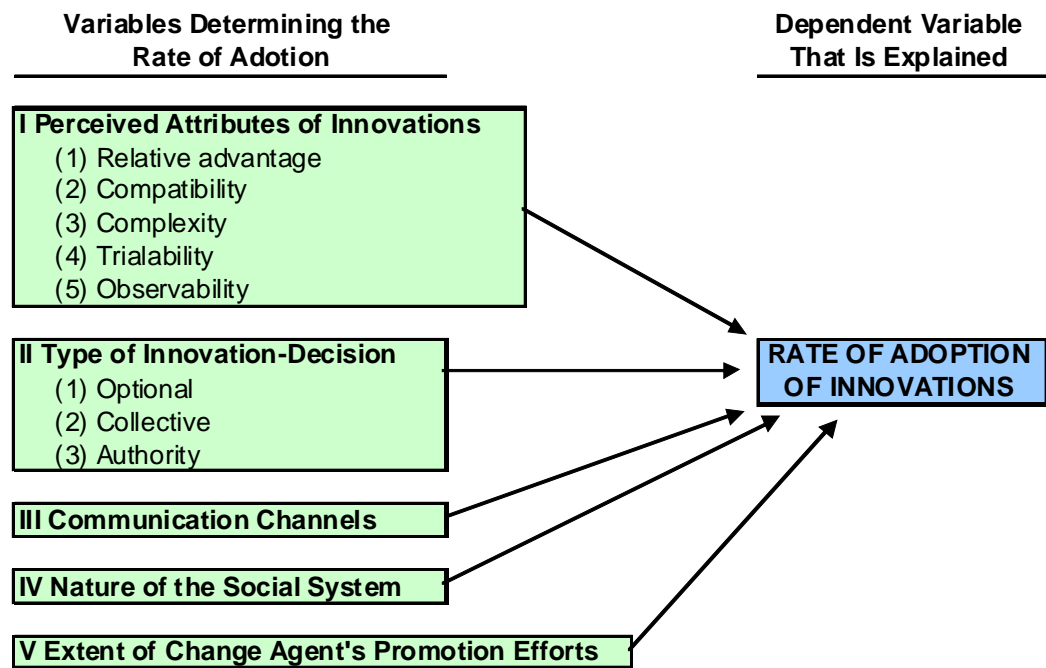
**Figure 1:** Examples of strategic objectives for valuing innovation (Gama, da Silva and Ataíde, 2007).

### 2.3 Attributes of innovations and their rate of adoption

According to Everett Rogers, innovations can be described with five different attributes. Individuals' perceptions of these five attributes predict the innovation's rate of adoption, meaning the speed with which an innovation is adopted in a social system. In addition to the innovation's five different attributes, there are also other variables that may affect to the rate of adoption. These are: (A) the type of innovation decision, (B) the nature of communication channels diffusing the innovation at various stages in the innovation-decision process, (C) the nature of the social system, and (D) the extent of change agent's efforts in diffusing innovation (Figure 2). Innovations that require individual's personal decision are generally adopted faster than the ones that are adopted by organizations. Moreover, the more persons are involved in the innovation-decision, the slower the rate of adaption will be (Rogers, 2003).

As already mentioned, there are five different variables, which explain from 49 to 87 percent of innovation's rate of adoption. These are:

1. *Relative advantage* is the degree to which an innovation is perceived as better than the idea it replaces.
2. *Compatibility* that is the degree to which an innovation is perceived as consistent with the existing values, past experiences, and potential adopter's needs. An idea that is more compatible fits more closely with the individual's situation. This helps the individual to give a meaning to the new idea.
3. *Complexity* which is the degree to which innovation is perceived as relatively difficult to understand and use. In other words, the more difficult the innovation is, the weaker its rate of adoption will be.
4. *Trialability* is the degree to which innovation may be experimented with on a limited basis. This means that if an individual can actually try the innovation, say in trial run, it will be easier to understand it. This, of course, improves the rate of adaption.
5. *Observability* is the degree to which the results of an innovation are visible to others. Some ideas and innovations can be easily observed, whereas some cannot be at all. For instance, in technological innovation, the hardware aspect is usually visible, and the software is not. The more visible and touchable the innovation is, the easier it is to adopt it (Rogers, 2003).



**Figure 2:** Variables determining the rate of adoption of innovations (Rogers, 2003).

## 2.4 Expansion of a current product palette

*“Turning an idea into a successful, profitable product or service is not just luck. It requires careful evaluation of opportunities and risks”* (West 1998).

According to Howard Van Auken’s article *“Obstacles to business launch”*, published at *findarticles.com*, new businesses are usually launched due to opportunities at certain markets, technical expertise, excellent managerial skills or limited consumer alternatives. In my opinion, these factors, added by an innovative product or service, are also drivers for new product launches. (Van Auken, 1999)

As the main purpose of most companies is the stockholder’s welfare; growth and solid financial performance are necessities of all successful companies. One relatively popular way to improve company’s performance is through new products and services, which have usually great opportunities for revenue growth, customer intimacy and new markets. To succeed in such a challenging process, companies must carefully manage the development and support of the product throughout its entire lifecycle (Van Auken, 1999).

### 2.4.1 The concept of new product development

New product development (NPD) is a commonly used term to describe the process of introducing a new product or service to markets. This process can be divided into two different steps: the actual product development and the market research with marketing analysis (Ulrich and Eppinger, 2004).

Since all new product launches differ from each other, various categories can be used to determine these processes. For instance, some products may be totally new to the existing markets, some are new to firm and some may create totally new markets (Ulrich and Eppinger, 2004).

### 2.4.2 Roadmap for product development

Product innovation starts with an idea and ends with the successful launch of the product. The stages between these two points can be viewed as a dynamic process, where all the action occurs. These stages are cross-functional, meaning that there is no research and development or marketing, and each activity is undertaken in parallel to enhance speed to market. To manage risk, the parallel activities in a certain stage must be designed to gather vital information - market, financial, technical and operations. This is done in order to drive down the business risks and technical risks. Each of the stages cost more than the preceding one, which results in incremental commitments. When the uncertainties decrease, risk is better managed and expenditures are allowed to rise (Product Development Institute, 2008).

Doctors Robert G. Cooper and Scott J. Edgett have designed a Stage-Gate® roadmap, in which the process work includes six different stages:

1. *Discovery*: Activities designed to discover opportunities and to generate new product ideas.
2. *Scoping*: A quick and inexpensive assessment of the technical merits of the project and its market prospects
3. *Build Business Case*: This is which either makes or breaks the project. Technical, marketing and business feasibility are accessed resulting in a business case that has three main components: product and project definition; project justification; and project plan
4. *Development*: Plans are translated into concrete deliverables. The actual design and development of the new product occurs, the manufacturing or

operations plan is mapped out, the marketing launch and operating plans are developed, and the test plans for the next stage are defined.

5. *Testing and Validation*: The purpose of this stage is to provide validation of the entire project: the product itself, the production/manufacturing process, customer acceptance, and the economics of the project.
6. *Launch*: Full commercialization of the product - the beginning of full production and commercial launch (Product Development Institute, 2008).

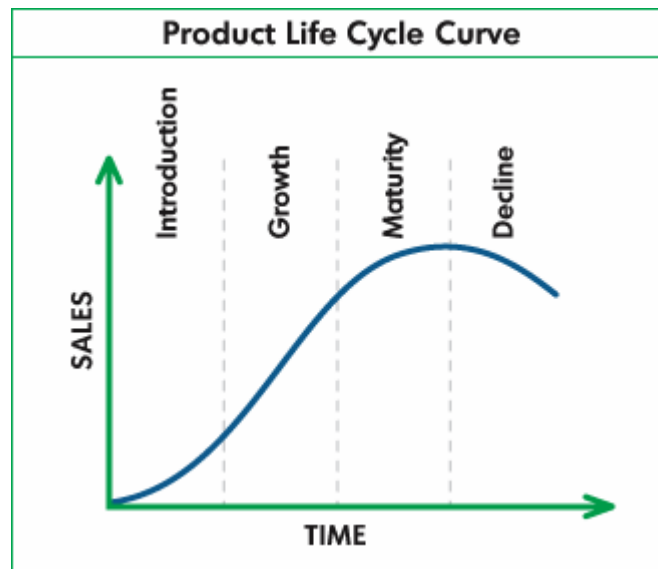
### **2.4.3 Successful product launch**

The importance of being the first to the market should not be underestimated. There are certainly absolute benefits for those companies, which get sooner to market with innovative services and products. Some of these benefits are; First, the longer the product's sale's life (relative to the competition) the greater the sales can be. Second, the more innovative the product, the longer the end-users are willing to pay a premium purchase price. Third, the faster companies can satisfy customer's changing needs, the greater the possibilities to capitalize on those products. And finally, being first on the market is a position, which cannot be taken away, unlike best-seller or other market positions. Product introduction is a primary source of gaining long-term competitive advantage. Companies that react quick enough to customers' changing needs are better positioned to win a major part of the market (IBM Global Business Services, 2006).

Ironically, however, as companies are investing to new products and services, the concepts do not usually succeed very well. The most common reasons for the failures have been poorly defined customer needs, lack of clear strategy and insufficient resources – both monetary and human. In addition, in most failures there has been lack of executive level support. These attributes make the new product introductions risky but also, especially in an early market stage, very profitable. The known risks, however, can be reduced by careful strategic planning and accurate market researches (IBM Global Business Services, 2006).

### 2.4.4 Product life-cycle

The product life-cycle (PLC) concept is based upon the biological life cycle as experienced by living organisms. Gerard J. Tellis and c. Merle Crawford drew an analogy between patterned change in biological evolution and product life-cycles in 1981. They found out that the biological phases (*Cladogenesis*, *Anagenesis*, *Adaptive radiation*, *Stasigenesis* and *Extinction*) are clearly mirrored by the phases of the PLC; introduction, growth, maturity and decline. However, there has been criticism that the fourth, decay stage, can be deferred if not postponed indefinitely for products. While this stage is inevitable for living things, it may be avoided with products, by improvements and increased promotional actions (Kotler and Keller, 2008).



**Figure 3:** Product life cycle curve (Trump University, 2008)

The Figure 3 distinguishes the four main phases of the PLC – introduction, growth, maturity and decline. The figure's x-axis shows the PLC-phase related to time, and the y-axis the amount of sales acquired from the phase. The following chapters describe the stages more carefully.

### **Introduction stage of the PLC**

When a new product is introduced, typically sales will be low until customers become aware of the product and its benefits. Sometimes, companies give announcements of a new product before it is even introduced. Such actions are obviously one type of marketing, but they also alert competitors and the surprise element will be lost. During the introduction stage, various kinds of advertisement costs are typically high, as companies try rapidly increase customers' awareness. Moreover, there are usually additional costs associated with the initial distribution of the product. These attributes, together with low sales volume, usually make the introduction stage financially negative. The primary goal for this stage is to establish markets and build demand for the product (Kotler and Keller, 2008).

### **Growth stage**

This is the period of quick revenue growth. In most cases, sales will increase as the customers become aware of the new product and its benefits. When the product has proven its success, the marketing and sales teams may expand the product's distribution. In a typical PLC situation, the competitors will usually enter the same market at the end of the growth stage. In this situation, the promotional costs will usually increase as the companies try to prove their product's superiority.

During this PLC stage, the product quality is often increased, the pricing strategies might be changed, distribution usually becomes more intensive and increased promotion builds brand preference (Kotler and Keller, 2008).

### **Maturity stage**

This is the most profitable stage of the PLC. While sales have increased into this stage, they have done so at a slower pace. At this stage, the brand awareness is usually strong and the promotion expenditures can be reduced, improving the profits. However, during this stage the competing products have usually become very similar, making the product's differentiation more difficult. This often leads to the main goal of the maturity stage: to maintain the market share and extend the product life-cycle (Kotler and Keller, 2008).

## **Decline Stage**

Eventually product's sales will begin to decline as the market becomes saturated, customer tastes change or the technology becomes old. Usually, the unit costs increase as the production volumes decline and eventually it is not possible to make more profit. At this stage, companies have only few options to continue with the current product: try to reduce the costs and find new uses, lower the price to liquidate inventories, wait competitors' exits or harvest the product with, for example, and reduced marketing support (Kotler and Keller, 2008).



## 3 Marketing and business strategies

### 3.1 Target marketing

The concept of marketing calls for understanding customers and satisfying their needs better than the competitors do. However, different customers have different needs, and it is almost impossible to satisfy all customers by treating them alike. Target marketing recognizes the diversity of customers and does not try to satisfy them with the same offering. The first step in target marketing is to identify different market segments and their needs (Kotler and Keller, 2008).

As we are discussing about industrial markets through this analysis, we should first identify the characteristics of these markets. First of all, in contrast to consumers, there are fewer numbers of industrial customers, who tend to purchase in larger quantities. Typically, these customers evaluate offerings in more detail and there are more people involved in the decision processes. These characteristics apply to organizations such as service providers, manufacturers, resellers, governments and institutions. These markets could be segmented based on, for example, location, and company type and behavioural characteristics (Kotler and Keller, 2008).

There are two important factors that affect to the selection of a target market segment: the attractiveness of the segment and the fit between the segment and the firm's resources, capabilities and objectives. When the attractiveness of a market segment is considered, the following aspects should be identified: size of the segment, growth rate of the segment, competition, brand loyalty of the existing customers and expected profit margins in the segment. Typically, a detailed marketing research is instrumental in obtaining this kind of information. When the second important factor, suitability of market segments, is investigated, the company should consider aspects like:

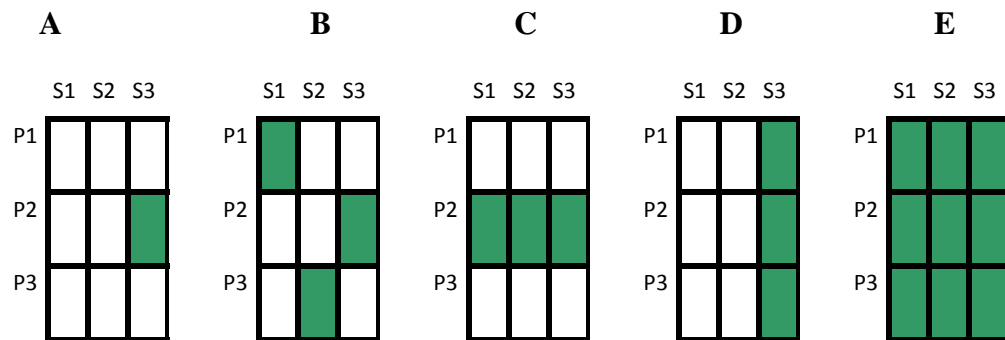
- How to access to distribution channels that are required to serve the segment
- What affects the selected segment has on the firm's image
- If the company is capable to offer superior value to the customers in the segment
- What is the required initial investment to serve the segment

(Kotler and Keller, 2008)

### 3.1.1 Target market strategies

Companies can follow various different target-market strategies in order to achieve the targeted market share. When a company has identified its market-segment opportunities, it must decide how many segments and which ones to target. There are two different factors which should be looked at: the segment's overall attractiveness and the company's objectives and resources. Does the potential segment have characteristics that make it attractive, such as, profitability, scale economies, growth, and low risk? Moreover, does the segment make sense given the firm's competences, objectives, and resources? After the different market segments have been evaluated, a company should consider the five strategies of target market selection. These strategies will be dealt next and in Figure 4, in which there are three different market segments S1, S2 and S3, and three different products P1, P2 and P3 (Kotler and Keller, 2008).

- (A) Single-segment strategy - sometimes also called as a concentrated strategy. Using this strategy, a company has only one market segment (not the entire market) that is served with one marketing mix. This approach is often used by smaller companies with limited resources.
- (B) Selective specialization - this multiple-segment strategy, is also known as a differentiated strategy. In this approach, different marketing mixes are offered to different segments. The product itself may or may not be different within different segments. Often, however, only the promotional message or distribution channels vary.
- (C) Product specialization - the company specializes in one product and tailors it to different market segments.
- (D) Market specialization - the company serves only one market segment and offers that segment various different products.
- (E) Full market coverage - the company tries to serve the entire market. This coverage can be achieved by means of either a mass market strategy where a single undifferentiated marketing mix is offered to the entire market or by a differentiated strategy where a separate marketing mix is offered to each market segment.



**Figure 4:** Five patterns of target market selection (Kotler and Keller, 2008).

A company that is planning to enter a market should first concentrate to the most attractive segment that matches its capabilities. Later, when the segment has been saturated, it can be expanded by pursuing a product specialization strategy, tailoring the product for different segments, or by pursuing a market specialization strategy and offering new products to its existing market segment (Kotler and Keller, 2008).

### 3.2 Competitive forces

According to Michael Porter, there are five forces that determine the intrinsic long-run attractiveness of a market or market segment: industry competitors, potential entrants, substitutes, buyers, and suppliers. These forces can be posed as follows (Kotler and Keller, 2008):

1. *Threat of intense segment rivalry.* A segment is not attractive if it already contains numerous, strong, or aggressive competitors. It is even more unattractive if the market is stable or declining and fixed costs or exit barriers are high. These conditions lead to a more expensive market, which is characterized by new-product introductions.
2. *Threat of new entrants.* The most attractive segment is one in which entry barriers are high and exit barriers are low. This means that only a few firms can enter the industry, and poorly performing rivals can easily exit. These features limit the amount of competitors within the market.
3. *Threat of substitute products.* A segment is also unattractive when there are actual or potential substitutes for the product. They limit both the prices and profits.

4. *Threat of buyers' growing bargaining power.* A segment is unattractive if buyers have strong or growing bargaining power. This means that sellers should select buyers who have the least power to negotiate or switch suppliers.
5. *Threat of suppliers' growing bargaining power.* A segment is unattractive if the company's suppliers are able to raise prices or reduce the supplied quantities. Suppliers tend to be powerful when they are concentrated or organized, when there are few substitutes and when the costs of changing suppliers are high.



**Figure 5:** Five forces of competition (Badi, 2007)

### 3.3 Competitive advantage

To gain successful position in a certain market, a company must have an advantage over its competitors. This allows the company to generate greater sales and retain more customers than its competitors. The competitive advantage may be, for instance, product offering or quality, firm's cost structure, customer support or distribution network. These advantages give a firm an edge over its competitors and an ability to generate more value for the firm and its shareholders. In addition, the more sustainable the competitive advantage is, the more challenging it is for rivals to neutralize the advantage (Kotler and Keller, 2008).

The two main types of competitive advantages are: differential advantage and comparative advantage. A differential advantage can be created by differing company's products or services from its competitors. Also, when the customers see the products or services better than competitors', the differential advantage is achieved. Comparative advantage, or cost advantage, is the ability to produce goods or services at a lower cost than the rivals. This enables the firm to generate more margins on sales or to sell products or services at lower price than the competitors (Kotler and Keller, 2008).

### 3.4 Marketing plan

According to Philip Kotler and Kevin Keller (2008), marketing plan can be seen as a critical part of product planning. Marketing plans are typically prepared for individual products, lines, brands, channels, or customer groups. Marketing plan should be prepared for each product level for achieving its goals. Typically, marketing plan includes tactical guidelines for the marketing programs and financial allocations over the planning period. It should include the following sections:

- **Situation analysis.** This section gives relevant background information about sales, costs, the market, competitors, and the various forces in the macro environment. With all this information, companies' should build a SWOT analysis, in order to position themselves correctly.

- **Marketing strategy.** In this part, directors should define the product line's mission, financial objectives, and groups and needs that the market offerings are intended to satisfy. With this information, the management should be able to establish the product line's competitive positioning, for accomplishing the plan's objectives.

- **Financial projections.** This part includes a sales forecast, an expense forecast and a projected cash flows analysis.

- **Implementation controls.** This section outlines the controls for monitoring and adjusting implementation of the plan. Typically, it spells out the goals and budget for each period, so that the company's management can review them, and take corrective actions as needed (Kotler and Keller, 2008).

### 3.5 Generic Business strategies

According to Michael Porter, firms position themselves by leveraging their strengths. These strengths ultimately fall into one of two headings: cost advantage or differentiation. By applying these strengths in a broad or narrow scope, there will be three different strategies: cost leadership, differentiation and focus. These strategies are used at the business unit level. The following chapters and Figure 6 discuss more about Porter's generic strategies (Kotler and Keller, 2008).

Target Scope	Advantage	
	Low Cost	Product Uniqueness
Broad (Industry Wide)	Cost Leadership Strategy	Differentiation Strategy
Narrow (Market Segment)	Focus Strategy (low cost)	Focus Strategy (differentiation)

**Figure 6:** Porter's generic strategies (Kotler and Keller, 2008)

### **3.5.1 Cost leadership strategy**

This generic strategy is about producing for a given level of quality, but in the same time, with low costs. The companies utilizing this strategy either sell their products at average industry prices, in order to earn higher profits than the competitors, or below the average price to gain greater market share. This kind of cost leadership strategy usually targets to a broad market.

Most common ways to acquire cost advantages are by improving process efficiencies, making optimal outsourcing, avoiding costs in general and gaining access to lower cost materials. Firms that succeed using cost leadership strategy usually have some of the following internal strengths:

- Access to the capital required making a significant investment in production assets; this investment is a common for many companies.
- Skills to design products for efficient manufacturing, for instance, having only a few components to shorten the assembly process.
- High level of expertise in manufacturing process engineering.
- Efficient distribution channels.

The negative aspect of this strategy is that it does not prevent competitors to also achieve low cost manufacturing that will lower their end prices. This requires, however, some of the introduced internal strengths (Kotler and Keller, 2008).

### **3.5.2 Differentiation strategy**

This strategy calls for products or services that have unique or better features compared to competitors. These features must, however, also be valued by the customers. The product's special features may allow the company to have a higher price for the product or service. Companies that successfully utilize this strategy, often have strengths such as: access to leading scientific research, highly skilled and creative research and development team, efficient sales team and/or high corporate reputation. The risks using this strategy include changes in customers' tastes and competitors' possibilities to imitate the features (Kotler and Keller, 2008).

### **3.5.3 Focus Strategy**

The focus strategy focuses to a narrow market segment and within that segment, uses either a cost advantage or differentiation strategy. The point of this strategy is to focus entirely to a smaller group, which can be better serviced. The companies that use this strategy usually have high level of customer loyalty, which also makes the market entry tougher for others. Because the selected market is narrow, firms have also lower production volumes and therefore less bargaining power. However, the customers do not usually have substitute products, which allow companies to have higher prices.

Firms that use successfully this strategy are usually able to tailor their product development range to a narrow market segment, which the company knows very well. The risks involved are, again, the imitation and changes in the target segment. Moreover, the market cost leader might fairly easily adapt its product for this segment (Kotler and Keller, 2008).

### **3.5.4 Combination – All or nothing**

Porter's generic strategies are not necessarily compatible with each other. If an advantage is tried to be achieved on all fronts, a company may end up to a situation where there aren't advantages at all. For example, if a company is supplying very high quality products it may risk this quality by trying to become also a cost leader. Despite the quality would not suffer the company risks in projecting a confusing image. This is why Michael Porter points out that a successful company must select only one of the generic strategies.

However, Porter has also argued that it is possible to be successful with multiple strategies by creating separate business units for each strategy. By doing so, different policies and cultures may be used within one corporation. Despite Porter is probably the well known marketing and company strategy expert, these categories have sometimes been criticised, as consumers often seek multi-dimensional satisfactions, such as high quality and low price (Kotler and Keller, 2008).



### **3.6 Opportunities of business alliances**

There are many reasons why companies form strategic alliances, including reducing manufacturing costs, entering new markets and developing and diffusing new technologies. Moreover, alliances are used to accelerate product introductions and to overcome trade and legal barriers. Companies forming these alliances must be sure that the goals of alliances are compatible with their existing businesses in order to transfer their expertise to the alliance. Business alliances have been widely used during the past years, but relatively high percentage of them fails. The most typical reason for this lies in different kinds of corporate cultures. Typically, the benefits of the alliance are also overestimated (Walters, Peters and Dess, 1994).

Without a proper business partner, a firm should never undertake forming a partnering relationship, even for right reasons. The goal is to establish alliances, where both parties have a win-win situation and there are synergies between the contributions of the partners. In addition, the partner companies have to be compatible and trust to one another. Commitment to the partnerships, both financial and psychological, is of course essential to succeed in the alliance (Walters, Peters and Dess, 1994).

- Managing a partnering relationship is a tricky process. In most cases, all partners want their voice in decision making, which leads to slower and more complex decision processes. Furthermore, companies' might have different, and often also conflicting, goals for the partnership, which leads to complicated decisions. Moreover, the synergies' benefits are often also overestimated. These aspects lead to a fact that as many as 70 percent of all business alliances fail (Walters, Peters and Dess, 1994).

#### **3.6.1 Typical forms of business alliances**

There are various types of partnering relationships, which all have both advantages and limitations. The two most common types are joint ventures and strategic alliances. Joint ventures are typically structured as a partnership or as a newly formed and co-owned corporation in which two or more firms are brought together to achieve various strategic and financial objectives on a short-term or long-term basis. Strategic alliances refer to any number of collaborative working in a relationship, where no formal joint venture entity is formed but two independent companies become interdependent by entering into a formal or informal agreement that is built on a platform of mutual objectives, strategy, risks and rewards (Sherman, 2008).

## **4 Guidance Monitoring Limited**

### **4.1 Company description**

The company Guidance Limited was founded in 1991 (then Guidance Control Systems Limited) and is based in the city of Leicester, England. The company's founders' (Dr Malcolm Roberts, Russ Miles and John Potter) wanted to exploit their professional interests in position measurement and tracking systems. Initial software consultancy tasks quickly changed into 'smart sensor' development and manufacture. Nowadays, Guidance Group is a growing middle-size company, employing about 90 professionals in a wide range of engineering and commercial disciplines.

In 2005, the corporation was divided into two different subsidiaries, which are operating under the parent company Guidance Limited. The subsidiaries were: Guidance Monitoring Limited (GML), designing electronic monitoring technologies, and Guidance Navigation Limited (GNL), concentrating to sophisticated marine sensors and automatic vehicle navigation. The third subsidiary, Guidance Microwave Limited, was acquired in 2007.

The core expertises of Guidance group are in sensor design, signal processing and systems integration. With strong technical knowledge and a wide product range, company provides innovative solutions for a wide variety of customers, from small and medium sized companies to multinational corporations and governments. Guidance cooperates with local partners worldwide, ensuring lower end prices and support services that are always available. The main customers of Guidance's wide product range are operating in the security, factory automation and marine industries around the world.

#### **4.1.1 Guidance Monitoring Limited**

Guidance Monitoring Limited has developed an advanced electronic monitoring system that is used in security and criminal justice applications. The system enables a special way of monitoring, which guarantees that convicted offenders' are obeying their curfew orders, meaning that they are in the stated position at stated time. This special way of monitoring can be done with a sophisticated monitoring unit and an ankle transmitter. Guidance Monitoring has also developed a GPS tracking solution that allows officers' to track offenders' movements wherever they are.

The company entered the electronic monitoring market almost 10 years ago and the business has grown steadily as the integrity and reliability of the devices have been recognised. At the moment, GML is the major supplier to the UK monitoring programme, with approximately 11 000 set of equipment in use daily. The company's electronic monitoring system integrates state-of-the-art components and advanced data processing technologies that can be implemented on any scale, from pilot studies to full electronic monitoring (EM) programmes with many thousands of offenders monitored daily. Guidance's EM system is used in some of the world's most successful criminal justice programmes.

## **4.2 Company's business strategies**

One of the reasons why Guidance Group has been very successful in the past years is in the company's ability to utilize a mixture of different business strategies. As it was already discussed in the chapter 3.5 *Generic business strategies*, Michael Porter has argued that it is possible for a company to use various strategies, only if they are used in different business sectors. Guidance Limited consists of three different business sectors, or more precisely three subsidiaries, which all have actually chosen different generic strategies.

In this analysis, we are obviously interested in Guidance Monitoring's previous strategies. This subsidiary of Guidance Group has been using the cost leadership method with its electronic monitoring system. The baseline for this strategy is in the company's ability to use efficiently local subcontractors. These skilful companies offer Guidance very high quality products, with comparatively low prices. The electronic monitoring system is targeted to very narrow market segment, which includes European governments and few states in the USA. The past few years have shown that there are actually four major technology providers that are competing over the EM tenders in Europe; these are Guidance Monitoring Limited, Serco, G4S and ElmoTech Ltd. All of these companies are offering pretty much the same kind of EM-solution, if you may, with same kind of monitoring devices, equipment and operation system. This aspect, obviously, emphasizes the role of company's reputation, support services and, especially the end price of the system.

In spring 2008 Guidance Monitoring Limited's cost leadership strategy started to pay off as the company won all available EM-tenders in Europe, with its aggressive pricing strategy. Actually Guidance could have asked a higher premium for its technology, but the deals had a lot more value than their pure financial profit, as the company could remarkably improve its reputation and

brand within other European governments. In future, Guidance will have better chances to win new contracts, even with higher premium prices.

#### **4.2.1 Guidance Monitoring Limited's business practises**

During the past years, Guidance Monitoring Limited has mainly concentrated its operations to the UK's electronic monitoring programme. The company has also been involved in few other monitoring programmes, but the main scope has been in the UK. During the UK's monitoring programme, Guidance Monitoring Limited has done remarkable product and system development, in order to develop the most sophisticated EM-system available. The spring 2008 finally rewarded the long-lasting product development and the company had its busiest and the most successful period so far. Company participated successfully to various tender processes around Europe and managed to established new business alliances in few market areas.

Due to the fact that GML does its business on the B2B- and governmental levels, the company has had a very special way to do business. Electronic monitoring business is run by only a few companies in the world and there is only a limited number of customers available, usually one or two per year. This is why Guidance Limited has diversified its business to various business sectors, in order to lower the risks and maintain constant cash-flows. Because governments can be seen as GML's final customers, the business processes are sometimes extremely slow and occur only periodically.

The companies operating in the electronic monitoring industry and government officials have had an opportunity to meet every other year in a special conference organized in the Netherlands. Basically, this event is one of a few opportunities for the business sector to create new contacts, build their brands and prepare themselves for future tender processes. The executives of Guidance Monitoring Limited have participated in this conference few times, creating new contacts to various governmental level officials. Despite the importance of these contacts, they are only the first step of the long-lasting tender processes, which involve constant contacting and researching from both parties. When the European governments are finally publishing their requests for quotations, they receive only few tenders from the companies they already know very well.

## 5 New business opportunity

We have already discussed in chapter 2.2 *Measuring innovation's value* that the two most common approaches to increase companies' profits and create a sustainable competitive advantage are operational cost reductions (short-term) and differentiation and being innovative (long-term). In our case, Guidance Monitoring Limited is obviously interested in long-term growth and is willing to expand its current operations through innovative products. The importance of innovativeness is understood in the whole Guidance Group and the company invests constantly lots of resources in research and development of new innovative products and ways to do business. The idea for the discussed product concept did not actually come from Guidance, but the company's expertise in such technology is needed for developing another successful monitoring system.

### 5.1 Background information

In spring 2008, the company Bio-Care Systems Ltd introduced an interesting business idea to Guidance Limited. The idea was based on a research project that Bio-Care Systems Ltd had previously done with a concept of an electronic compliance-monitoring system to improve hygiene. The background for this research was in developing the technical feasibility and commercial opportunity for the use of innovative solutions to improve basic hygiene in healthcare, food preparation and food handling organizations by compliance monitoring of hand-washing. The original idea for Guidance's and Bio-Care's co-operation was to redevelop the already designed hygiene monitoring prototype and to establish a commercial partnership for manufacturing and selling this concept. This co-operation would be based on a licensing contract, in which Guidance Limited would pay an annual fee for Bio-Care Systems Ltd, in order to commercialize the monitoring concept.

On 3<sup>rd</sup> July 2008 the managers of Guidance Monitoring Limited and the developer of the monitoring system, Dr Colin Millar from Bio-Care Systems Ltd, met in Leicester to discuss about partnership possibilities. I participated in this meeting, as it would offer me important information about the original business concept and its commercial possibilities. Unfortunately, it was discovered that Bio-Care Systems did not have a patent for the system, although they had developed a prototype of the system already few years ago. The pilot programme had not been very successful, and Guidance would have to start the product development basically from scratch. At this point, it was

unclear if Guidance would even cooperate with Bio-Care Systems Ltd as they could not offer anything else but the business idea.

Whether these two companies will cooperate or not, it is clear that a third party company will also be required for the distribution, marketing and sales actions of the system. It is clear that Guidance Monitoring Limited is not interested in these activities and it does not have required resources. Company's key expertise is in designing and manufacturing of sensor technology, and it wants to stay there also in future. It was decided that the system development would be postponed to a later point so that a proper research of the market could be done.

## **5.2 Basis for monitoring hand-washing compliance**

Hand hygiene is known as the single most important factor in reducing and preventing various illnesses. According to World Health Organization (WHO), people's average hand washing compliance is ranging from 5 to 76 percent around the world. The figures are obviously only directional, as they are based on data from various countries, but more importantly, the study proved that compliance can be affected positively. Study showed that after interventions, the compliance percentages rose to levels ranging from 30 to 92 percent. There is also another research, conducted in Geneva Switzerland, which showed that the baseline of washing compliance rose from 48 to 66 percent after interventions. Both of these studies show demonstrable information that people's hand washing compliance can be positively affected with discipline and education (Health Protection Scotland, 2008).

Healthcare and food manufacturing sectors, where hand-hygiene is a serious concern, are also suffering from the noncompliance of hand washing, which may cause serious consequences to their customers. The reasons behind this sort of noncompliance are mainly different compared to average people. According to John Carvel's article, published on March 2005 at The Guardian newspaper, nearly 40 percent of the British National Health Service (NHS) employees have not had constant access to the hot water, paper towels, soap and alcohol rubs. This was particularly alarming due to spread of the MRSA (methicillin-resistant *Staphylococcus aureus*) superbug. The article was based on Healthcare Commission's annual survey 2005, which concluded the replies of 209,000 NHS employees in England. The study also revealed that MRSA infection rates had been increasing, although new hygiene standards had recently been introduced. Due to the results, the standards were recently updated again (Carvel, 2006).

The lack of hygiene facilities is not, however, the only reason behind the problems at these special sectors. Another major problem is, of course, that the employees working especially in the healthcare sector need to wash their hands constantly. According to health and safety recommendations, they must clean their hands before meeting every new patient, meaning as many as 150 washing times during one day. This leads inevitably to both ignoring and forgetting hand-washing. It is clear that these very special groups need more actions than re-educating and better soaps (Health Protection Scotland, 2008).

### **5.2.1 Problems with hospital bacterium**

In the past years, the spread of hospital bacteria has been a serious concern around Europe. Despite the spread could be prevented relatively easily, the situation is still getting worse. During the past years, newspapers have reported almost weekly about the bacteria spread in various healthcare districts around Europe, and despite governments are spending millions of pounds for stopping especially the superbugs, the results have not been too impressive. The major problem is in poor hygiene, but efficient isolations, education and some other procedures would also significantly help the situation. The following articles are just the tip of the iceberg, but they reveal the current situation in Finland and England (Palm and Pelli, 2008).

The major Finnish newspaper Helsingin Sanomat published on August 26<sup>th</sup> 2008 an article concerning the spread of MRSA in Finnish hospitals. During the past years, infections have become a serious concern and despite preventing actions have been done, the situation has got worse. The most critical hospital microbes in Finland are MRSA and *Clostridium difficile*. Both of the microbes (MRSA and *Clostridium difficile*) can be fatal to patients, and unfortunately, have become more common in Finnish hospitals. For instance, in 2008 there has been 30 percent increase in the spread of MRSA infections, compared to previous year. The critical situation has been noticed, and for instance, Pirkanmaa healthcare district spent 2,5M€ for stopping MRSA infections. The article that was published in Helsingin Sanomat also pointed that the most efficient, and probably only, methods to avoid infections are improved hygiene, quick reactions and efficient isolations. In addition, education and consulting can be used in some cases to stop the infections (Pelli, 2008).

The latest news from Britain have revealed that the number of deaths caused by the hospital bug *Clostridium difficile*, has doubled in England and Wales during the last two years. The Guardian newspaper reported on 29<sup>th</sup> August 2008 that despite government's actions against hospital bugs, the *C. difficile*

was mentioned on 8,324 death certificates only last year, compared with 6,480 in 2006. This means an increase of 28 per cent. According to Patient Concern campaign group, “The reasons for these deaths are simple – it is down to dirty hospitals, overcrowded wards, lack of isolation units and poor practice.” Despite these terrifying figures, there has been a slight decrease in reported MRSA infections. Also, some professionals think that the increased numbers of infections are caused by awareness and reporting, not the increased amount of bugs. Anyway, the Department of Health is taking the issue “very seriously” and invests £230 million each year in infection control measures. The Times’ article was based on the Healthcare Commission’s newest yearly report (Boseley, 2008).

### **5.3 Description of the product concept**

The concept of hygiene monitoring system can be seen as any other product and it will also have a typical product life-cycle. At the moment, the concept is not even at the introduction stage of product life-cycle, as the product development is still going on.

In chapter 2.4.2 *Roadmap for product development*, we discussed that a product development starts with an idea and ends with the successful launch of the product. The stages between these two points are viewed as a dynamic process. At the moment, Guidance Monitoring has already passed the first stage of the product development, as it has already discovered the new business idea. Now, the company is at stage two: scoping. According to Product Development Institute (2008), in this stage a company will do a quick and inexpensive assessment of the technical merits of the project and its market prospects. The next step will be building a business case of the concept that will finally either make or break the project.

This far, the system features have not yet been fully designed, but the following description of the concept is used as a basis for the system:

The purpose of the system is to monitor that employees are taking care of their personal hand-hygiene, with the given rules for the regularity, patterns and for certain areas and actions. The compliance monitoring system would consist of two main components: fixed monitoring units and portable personnel badges, which can be adjusted individually. In addition, the system can be linked to a database system, which shows historical data and individual washing compliance. The system can be retro-fitted to an existing facility and uses optical data transfer methods for effective data transfer and to prevent radio interference. The system identifies the presence of a user, say in a toilet area, and identifies and authorises him/her. The information about the actions and



length of the period is recorded onto a badge, worn by the user, together with the location of the facility.

The monitoring unit that is located in the facility gives the user a display of usage and/or usage time and warns them if they leave before a defined time and/or usage pattern has not been completed. The badge records all or aspects of the usage data and can also display the time elapsed since the last use of a facility. The time can also be shown, for instance, with a colour changing material of the badge. The data from the badge can also be downloaded to the database system at regular intervals. The compliance monitoring system is mainly designed for use within the healthcare industry but is not limited to such applications.

### **5.3.1 Requirements for the product concept**

The compliance monitoring system is designed for use within food manufacturing and healthcare industries, to stop the spread of bacteria. The system is used to detect, record, and give an indication of the usage patterns of hand-washing. Some requirements for the system were already discussed in the previous chapter, but the most important ones include at least the following attributes:

The system must be easily retro-fitted to an existing facility and should use optical data transfer methods to prevent radio interface. The devices must be easy to use with minimal education and their usage times need to be long-lasting, in order to cut down the clients' costs and to be more environmentally friendly. Environmentally friendliness also means that the materials used in the devices must be recyclable and their batteries must be returned to the manufacturer Guidance Monitoring Limited, who will handle them with care. Moreover, all devices and soaps must be packaged minimally to reduce extra waste and to make the refilling as simple as possible.

The system must be trustworthy and have extremely assured use. As the system identifies the presence of the users, this must be done automatically, without any extra attention from the users. After the hand-washing is completed, the system must give an indication that the washing is approved. This must also be showed by the badge that is worn by the user. In order to prevent the spread of bacteria through the system, all functions of the system must be hands-free. The soap that is used in the dispenser must be effective for all possible bacteria. In addition, some sort of moisturising solution must be offered to prevent the dryness of hands due to constant hand-washing.

## 5.4 Competition analysis

In order to estimate the sales potential of a totally new product, it is necessary to have information about the target market and the competitors within it. In this analysis, I will introduce the competition within hygiene monitoring market using Michael Porter's competitive forces model that was discussed in chapter 3.2 *Competitive forces*. I won't, however, concentrate to competitor's ownership structures, financial histories, staff resources, distribution channels, marketing activities or any other parts of typical competitor analysis. Instead, I want to introduce few of these companies and their hygiene monitoring concepts very shortly, so that we would have an image in which kind of market Guidance Monitoring Limited is considering to enter.

In his model, Porter emphasized the threat of intense market rivalry, meaning that the more competitors within the market, the less attractive the market is. In this analysis, I have divided the market's current competitors into two different groups which together build up the segment rivalry: direct- and indirect competitors. The indirect competitors could also be seen as companies' offering substitute products, as Porter described them. In addition to the current competition, Porter also considered the threat of new entrants. These companies will be discussed under the headline future competitors. Altogether these three groups form the first three competitive forces of Michel Porter's model.

The two last competitive forces, threat of buyer's bargaining power and threat of suppliers' growing bargaining power, are not as great threats for Guidance Monitoring Limited. The concept is offered to health care sector and large, individual, companies, and there is only a slight fear of buyer's growing bargaining power. In its purest form, this threat means a situation in which a customer would have a possibility to choose from various similar products and put the prices on lower level (typical in retail business). With Guidance's unique business concept, and small scale sales, this threat can be seen insignificant. The last threat, suppliers' bargaining power, is also almost irrelevant, as Guidance Group has already various different suppliers all over the world who are willing to supply materials for Guidance. So, all in all, there are three major competitive threats, which consist of competition in the market. These threats are discussed more detailed in the following chapters.

### **5.4.1 Direct competitors**

According to Ewing Marion Kauffman Foundation's definition, direct competitors are businesses, which sell similar services or products in the same target market. The definition also includes the companies that sell them as a sideline to their normal business. Usually, these companies are located in the same geographic region (Ewing Marion Kauffman Foundation, 2005). Few of Guidance's most important competitors are:

#### **HigenX**

Irish based HigenX Company has developed an electronic hygiene monitoring system that uses Radio Frequency Identification (RFID) technology for monitoring hand-washing compliance. Where system is used, the staff members wear small ID tags that communicate with monitoring units each time hand-washing takes place. The system has also a database feature that records employee's washing compliance. More information about this system can be found from: <http://higenx.com/>.

#### **Compliance Control Europe Ltd**

Compliance Control Europe Ltd is the European distributor of the HyGenius hand washing management system. The company operates in Ireland and distributes the originally American system in Europe. Company's monitoring system is installed next to a hand-washing sink. After the employee has given his ID number, the water begins to run automatically. Then, the water stops and the system advises the user to use soap, rinse and dry. All the steps are hands-free and thanks to pre-programmed using times, the "splash and go" technique can be avoided. More information about the HyGenius can be found from the company's webpage: <http://www.hygeniuseurope.com/>.

#### **Clean Hands Company**

Although Clean Hands Company operates in the USA, they can be considered GML's direct competitor, as the firm provides very similar technology as Guidance has planned. The company was founded in 1997 in St. Louis Missouri. It has developed a monitoring system that enables companies to monitor employees' hand washing compliance and effectiveness. The system has a RF receiver that is installed on the lavatory's wall. When an employee enters the room, his badge is detected and marked as untested. After using soap, the employee places his hands under a video monitor. The device takes a digital image of the hands and shows the areas with adequate or inadequate amount of soap. The system also shows a "pass" or "fail" mark. All the tests

are also recorded in the system. More information about the system can be found from <http://www.cleanhands.biz>.

### **Alpha Protection Solutions, LLC**

Alpha Protection Solutions, which is a part of American Alpha Pro Solutions Inc, manufactures touch-free hand washing management system. The system consists of a Touch-Free Faucet and a Touch-Free Soap Dispenser.

AlphaClean™ converts any gooseneck faucet to an IR sensor based hands free system that has programmable water suspension. The system can be connected to network and it also has a portable data logger that can download washing data from multiple systems or locations. The system is available in the USA.

Information about the system can be found from:

[http://www.alphaprosolutions.com/forms/alphaclean\\_flier.pdf](http://www.alphaprosolutions.com/forms/alphaclean_flier.pdf).

### **UltraClenz**

UltraClenz has been involved in hand hygiene since 1995. Their ProGiene G3 hand wash management system is designed to increase and sustain washing quality, while information is also collected. The system has both touch-free faucet adapter and a soap dispenser, which can be used with or without network connection, depending on the needs of the client company. When investigating UltraClenz's hand wash management system and previously introduced c AlphaClean™ cleaning system, one can see that at least the appearance of these systems is exactly the same. UltraClenz system is available in the USA. More information can be found from:

<http://www.ultraclenz.com/index.html>.

## **5.4.2 Indirect competitors**

The following businesses sell services or products that would basically fill in the same need as Guidance's hand-hygiene system. The baseline of Guidance's and its competitors' systems is to improve hygiene. This can be, of course, done by various ways. Since there are almost endless numbers of companies offering various hygiene services, it is irrelevant to list these firms. Preferably, I will introduce only one company that can be seen as an example of this group.

### **The Hygiene Company plc**

Since a critical part of the hand & surface hygiene is the overall cleanliness of the sanitation area, routine cleaning and inspection monitoring systems can be seen as indirect competitors for Guidance Monitoring Ltd. One of the companies offering these systems is The Hygiene Company plc, which is a British company based in Ramsden Heath, Essex. The company designs and manufactures various healthcare and cleaning products, specialising in hand and surface hygiene. One of the company's monitoring solutions is a Hygiene Monitor® that monitors and records compliance to hand and surface compliance procedures. The device shows when the facilities were last cleaned and when the next inspection is due. Despite the system does not monitor hand washing directly, it is a good example of the indirect competitors that are operating in the market. More information can be found from: <http://thehygienecompany.com/HMmonitorhome.htm>.

### **5.4.3 Future competitors**

This critical part of competitive forces concentrates to the companies that may enter the market in the future. The discussed monitoring market has relatively low entry and exit barriers, meaning that many companies are willing to enter the market. If these companies will enter the market, they will instantly cut down Guidance's profits. It is clear that having an advantage over the competitors at the moment is not enough as the rivals will certainly notice it and counteract with new strategies.

Predicting future competitors is a challenging process. First of all, companies do not publish their business plans or new technologies, unless they want to patent them. Luckily, the hygiene monitoring market is very technology oriented and companies are investing in new innovations and registering new patents. This enables the use of patent registers as a reference, making the estimations of future competitors and their technologies a bit easier.

In this analysis, potential future competitors, or future threats, are divided into two different groups: first, the companies that have previously been involved in the hygiene and cleaning business, and second the firms with technical know-how and willingness to enter the market.

The first group consists of various cleaning service providers, hygiene product manufacturers and other hygiene service companies, which are operating in the target market. These companies are a great threat for Guidance Monitoring Ltd, due to their enormous amount, known brands, extensive customer bases and, most importantly, their knowledge about the business sector. Basically,

any of these companies may enter the business in the upcoming years. Unfortunately, however, there is no reliable information of these companies' possible market entries. This makes the further investigation almost impossible.

The second group consists of companies and research projects that have already gained hygiene monitoring patents. Some of these companies and projects may have some previous hygiene business experiences, and some are totally new players in the market. Certainly, some of these systems will be introduced in the near future.

### **Medical hand-washing monitor**

According to CBCNEWS.ca (3<sup>rd</sup> March 2008) Canadian researchers are developing an electronic system that reminds healthcare workers if they have not washed their hands between patients. The system has a sensor that is worn around employee's neck, and an overhead that tracks monitors when the user has either used hip-mounded alcohol cleanser or washed their hands at registered locations. The necklace beeps whenever the worker moves to another patient without either washing or sanitizing his/her hands. The system has also a database that records the times of entries and exits from patients and the time hands are disinfected. During the pilot studies staff has appreciated the system.

The system has been tested by a small number of healthcare employees. At the moment, the estimated cost of setting up the system is £150 per bed. Over the next two years, two hospitals in Toronto will be designed as test sites (<http://www.cbc.ca/health/story/2008/03/03/handwashing-system.html>).

### **Apparatus and methods for monitoring compliance with recommended hand-washing practices**

A US company Path-X International, Inc. patented its Hand-Washing Monitoring System in 2005. The system detects the occurrence of hand washing and the compliance with the hand-washing rule. This is done by motion and hand-washing detectors. If the rules are not complied, the system triggers an alarm. The system has also a database that records the compliance. The innovation is patented both in USA and Europe (<http://www.patentstorm.us/patents/6882278/description.html>).

### **A Hand Washing Monitoring System**

In 2007 the inventors Gerard Lacey and David Fernandez Llorca from a college near Dublin, got a patent for their hand washing monitoring system. According to the patent description, the system includes a camera and an event

processor that analyzes the images, the movement of hands and the duration of the process

(<http://www.wipo.int/pctdb/en/wo.jsp?wo=2007129289&IA=WO2007129289&DISPLAY=DESC>).

### **Pattern recognition system and method for monitoring hand washing or application of a disinfectant**

Another system patent was issued on November 2005, when Raymond C. Johnson introduced his system and method for monitoring hand-washing. The innovation includes soap, detergent or disinfectant dispenser, an optical input device and a computer that analyses various motion images. The system compares each digitized image with pattern recognition algorithm (<http://www.patentstorm.us/patents/6970574/description.html>).

## **5.5 Concept's expected rate of adoption**

According to Rogers (2003), innovation can be described with five different attributes, which predict their rate of adoption. As we have already discussed, innovation that requires individual's personal decision are generally adopted faster than the ones that are adopted by organizations. Moreover, the more persons are involved in the innovation-decision, the slower the rate of adoption will be.

As the hand-hygiene monitoring concept is mainly targeted to healthcare sector, and especially for county hospitals, we can predict that the target market will affect negatively to the concept's rate of adoption. Public organizations tend to plan their investments and budgets very early and, in addition, the decision processes involves many different parties. However, the other potential target sectors, food manufacturing and restaurants, are mainly privately owned companies that may adapt new technology much faster. This means that the rate of adaptation will probably vary between these sectors (Rogers 2003).

Rogers also emphasized five different product variables, which actually explain from 49 to 87 percent of any innovation's rate of adoption. The variables will be dealt next.

First, the concept has to offer relative advantage, meaning the degree to which the innovation is perceived as better than the idea it replaces. In our case, this means that the concept has to demonstrably improve the current hygiene practises where the system is installed. This can be proofed, by using authentic

test laboratories and running pilot programs. With improved results, this variable shows green light for the product launch.

Secondly, the product must be consistent with the existing values, past experiences, and potential adopter's needs. This helps the individual to give meaning to the new idea. As the targeted sectors are aware of their current problems and people are used to hand-hygiene practises, the individuals' won't have problems to understand the meaning of the system, especially as it has a feature that demonstrates the washing compliance immediately. This, however, requires proper training for the system users and information about the system's purpose and functions.

The third variable that affects to the product's rate of adaptation is its complexity, meaning the more difficult the innovation is, the weaker its rate of adoption will be. In our case, this attribute is not going to be a problem, as the system users must not need any special expertise in using the system. All they need to do is to carry the badge with them and obey the washing instructions.

The fourth variable, trialability, means that if an individual can actually try the innovation, say in trial run, it will be easier to understand it. GML's concept can be easily tested and its basic functions can be seen instantly. However, my recommendation is that Guidance should run a pilot system, in order to enable perfect trialability and system improvements, based on the feedback from the users. Moreover, the clients that are willing to try the system must have an opportunity to test the system at their premises. This way the triability variable becomes positive.

The last variable, observability means that the more visible and touchable the innovation is, the easier it is to adopt it. In our case, the users can see and try the system hardware, but not the database features. However, this feature can be explained and exhibited easily to all system users. In my opinion, this is not a critical problem, as people are used to use technical devices, without exploring the software inside.

To conclude the GML's product concept's expected rate of adaptation, I see the opportunities really optimistically. All five attributes, which, according to Rogers (2003), generally explain from 49 to 87 percent of any innovation's rate of adoption, showed positive light for the product launch. This, however, requires that the recommended actions will be done and that the pilot system authenticates the improved hygiene results and the easiness of use. The only negative variable comes from the character of the healthcare sector that will probably moderate the concept's rate of adaptation, due to slow decision processes.



## 5.6 Opportunity for a business alliance

Guidance Monitoring Limited is in a typical situation, when it comes to considering business alliances. Company has both an interesting business idea and the desire to introduce it to markets. Guidance has all the needed resources to develop the hygiene monitoring concept into a successful product, but it lacks the necessary marketing and sales expertise and resources. Moreover, Guidance may not fully understand the customer's needs, it does not have efficient distribution channels, the brand is not known in the target markets and the company also lacks marketing expertise, as the market differs totally from the company's current operations. Rather than trying to develop all these expertises internally, my recommendation is to identify another company with the desired marketing skills and in the best case, an impressive client base.

In chapter 3.6.1 *Typical forms of business alliances*, I explained that a strategic alliance refers to any number of collaborative working in a relationship where no formal joint venture entity is formed but two independent companies become interdependent by entering into a formal or informal agreement that is built on a platform of mutual objectives, strategy, risk and reward. In my opinion, this would be the most convenient form of the business partnership also for this particular business. GML has previously established exactly same sort of alliances and has the knowledge and experience for succeeding in them. Forming a joint venture from two totally different kinds of companies, with different cultures and management styles, has always high risks and may lead to poor integration and co-operation. Moreover, if the partnership does not work for some reason, dissolving a joint venture is always more expensive and problematic than a strategic alliance.

As I have already discussed, Guidance Monitoring Limited has previously used local operators with its electronic monitoring system, but this time the partner's role would differ from previous experiences. The alliance between Guidance Monitoring Limited and another company would remarkably benefit both participating parties; Guidance would offer its high quality product-concept and its manufacturing skills and the partner would be responsible for marketing, sales and distribution tasks of the system. The after sales services could be divided so that Guidance would offer the technical support for the devices and the partner would maintain the established customership.

### **5.6.1 Co-operation**

After we have found out if there is demand for this kind of monitoring technology, Guidance Monitoring Limited needs to find a suitable business partner for establishing a strategic alliance. In my opinion, there is no point to finalize the monitoring technology without discussing and planning it through with a professional business partner, in order to fulfil all the needs of the clients. The ideal partner company would have already operated in the hygiene business and knows the market very well. In the best case scenery, it would already have impressive client base and especially experiences from food manufacturing and hospital environments. Moreover, the partner company should always be ready to support Guidance's product development both financially and professionally.

As we have already discussed, Guidance Monitoring will operate with the hygiene monitoring concept as a technology designer and manufacturer. The company's core expertise is in designing and manufacturing sensor technology. This means that Guidance won't sell or distribute the hygiene monitoring system to the end-users, and this would be the partner company's role. Finding the right business partner is often, however, very time consuming and expensive process that needs to be done properly. If a right partner can not be identified, GML may have to reconsider the entering the project.

### **5.7 Project's valuation metrics**

According to Gama, da Silva and Ataíde (2007), innovation can be managed only if it can be measured – this is why innovation metrics are important. The chosen metrics for innovation, and also for projects, must always be inline with the company's overall strategies. The Figure 1 – *Examples of strategic objectives for valuing innovation* (Gama, da Silva and Ataíde, 2007), introduced some examples of strategic objectives that can be used as a basis for valuation metrics. These objectives were divided into four different perspectives that were: learning, processes, customer, and financial. In order to determine metrics for our product concept, we need take all of these four perspectives under consideration. To help the selection of the metrics, we can utilize the objectives that were listed in the Figure 1. Moreover, the following questions can be used as a guideline for determining the metrics for the monitoring concept.

### **Financial**

What financial objectives must we accomplish to ensure the success of the monitoring system?

Objectives: Increase profit, reduce costs and improve market share

Metrics: Return on investment, net present value, and expected vs. actual realized value

### **Customer**

By working on this project, what customer objectives will be met?

Objectives: Better quality, lower prices and more clients

Metrics: Customer satisfaction measuring, break-even analysis and expected vs. actual client growth

### **Processes**

To achieve the customer objectives, which process will have to be worked on?

Objectives: More flexible processes, and economies of scale

Metrics: Reduce manufacturing times, improve stock rotation and improve co-operation and after sales services with clients

### **Learning**

To achieve our project goals, how must our team learn and innovate?

Objectives: Relation between business units and business partners, and to improve the product quality based on the feedback

Metrics: Customer satisfaction measuring, and bacterium testing in hospitals

At this stage, we can only utilize the financial metrics, which will then be used as a basis for the financial projections of the product concept. However, the purpose of these metrics is not just to provide information for the investing decision but they should be constantly managed and observed throughout the product lifecycle. This way the value added by the monitoring concept can be measured, and even improved, and the possible problems can be identified more easily and early enough.

## **6 Marketing plan**

As we found out in the previous chapter, the typical attributes affecting to innovation's rate of adaptation, showed green light for the product launch. At this stage, it is time to investigate the monitoring system's target market more carefully. This can be done by preparing a short marketing plan for the product concept. Some typical attributes of marketing plans were already discussed in chapter 3.4 that was based on Kotler's and Keller's book *Marketing Management* (2007).

### **6.1 Situation analysis**

Guidance Monitoring Limited entered the electronic monitoring market more than ten years ago and, at the moment, the company is considering to expand its operations to a totally new market area. The business idea of an electronic compliance-monitoring system to improve hand-hygiene could be GML's next successful monitoring system and the company wants to further investigate its possibilities. This kind of monitoring system will require strong marketing efforts for building product awareness and growing the customer base. As Guidance Monitoring Limited is specialized in technology manufacturing and does not have the marketing and distributing resources, it needs to find a suitable business partner that will be responsible for these actions.

### **6.2 Market summary**

At the moment, Guidance Monitoring Limited does not know the concept's market or attributes of the most important customers very well. However, with this product concept, GML will utilize a strategic alliance with another company that should have a better view of the market.

Estimating the market value for this specific product is a challenging process, especially as GML does not have previous experiences from the market. We can, however, utilize the company's previous experiences with monitoring technology, and use it as a baseline for cost and price structuring. Later, when Guidance has found a suitable business partner and is aware of that company's client base, the targeted market share can be updated.

### 6.2.1 Potential target market

- Healthcare sector in general
- Food manufacturing sector
- Fast food / restaurant industry

### 6.2.2 Market needs

Guidance Monitoring Limited is considering providing the English healthcare and food manufacturing sectors with a sophisticated technical system that will improve the overall hygiene, and, especially, decline the spread of bacteria. The company seeks to fulfil at least the following requirements that can be seen important for the main customer groups:

- **High product quality.** Guidance Group is known for its very high quality products that will work as promised. The key functions of the system need to work without any extra attention and the product lifetimes need to fulfil their promises. In addition, the system has to give trustful results at all times, and demonstrably decline the spread of bacteria.

- **Support services.** Exemplary support services are required to build a sustainable business that will have a growing customer base. Guidance is especially responsible for the technical functions of the system and offers its support services both at the customer's and its own premises. The partner company will be responsible for all other supporting services, including, for instance, equipment inspections and regular maintenance.

- **User friendly product design.** Guidance will cooperate with hospitals and its business partner, in order to design an easy to use system that has all the required functions. The feedback from the pilot system will be used to update the system to the required level.

### 6.2.3 Market trends

When thinking the big picture, the past decade has shown that both governments and private sector companies are investing more and more in electronic monitoring technologies. Nowadays security cameras and various alarm systems are part of our everyday life, and everybody is aware of their existence. This kind of technology has led us to sort of Big Brother society, especially countries like England and Finland, which have the greatest amount of security cameras per capita in the world. Despite the trend might seem a bit irrelevant for hand-hygiene monitoring concept, it actually is not. The current situation has accustomed people to electronic monitoring devices, and it is commonly understood that they exist for our own safety, especially in environments like hospitals. The concept of monitoring the compliance of hand-hygiene can be seen as any other electronic monitoring system, which can show demonstrable information for all of us. Moreover, the information is available all the time, which helps us to prevent accidents instead of using the information afterwards.

### 6.2.4 Market growth

The market is expected to grow steadily, after the monitoring system has proved its functionality and especially the positive results among its users. The crucial part is to find the first customers that are willing to use Guidance's technology. This process can be aided by, for instance, installing the pilot system free of charge, lowering the threshold for other customers to adapt the system.

As we discussed in the chapter 2.4.4 *Product life-cycle*, all products have a typical life-cycle that also explains their market growth. At this stage, we are especially interested in the first stages of the PLC that were introduction and growth. According to PLC theory, when the monitoring concept will be introduced, its sales will probably be low until the customers become aware of it and its benefits. Usually, this stage of any product is financially negative, and, as a matter of a fact, the primary goal for this stage is to establish the markets and build demand for the product. Later, when the concept has proved its benefits, say in two years time, we will enter the growth stage of the PLC. At this time, we can expect that more and more clients become interested in the concept, and sales and revenue growth can be expected.

The main geographical market area, Leicestershire, can be, of course, expanded using the partner company's already established client relationships, but the main emphasis should be in this area. After Guidance has spent the critical four years in business, the company has probably developed the system to its second generation, and more and more client companies and people have become aware of the system's positive results. At this time, we can expect that the sales will increase more aggressively, and the system begins to create more profit.

### **6.3 SWOT analysis**

The following SWOT (strengths, weaknesses, opportunities, and threats) analysis captures the key strengths and weaknesses within the company and describes the opportunities and threats that Guidance Monitoring Limited may face in the future with its monitoring concept. The SWOT strategies -section gives some guidelines how the strengths and opportunities can be leveraged and how the risks could be minimized.

#### **6.3.1 Strengths**

- In-debt expertise in manufacturing sensor technology
- The use of highly efficient subcontractors that enable low-cost production
- Experienced workforce dedicated to the mission

#### **6.3.2 Weaknesses**

- The lack of market knowledge
- The reliance on a partner company that must be capable to market and distribute the system efficiently
- The existing competition within the market

### **6.3.3 Opportunities**

- Decreased production costs through economy of scale
- Public awareness of the improved hygiene in hospitals
- The opportunity to expand the market area relatively easily

### **6.3.4 Threats**

- The system won't actually fulfil its promises
- The system won't be suitable for the target market's requirements
- Future competitors, due to low entry barriers
- Losing the differential advantage

### **6.3.5 SWOT strategies**

As we have now identified Guidance's strengths and opportunities, we also need to plan how they could be leveraged. First of all, company's expertise in sensor technology should be used in marketing actions, in order to build a trustworthy brand for the product concept. This, however, also requires that the concept has a premium quality and it does what it promises. Second, the benefits from the low-cost production should be transferred to the product's end-prices, as it is the company's main opportunity to build competitive advantage. The low end price is also one of the concept's opportunities in the future, with economies of scale.

When the concept will be launched, it is extremely important to increase the awareness of the system and its positive results. This was actually the primary goal for the introduction period of the product's life-cycle. With increased public awareness, we can also expect increase in demand and sales. To achieve this position, the business alliance partners need to put effort to marketing actions and public affairs already during the early stages of the product development and continue throughout the product's life-cycle.

The last listed opportunity, expanding possibilities, should be utilized in two different cases: first, when the local market area has been saturated, and



second, if the partner company has demands from its current customers. However, if the partner company has interest and resources for earlier market expansion, the situation should be re-considered.

Avoiding the future threats and improving the current weaknesses are also important parts of the SWOT strategies. At the moment, Guidance's most obvious weakness is the lack of market knowledge, as the company has no previous experiences from the target market. Guidance will, however, use a business partner that knows the target market and has already existing customers within the market. This will remarkably help Guidance's situation. However, the reliance on the partnership is also a weakness, especially if a right partner company can not be found or if the partnership will face problems in future. The partner will be responsible for all marketing and distribution tasks of the concept, and if it does not succeed, Guidance needs to either establish a new partnership or in the worst case, withdraw totally from the market. The only way to avoid these problems is not to start the product development until a right partner is found, and to prepare a contract that allows the use of other partners as well. The last listed weakness, the current competition, can not be avoided, but Guidance needs to keep developing its system all the time and make sure that its pricing is at competitive level.

The future threats deal also with the competition, as the market is relatively easy to enter. However, by updating the system and with aggressive pricing strategy, Guidance can both lower other companies' interest to enter the market, and maintain its competitive position. The most critical concern for Guidance is that the system would not work as promised. The only ways to avoid this situation are by establishing a pilot system, where the system is fully tested, by planning the components carefully and observing and testing the system constantly. Another critical threat is that hospitals won't find the system interesting and beneficial enough. To minimize this type of risk, the alliance partners need to put effort on marketing, try to find collaborative hospitals and investigate the market more precisely when the partnership is established.

## **6.4 Competition**

Guidance Monitoring Limited will enter to a totally new market area that has already existing competition. Moreover, many companies might enter the market due to the low entry and exit barriers. As we found out in chapter 5.4 *Competition analysis*, the current direct competitors are offering relatively same kind of systems with only few technical differences, like RFID or optical connections, existence of cameras, databases, hands-free capabilities and so

on. In addition, we found some indirect competition from the market. However, the indirect competitors are offering totally different kind of perspective to hygiene problems, as their solutions concentrate to overall hygiene, with traditional methods. Some of these companies have operated years at the market, and their solutions have not reached to required level of hygiene in hospitals and other locations. This is why a totally new approach to hygiene problems is needed. The overall cleanliness is not enough; we also need to change the employees' daily routines.

In the chapter 5.2 *Competitive forces*, we found out that “a segment is not attractive if it already contains numerous, strong, or aggressive competitors.” In my opinion, this would not be the case with the English market. The competition analysis showed that there are at most five direct competitors at the whole European market, assuming that not all of them were identified earlier. These companies have not gained strong position at the market, and there is certainly need for new solutions. A product concept that is truly designed for improving hand-hygiene can be seen very attractive, especially as the target market has a clear need for new solutions.

## **6.5 Keys to success**

As we discussed in chapter 3.3 *Competitive advantage*, a firm may gain either differential or comparative advantage over its competitors. These advantages give the company an edge over its competitors and an ability to generate more value for the firm and its shareholders. In addition, the more sustainable the competitive advantage is, the more challenging it is for rivals to neutralize the advantage.

Based on the information found from the competitors' hygiene monitoring systems, Guidance Monitoring has a potential opportunity to gain both differential and comparative advantage over its competitors. The differential advantage can be found from the badge component, as it includes an important feature that was not found from the other systems. Guidance's monitoring concept includes a personal badge, which shows visible evidence of the completed hand-washing compliance. This feature has two kinds of benefits: First, it informs the user if hand washing is needed and also encourages observing the guidelines. Second, it shows demonstrable information to other employees and especially to customers that the person has complied with the hand-hygiene rules. This feature will differentiate the system from Guidance's competitors and also remarkably support the marketing and sales.

Unfortunately, however, the feature can be easily copied by the rivals, but the achieved image of the feature cannot be taken away.

More importantly, the company has also a great opportunity to gain comparative advantage over its competitors. Guidance has previously used various local and foreign suppliers that are specialized in component manufacturing. These companies have the needed expertise and facilities to manufacture greater amounts of high quality components, with low production costs. Previously these partnerships have given Guidance Monitoring a great pricing advantage, as company's systems have been sold profitably with lower prices than its competitors'. Since the partnerships are already established and the company has the expertise to manufacture with low prices, there is a great possibility to sell the system with lower prices than the competitors, and still make strong profit.

## **6.6 Marketing strategy**

The system's marketing phases can be divided into two different parts: First, Guidance needs to market the concept idea to potential business partners, in order to find the most suitable one for marketing and distributing the system through its own network. In the ideal situation, this company would operate in the same geographical area as Guidance. However, if a suitable company cannot be found from the same geographical area, GML needs to look for a partner from all over the UK. This can be done by contacting directly to the competitors, using an agency, marketing within the target group or through business exhibitions.

When the alliance will finally be established, the second part of the marketing will be the actual concept marketing in the selected market segment. In the beginning, the key for this stage is to build product and brand awareness among the potential clients, in order to arouse interest towards the system. Later, marketing is mainly used for increasing sales. The second part of the marketing will be on the partner company's responsibility.

### **6.6.1 Mission**

Guidance Monitoring Limited's mission is to provide its target market with a sophisticated, inexpensive and trustworthy system that improves hand hygiene remarkably and declines the spread of bacteria.

### **6.6.2 Marketing Objectives**

- In the very beginning, GML must awake the possible business partners' attention towards the monitoring concept
- To arouse customers interest towards the system
- Build a known brand for the system
- Achieve a steady annual growth in sales
- Increase the market penetration

### **6.6.3 Financial objectives**

- Achieve a positive net present value for the concept after four years in business
- Decrease the variable costs by 5 percent during the first years in business
- Maintain a relatively high R&D budget to spur future product developments

### **6.6.4 Target markets**

The chapter *3.1 Target marketing*, introduced two factors that affect to the selection of a target market segment: the attractiveness of the segment and the fit between the segment and the firm's resources, capabilities and objectives. When the attractiveness of a market segment is considered, the following aspects should be identified: size of the segment, growth rate of the segment, competition, brand loyalty of the existing customers and expected profit margins in the segment.

Originally, the compliance monitoring system to improve hygiene was targeted for (fast food) restaurants, healthcare and food manufacturing sectors. However, the system's suitability for these sectors needs to be further investigated. If the product launch will be found recommendable, my recommendation for GML is that during the first few years in business, the company should use a single-segment strategy, and concentrate to the most promising sector. Philip Kotler and Kevin Lane Keller (2008) have revealed

that this approach is often used by smaller companies with limited resources. By using the single-segment strategy, the business alliance partners could concentrate all their sales and marketing actions to the most attractive segment and the partners could gain a better understanding of the target market. Later, say in four years time, the concept could be expanded to new markets.

At this stage, this recommendation is, however, based on very preliminary information. A detailed market research should be established, in order to find out if the system will be suitable for these sectors in Britain.

## **6.7 Proposition of a business strategy for the product concept**

When the most potential target market for the product concept has been identified, the next thing is to plan how the alliance partners can penetrate it. This requires contriving a business strategy for the concept.

As Guidance Monitoring Limited does not have much knowledge about the concept's target market, or reputation within the healthcare sector, building a positive and known brand in short time is almost impossible. However, with this product concept, Guidance will utilize its partner company's market knowledge and image, in order to penetrate the market efficiently. This means that the alliance should use in all its sales and marketing actions the partner company's name, and actually build the concept's brand on it. By doing so, it is much easier to push the concept into the market.

So, which business strategy should be used, in order to maximize the results from the chosen market? As discussed in chapter 3.5 *Generic business strategies*, Michael Porter has argued that firms position themselves by leveraging their strengths and then choose their strategies based on them. Porter explained that companies' strengths ultimately fall into one of two headings: cost advantage or differentiation. By applying these strengths in a broad or narrow scope, the result is three different strategies: cost leadership, differentiation and focus. These strategies are used at the business unit level.

The target market for the concept will probably be quite narrow, at least during the first few years in business. This means that the choice has to be made between two different main strategies: focused low cost or differentiation strategy. When considering these strategies' attributes and Guidance's product concept, we find out that our concept actually differs very little from its competitors'. Yes, it has the capability to show the compliance status all the time, not only to the user, but also to everybody around him/her. But this is not enough to differentiate the concept from its competitors. In addition, the feature can be copied relatively easily. This is why I see this feature more as a

comparative advantage than a totally differentiated product. In my opinion, the strategy should not be based on to such a small technical feature.

In the past, GML has successfully used the focused low cost strategy and, in my opinion, this strategy would be the best option also for this concept. According to my competitor research, British hospitals or companies have not really been using these kinds of monitoring systems and the competition at the local market seems to be light. I think that at this stage, it is not crucial to differ from the few technologies that are already available on the market, but to make our concept known and tempting for the clients. If the initial price of the monitoring system would be as low as possible, the threshold to start using this kind of technology would be substantially lower. Moreover, with Guidance's experiences in low-cost manufacturing, company would have strong basis for upcoming tender competitions, if and when, the competition becomes more intense. All in all, by using this strategy GML can leverage its most important competitive advantage and increase the possibilities to success at the market.

### **6.7.1 Successful product launch**

As already discussed, companies that enter to new markets in the early stage, will have remarkable benefits, compared to late-comers. Guidance Monitoring Limited is in a position, where few companies are already operating at the target market, but according to my research, these companies have not gained remarkable market positions and they are mainly operating in the USA and Asia. This shows that there might be still a great potential for a later market entry, especially as the launch would be done in the UK. Moreover, Guidance's product concept provides some new features, compared to the existing monitoring systems.

A successful product launch needs integration and coordination among multiple functional areas, such as the design of the product, procurement, planning, manufacturing, sales and marketing. With the hand-hygiene monitoring concept, all of these functional areas would not occur within the Guidance Group, as the partner company will be responsible for sales, marketing and distribution of the product. This obviously complicates the product launch, but with careful planning, the collaborative market entry can be done as efficiently as a traditional market entry. This, however, requires careful managing and constant communication between the partners, in order to integrate the functions seamlessly.

## 6.8 Marketing mix

Marketing mix can be seen as a conclusion for the marketing plan, where the approaches to pricing, distribution, advertising and promotion, and customer service describe the strategic position of a product in the marketplace

- **Pricing.** This will be based on two different levels: First, Guidance will sell the system devices and database maintaining services either to its alliance partner or directly to the end customer, using a per-unit end price. Second, the partner company will take charges for all support services and system installations. As a part of marketing strategies, the overall prices should be lower than competitors' end prices are.

- **Distribution.** Guidance Monitoring Limited will use a business partner that is responsible for the system's distribution. The partner company will distribute the system components directly to the customers.

- **Advertising and promotion.** The partner company will also be responsible for the advertising efforts of the system. These efforts will probably include several different methods at the local market area and generally within the healthcare sector. Guidance may, however, participate to advertising efforts via public relations and promotion planning.

- **Customer service.** Depending on the partner relationship, Guidance will probably offer the technical support services for the system via its partner company. Generally, however, the partner will be responsible for all support services.

## 6.9 Market research

Originally the hand-hygiene monitoring concept was designed to improve the overall hygiene in British hospitals, but some other business sectors were also identified as potential target markets; these included food manufacturing companies and fast-food restaurants. The healthcare sector was, however, seen as the most potential target market, due its enormous size and currently faced problems.

The problem with all of these markets is that they all are unknown for Guidance Monitoring Limited, and without accurate information, estimating the product concept's demand and financial projections is impossible. One widely used way to gather such information is to perform a market research that offers vital information about the circumstances and requirements of the target market.

In this thesis, the market research is done as part of the marketing plan, with aim to provide critical information for the financial projections of the project. This information is gathered by interviewing multiple professionals, who are operating at key roles within the target markets. If the product launch will be later found recommendable, a more detailed market research should, however, be performed.

### **6.9.1 Primary data collection**

This very critical part of the marketing plan sums up professional statements about the actual need for the hygiene monitoring concept. This information forms the basis for the financial projections of the project, and ultimately for the final investing decision. The statements are collected from all potential target markets, beginning from the healthcare sector and ending to fast-food and food manufacturing industries.

#### **Healthcare sector**

According to Jukka Lumio, who is a specialist in infectious diseases at the Tampere University Central Hospital, new ways to stop the spread of hospital bacterium would be more than welcomed. Mr. Lumio emphasized the need of a solution that could actually define the situations, in which the derelictions of disinfectant occur. According to health and safety regulations in hospitals, the staff members must sanitize their hands after each patient contact and identifying the contacts that require sanitizing is currently almost impossible (Phone interview on 5<sup>th</sup> January 2009).

In Finland, hospital staff sanitizes their hands almost completely with disinfectant liquids that are available above all patient beds and even carried by the staff members. As the sanitizing must be done after each patient contact, washing hands in a single location is impossible, especially as it should be done numerous times even in one patient room. Moreover, the fact that not every visit in a patient room requires sanitizing complicates the monitoring significantly. According to Mr. Lumio, there are, at the moment, only two efficient methods that can be used for trustworthy, small scale monitoring: video surveillance and undercover monitoring by a member of the staff. By using either of these methods, it is possible to identify the situations in which the sanitizing should be done. Moreover, this sort of surveillance is cost efficient and is not tied to a single location, unlike the GML's product concept (Phone interview on 5<sup>th</sup> January 2009).



In order to reaffirm Mr. Lumio's opinion, I also interviewed Mr. Veli-Jukka Anttila, who is a hygiene specialist in Helsinki and Uusimaa Hospital District (HUS). As expected, Mr. Anttila confirmed Mr. Lumio's opinion that this sort of monitoring is not currently suitable for hospital environments, due to problems with specific installation location and the impossibility to identify the situations in which the washing should be completed (Phone interview on 6<sup>th</sup> January 2009).

According to Lumio's and Anttila's statements, the hand-hygiene monitoring concept is not currently suitable for Finnish hospital environment, and in my opinion, this market segment should be excluded also from Britain. Mr. Lumio explained that almost all European hospitals have the same guidelines and methods in what it comes to hand-hygiene regulations. This means that if the system is currently ineligible for the Finnish hospitals, it is assumable that it won't be suitable for the British hospitals. This, however, needs to be confirmed in more detailed market research (Phone interviews on 5<sup>th</sup> and 6<sup>th</sup> January 2009).

At this point, when we have basically excluded the healthcare sector from the most potential target markets, we need to gather some information about other potential market segments.

### **Fast-Food industry**

In order to receive an overview of the suitability for fast-food industry, I decided to concentrate to the most known in the world: McDonald's. According to quality control manager of Finnish McDonald's, Tiina Partanen, the hand-hygiene is, of course, an important issue in McDonald's' restaurants, but it is not seen as critical as in hospitals. According to company's local health and safety regulations, all employees must wash their hands with a special soap, once in an hour and every time they perform a critical task, such as handle trash. The washing is not, however, monitored constantly. Another important hygiene regulation is that every time an employee handles raw meat or vegetables, he or she must use disposable rubber gloves, to prevent the spread of any bacterium. In addition, all employees of the Finnish McDonald's must have a hygiene proficiency certificate (Phone interview on 15<sup>th</sup> January 2009).

Tiina Partanen did not find Guidance's monitoring concept very interesting due to few main reasons. First of all, McDonald's is not currently having any sort of problems with poor hygiene. Second, the system would be relatively expensive to adopt, and third, the concept is too obtrusive and makes the employees feel uncomfortable (Phone interview on 15<sup>th</sup> January 2009).

**Food manufacturing industry**

According to two former employees of one of the largest food manufacturing companies in Finland, all employees that were in contact with the products, had to wear disposable gloves at all times. The overall hygiene is a serious concern in such factory and the hygiene levels are constantly monitored. As a matter of a fact, according to these two employees, there have not been any problems with poor hand hygiene in Finnish food manufacturing facilities. The only problems have been with contaminated meat (personal interviews on 9<sup>th</sup> January 2009).

## **7 Financials**

This chapter offers a financial overview for the product concept. The projected cash flows of any project are usually the most important factor when investing decisions are made. The figures I am using within the analysis, are mostly based on my own estimations. However, the probable system development costs are partly made together with the client company Guidance Monitoring Limited.

### **7.1 Initial investment**

The initial investment is the estimated amount of cash needed to start-up the project. The expenses include various different components that are partly estimated together with Guidance Monitoring Limited. In Figure 7, the costs are divided into two different categories: system development costs, and sales, marketing and support costs. The costs are relatively low due to already existing production premises and available capacity within the company. The overall costs are estimated to reach £145 000. However, the company will gain external funding for the direct system development costs. This amount is 25 percent of the development costs, lowering the overall initial investment to £115 000.

## Initial investment for the project (£)

		<b>ASSUMPTIONS</b>
<b>System development costs</b>	<b>-120 000</b>	
Mechanism	12 000	
Plastic Model	15 000	
Electronics	9 000	
Firmware	9 000	
Database	15 000	
Intellectual property patent	10 000	
Approvals	15 000	
Other costs	35 000	
<b>Sales, marketing and support</b>	<b>-25 000</b>	
Marketing and promotional costs	10 000	
User guides	5 000	
Business trips	5 000	
Other costs	5 000	
<b>Overall costs</b>	<b>-145 000</b>	
<b>Funding</b>		
External funding	<b>30 000</b>	<i>External funding of 25% of the system development costs</i>
<b>Required initial investment</b>	<b>115 000</b>	

**Figure 7:** Initial investment for the project

## 7.2 Sales projections and margin analysis

Estimating the future sales of a totally new product concept is one of the trickiest and most important parts of this analysis. The figures are mainly based on the earlier discussed market research and further aided with Guidance's former experiences with new product launches.

The monitoring system's sales projections are planned to be quite moderate during the first years in business, due to the negative findings in the market research. The clients are expected to be relatively small and both fast food industries and healthcare sector are excluded from the estimations.

The Figure 8 shows the expected sales and costs during the critical first four years in business. The 'year 0' includes a pilot run of the system that does not generate any revenue. In this analysis, the system is expected to be sold to eleven different companies, with an average need of 30 monitoring units per client. All in all, with this amount of required monitoring units, the expected sales of monitoring units will be £108 150 after four years in business. The second most important part of the sales will be made with the annual fees of the database systems that are used for managing the system data. The expected sales from this category will be £90 000 after four years in business. The rest of the revenue will be made with the portable badges. All in all, the total sales revenue from the first three years in business is expected to reach £229 110.

The unit manufacturing costs are expected to be 30 percent of their sales prices. Moreover GML will have some other costs from maintaining the database systems (£500 annually per system) and some other fixed costs as well. The costs are relatively low, as we are assuming that there won't be need for new employees or equipment, due to the simplicity of the technology. The total costs are expected to be £109 937. With these figures, the gross margin percentage of the sales would be 28% already after one year in business and 68% percent from the fourth in business year.

Sales projections & margin analysis (£)					ASSUMPTIONS	
	YEAR 0	YEAR 1	YEAR 2	YEAR 3	TOTAL	
<b>New clients</b>	1	2	4	4	11	
<b>Monitoring units in use</b>	30	90	210	330		
<b>Units sold per year</b>						
Monitoring Units	30	60	150	180	420	30 Monitoring Units per client, unit update every other year
Badges	480	1 440	3 360	5 280	10 560	Badge lasts 6 months; 8 badges per MU at all times
Database systems	1	2	4	4	11	One database system per client
<b>Unit Prices</b>						
Monitoring Unit	300	290	275	275		Sales price per Monitoring Unit
Badge	4	4	3	3		Sales price per badge
Database system	5 000	5 000	5 000	5 000		Annually paid fee per database system
<b>Revenue</b>						
Monitoring Units		17 400	41 250	49 500	108 150	
Badges		5 040	10 080	15 840	30 960	
Database systems		10 000	30 000	50 000	90 000	
<b>Total Revenue</b>		<b>32 440</b>	<b>81 330</b>	<b>115 340</b>	<b>229 110</b>	
<b>COGS</b>						
<b>Direct Material Costs</b>						
Monitoring Units	2 700	5 220	12 375	14 850	35 145	Unit cost 30% of its sales price
Badges	504	1 512	3 024	4 752	9 792	Unit cost 30% of its sales price
Database systems	500	1 500	3 500	5 500	11 000	£500 per system annually
<b>Total Direct Material costs</b>	<b>3 704</b>	<b>8 232</b>	<b>18 899</b>	<b>25 102</b>	<b>55 937</b>	
<b>Direct Fixed Costs</b>						
	15 000	15 000	12 000	12 000	54 000	Fixed annual costs
<b>Total Direct Costs</b>	<b>18 704</b>	<b>23 232</b>	<b>30 899</b>	<b>37 102</b>	<b>109 937</b>	
<b>Gross Margin</b>	<b>-18 704</b>	<b>9 208</b>	<b>50 431</b>	<b>78 238</b>	<b>119 173</b>	
<b>Gross Margin % of Sales</b>		28 %	62 %	68 %		((revenue - direct costs) / revenue)

**Figure 8:** Sales projections and margin analysis

### 7.3 Projected cash flows

The overall cash flows ultimately tell us if the concept is worth of investing. In this analysis, the financial investing recommendation is made based on the project's net present value after four years in business. This time period shows us how the costs and revenue of the system will be divided and what the concept's succeeding opportunities are. We are using the net present value of the concept for estimating the project's profitability. The net present value is calculated by summing up the present values of future cash flows minus the initial investment and costs before launching the project. The required rate of return (ROR) on the project is taken as 15 percent because of the high degree of risk associated with this sort of new technology. The percentage is based on the cost of capital plus relatively high risk premium in the project. By calculating the annual present values, we will find out the net present value of the project. If this value is positive enough, the investing decision is recommendable.

In Figure 9, I am assuming that all system development costs can be depreciated straightforward during the four first years in business. If the company would continue with the project more than four years, the corporate tax would have critical impacts on the net incomes, as there would not be any depreciation available. Another critical assumption is that the project would not have any salvage value after four years. This value could actually change the net present value critically

As we can see from the Figure 9, the project's operating cash flows are increasing towards the end of year three. By summing up these cash flows, the value is actually higher (+£4173) than the initial investment and the costs from the year 0. However, we need to discount these values to their present value, by using the 15 percent ROR on the project. This is done by using the formula  $FV \cdot [1/(1+k)^n]$ , where FV is the future value, k is discount rate and <sup>n</sup> is the time in years. The annual sums can be found out from the Figure 9 (Shapiro and Balbirer, 2000).

The overall present value of the discounted cash flows is £97 583 that is less than the initial investment was. Therefore the net present value of the project is negative (£36 101), and investing in the project is not recommendable. However, if the demand for the system would increase more rapidly and we could estimate a salvage value for the project, the net present value could be more positive.

Projected cash flows (£)					ASSUMPTIONS
	<b>YEAR 0</b>	<b>YEAR 1</b>	<b>YEAR 2</b>	<b>YEAR 3</b>	
<b>Initial investment</b>	-115 000				
<b>Sales</b>		32 440	81 330	115 340	
<b>Costs</b>					
Variable cost	3 704	8 232	18 899	25 102	
Fixed cost	15 000	15 000	12 000	12 000	
Depreciation and amortization		40 000	40 000	40 000	
<b>Total expenses</b>	<b>18 704</b>	<b>63 232</b>	<b>70 899</b>	<b>77 102</b>	
<b>Earnings before Taxes</b>	<b>-18 704</b>	<b>-30 792</b>	<b>10 431</b>	<b>38 238</b>	
<b>Tax Deductions</b>	<b>-18 704</b>	<b>-49 496</b>	<b>-49 496</b>	<b>-39 065</b>	
<b>Tax 21%</b>				0	
<b>Net Income</b>	<b>-18 704</b>	<b>-30 792</b>	<b>10 431</b>	<b>38 238</b>	
Plus Depreciation		40 000	40 000	40 000	
<b>Operating Cash Flow</b>	<b>-18 704</b>	<b>9 208</b>	<b>50 431</b>	<b>78 238</b>	
<b>Net Cash Flow</b>	<b>-133 704</b>	<b>9 208</b>	<b>50 431</b>	<b>78 238</b>	
<b>PV @ 15%</b>		8 007	38 133	51 443	<i>ROR on the project is 15%</i>
<b>NPV @ 15%</b>	<b>-36 121</b>				<i>-133 704 + 97 583 (Sum of PVs)</i>

**Figure 9:** Project cash flows

As we can find out from the Figure 9, the net present value of the project is negative (36 121) after four years in business and therefore investing in this project is not favourable.



## 8 Summary and conclusions

The main purpose of this analysis was to investigate if the client company Guidance Monitoring Limited should invest in a new product concept. The thesis began with a theory part, in which the characteristics of successful innovations, new product concepts and different market strategies were discussed on a theoretical level, to deepen the understanding of innovation and successful product launches. The second part of the thesis concentrated to the client company and the product concept.

The theory part of the thesis began with an introduction to innovation and new product development. It was pointed out that innovation can be described with five different attributes and individuals' perceptions of these attributes predict the innovation's rate of adoption. Another important fact about innovation was that it can be managed only if it can be measured. With this background, we moved to actual product ideas, which started with an idea and ended to the launch of the product. The stages between these two points were viewed through the Stage-Gate® roadmap.

The first part of the thesis also offered theory about marketing strategies, business strategies and competition within a target market, in order to identify some potential strategies and threats for this particular product concept. The main emphasis was put on different target market strategies and Michael Porter's generic business strategies.

The second part of thesis began with an introduction of the client company and continued with an overview of the new business opportunity. With this information, we continued to the competition analysis, where the current and future competitors were identified and classified in three different categories. In this part we found out that there is already existing competition in the market and some new competitors may enter in the near future. However, these competitors were not offering exactly identical solutions and they were mainly operating outside the United Kingdom. Next, the concept's rate of adoption was estimated, using Rogers' five different attributes of adaptation. By using these attributes, we found out that the product concept would have good possibilities for succeeding in the market. This, however, needs careful managing through the monitoring system's lifecycle. To help this management process, we set some metrics for valuating the performance of the product.

At this stage, we had information about the concept but not about its target market. To gather such important information, we did a marketing plan for the concept. This plan offered information about the target market, and also recommended some useful strategies for succeeding within it. The last part of

the marketing plan was a narrow market research, in which the most potential target markets were examined through interviews. In this critical part of the thesis, we found out the concept would not actually be suitable, as such, for the initially though most potential target markets. The major reasons for this were that the system is tied to a certain location and it is not capable for identifying the situations in which the hand washing must be completed. However, this small scale research was not very comprehensive and in my opinion, a further research about the concept's suitability for the British circumstances could be later done in England.

The last part of the thesis offered a financial view for the product concept. In this last and probably the most important part of the thesis, the initial investments, costs and sales of the concept were identified, in order find out the annual cash flows for the project. The result was that already after two years in business, the net cash flows would be positive. Moreover, the profits would increase during the next years. However, when we discounted these cash flows to their present values, and calculated the net present value for the project, we found out that the project's value would still be negative after four years in business. Moreover, the fifth year would need a clear increase in sales due to corporate tax, as we already used the computational tax deductions.

## **8.1 Conclusions**

The aim of this thesis was to provide the client company Guidance Monitoring Limited with a justifiable decision whether to invest in the product concept or not. The final decision is a sum of multiple factors, but the main emphasis will be put on the financial view of the project.

The analysis showed that especially health care sector is currently facing major problems with hospital bacteria and new ways to improve hygiene would be more than welcomed. Moreover, as we investigated the concept's possible rate of adaption, the results were in favour of launching the project. However, as we further investigated the target markets, we found many negative aspects as well. First of all, Finnish specialists in infectious diseases found the product concept actually ineligible for hospital environments and the findings from the second most important target market, fast food-industry, were also negative. The second problem was that Guidance Monitoring Limited is not in a position to bring the product to the market by itself. Its normal business model is to work with a synergistic business partner to undertake the marketing, sales and distribution of the system that it develops. At the moment, finding such a company with existing customers and a desire to execute the project is a time consuming and expensive process that may end up with negative results.

The third issue is the totally new market area and the current competition within it. Despite the competitors have not reached very strong positions in the market, they know it very well. Moreover, as none of the identified competitors have succeeded very well, we can presume that the customers may find these types of systems unnecessary. The final, and the most significant, problem was the project's financial view. Due to the negative findings in the market research, the demand for the system was set to moderate, resulting to a negative net present value for the project.

To sum up the pros and cons of the project, my recommendation for Guidance Monitoring Limited is not to invest in the project. The problems with the concept, high risks involved and the unprofitable return expectations make the project's future prospects unfavourable. Moreover, the current international recession will lower the demand on its part. However, if Guidance Monitoring Limited finds the circumstances more favourable in future, the keys for succeeding will be in a successful business alliance and in accurate information about the target market.

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