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Master Thesis

Managing commercialization – how McKinsey & Company turned Nyegaard & CO into the world leader of contrast media

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Content

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I also wish to thank Odd Kåre Strandli, Gert Wilhelm Munthe and Stein Holst Annexstad for taking their time to meet me, and for contributing with valuable and exiting information for this thesis.

Christoffer Ness

Abstract

This thesis studies to what extent engaging a management consultant firm during the innovation process may increase the likelihood of success. Firms often fail to benefit financially from their innovations, and this paper seeks to investigate if the probability for financial success will increase by using a consulting firm. By looking at a case between a Norwegian pharmaceutical company, Nycomed, and the American firm McKinsey, the thesis looks into how the consultancy changed Nycomed into a world leader in contrast media. The research is based on i) written reports and documents from both firms, preserved at the Norwegian National Archive, and ii) interviews with three former employees of both firms. The thesis discovers that the use of McKinsey certainly contributed to Nycomed's success with their most important product Omnipaque.

Chapter 1: Research Subject

1.1. Research subject

In the article "Nations, Clusters and Culture: Nycomed and World Leadership in the Field of X-ray Contrast Media" by Knut Sogner, we learn about one of the largest success stories from Norwegian industrial research.[1] Nyegaard & Co, a pharmaceutical research firm, developed a contrast media product known as Omnipaque which was one of the world's ten to fifteen best-selling drugs on the world market.[1] Contrast media are liquids used inside the body to enhance X-ray photographs. From being a small company in 1975 with about 750 employees and zero profit, the company became one of the world's largest producers of contrast media with over 1200 employees.[3] Sogner rises the question as to how a small Norwegian company could be such an international success. Sogner argues that Michael Porter's theory about the competitive advantage of nations was too limited to explain the success of Nycomed. The cluster part of Porter's theory, however, made sense when put in the context of trans-national clusters. Nycomed collaborated with Scandinavian radiologists as well as Sterling Drug and Schering AG, two large contrast media companies. The three companies collaborated in speeding up the development of Omnipaque in order to beat the other competitor's effort towards market launch.

Sogner also argues that the success of Nycomed was due to its internal culture. Nycomed had strong traditions in conducting research, a strategy they transferred to contrast media. Nycomed sent chemists to England for doctoral studies, and the family-run company clearly had scientific ambitions. Sogner argues that the employees were "a group of people with doctorates, professorships and professorship competency leading both research and the company". The strong emphasis on research and science was thus a strong factor contributing to the success of the development of Omnipaque.

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[1]Sogner, Knut. 1993.

[2]Now referred to as Nycomed. The company changed its name from Nyegaard & Co to Nycomed in 1986.

[3]Based on numbers from Sogner 1993.

The article establishes an understanding of why Nycomed succeeded with their development of groundbreaking contrast media products. They were first-to-market with the leading product Amipaque. The launch of Omnipaque will be further explained through chapter 4.

But having an excellent product and launching it first does not necessarily mean that a company will reap the majority of economic success. The problem with an innovation is that the innovator might not be the "winner" after the product is commercialized. Nycomed managed to profit significantly from their innovation Omnipaque and the contrast media division of the company financed the two other divisions. In 1992 Nycomed obtained about a third of the worldwide revenues from Omnipaque: 2.4 billion Norwegian kroner. Omnipaque had about 45% of the world market of about 2 billion US dollars.[4] This thesis will investigate how Nycomed was able to become a world leader in contrast media. In 1982 Nycomed hired the American management-consulting firm McKinsey & Company to investigate the potential market for Omnipaque.[5] Nycomed was a small Norwegian company, and the author wishes to see how the company changed, and was able to benefit significantly from their innovation. It would be interesting to look into whether or not the services provided by McKinsey provided the right strategic direction for Nycomed, and to what extent their collaboration contributed to the success of Omnipaque. The author hopes this thesis will shed some light on the ability to succeed with innovation when using external consultants.

1.2. Hypothesis

Hypotheses: Nycomed's success in the field of contrast media is linked to services, and strategies developed for them by the consultancy firm McKinsey. Their services laid the foundation towards the goal to become a world leader in the field of contrast media.

1.3. Research Question

Research question: Did McKinsey's consulting services contribute directly to the success of Nycomed's innovation "Omnipaque"?

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[4]Sogner, Knut. 1993

[5]McKinsey & Company will from now on be referred to only as McKinsey.

Chapter 2: Theoretical Framework

In this thesis I will try to investigate how the innovation "Omnipaque" became a successful product, and especially a financial success for Nycomed. To understand how companies may increase their probability for success this chapter will look into theory about profiting from innovation.

What is innovation? An innovation is more than simply a good idea, or an invention. While an invention is the first occurrence of an idea for something new, an innovation is an attempt to carry it out in practice. A firm has to be able to turn their ideas into innovations, and to hopefully prosper on them. Joseph Schumpeter[2] defined innovation broadly. Schumpeter listed five different concepts of innovations: product innovation, process innovation, market innovation, environmental innovation, and organizational innovation. In this thesis we will see Nycomed go through nearly all of them.

Innovations are often characterized as being either incremental or radical. An incremental innovation is a small change to something that already exists such as e.g. Coca Cola introducing "Coke Zero," which basically is the same as a regular "Diet Coke". A radical innovation is something that changes the way we think or do business, such as the mobile phone. Fagerberg[1] argues that firms may need to take wider social and economic implications of their innovation into account. The case of Nycomed and McKinsey will show that radical innovations, such as Omnipaque, may require extensive infrastructural investments and organizational change.

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[1]Fagerberg, Jan. 2005

[2]Schumpeter, Joseph. 1934

2.1. The Innovation Process

The innovation process is a process characterized as contingent. The process may differ with regard to sectors, type of innovation, geography, and for example corporate strategy. The process may also vary with respect to the size and traditions of a firm. The process of innovation is contingent, and is embedded in both social and cultural structures of any given firm. A specific innovation process may be developed internally in a company, such as in 3M or Procter & Gamble, or rise organically as in the case of Silicon Valley and its Venture Capital. According to Pavitt there is no widely accepted theory of firm-level processes of innovation that integrates all dimensions of a firm. Pavitt suggest the following framework for understanding the innovation process:[3]

"1. Innovation processes involve the exploration and exploitation of opportunities for new or improved products, processes or services, based either on an advance in technical practice ("know-how"), or a change in market demand, or a combination of the two (...).
2. Innovation is inherently uncertain, given the impossibility of predicting accurately the cost and performance of a new artifact, and the reaction of users to it. It therefore inevitably involves processes of learning through either experimentation or improved understanding (...)." [Italics added].

With regard to the innovation developed by Nycomed, it seems applicable to use the term exploration of an opportunity. It was the scientist Torsten Almén, along with Hugo Holtermann and his team who developed the chemical substances for their first non-ionic contrast media named Amipaque, and later Omnipaque. The products were at the time radical innovations, meaning something completely new to the market. There were other contrast media available, but none who held the same unique properties. More about this development will be explained later.

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[3]Pavitt 2005

Freeman and Soete[4] believed that innovations could be classified based on how radical they were in relation to the current technology. If an innovation was only a continuous improvement to the existing technology, it was to be considered "incremental". If it were something totally new, like for example new machinery, it would then be considered radical. This paper is dealing with a radical innovation.

The innovation process comes, as explained, in various forms. One generic example that can be used for understanding Nycomed's position is the following model:

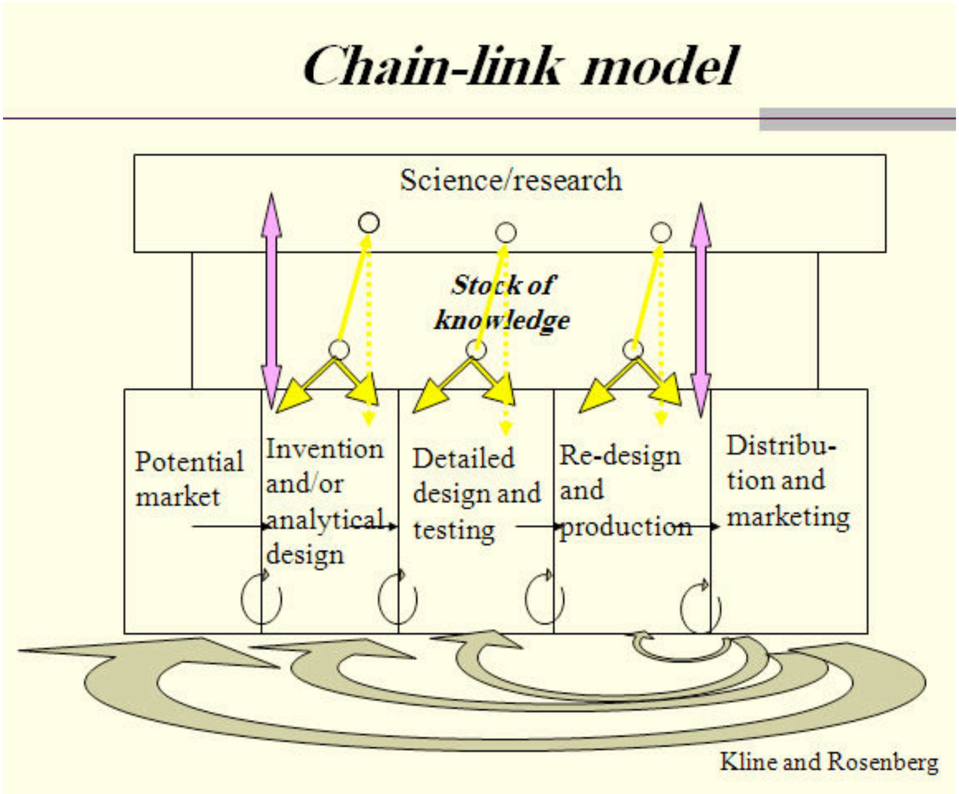

Fig. 1: "Chain-linked model" developed by Kline, S.J., and Rosenberg, N.[5]

An invention or idea is something anyone can have, but in order for it to become an innovation, it has to be carried out in practice. It has to be commercialized. To be able to turn an invention into an innovation, a firm normally needs a variety of skills, knowledge and resources. In this case the author has observed a high level of scientific skill, based on the interviews discussed later.

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[4]Freeman and Soete. 1997.

[5]Kline, S.J., and Rosenberg, N. 1986

Nycomed had a strong tradition of scientific research and development. As mentioned earlier they had been successful with their first non-ionic contrast media Amipaque, and were now facing the challenge of internationally commercializing the new substance iohexol, used to develop the product known as Omnipaque. Amipaque was a unique but expensive product which faced zero competition. It was, however, not a product that could be used in the entire body such as Omnipaque.

In order to succeed with commercialization it is not enough to only have a product that customers will be interested in. Companies have to take the right market approach, use efficient channels for marketing and distribution, and for a relatively small Norwegian company this was a new challenge.

One of the problems with commercialization is related to who will actually benefit from the innovation. The typical case is that of Xerox PARC and Apple Inc. Xerox developed both the GUI (graphic user interface) and the mouse, but failed to see the value of what they had.[6] Steve Jobs, CEO of Apple, visited the company and bought their technology, which is basically the same as in all computers today. Xerox failed to exploit the commercial potential of their innovations, primarily because they did not seem to hold the same value as the photocopier business.[7]

2.2. Profiting from Innovation

David J. Teece (1986) tries to explain why innovating firms sometimes/or often fail to benefit significantly from an innovation.[6] Teece argues that customers, imitators, and other industry participants benefit more often than the innovator. Although a company is first-to-market with a new product, Teece argues that they often fail to reap the financial benefits. Teece has created a theoretical framework for understanding why this happens, as well as how companies can organize strategically in order to maximize their innovation output. Teece's paper seeks to determine who "wins" from an innovation: The firm first to the market, followers, or firms possessing relevant capabilities for market success.

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[6]Teece, David J. 1986

[7]Rogers. 1995

Teece used three fundamental building blocks for understanding the distribution of outcomes from innovation: the appropriability regime, complementary assets, and the dominant design paradigm.[8]

The appropriability regime

The regime of appropriability refers to factors that govern an innovator's ability to capture the profits generated by innovation. Teece believes that the most important factors for such a regime are:

- The nature of the technology
- The efficacy of legal mechanisms for protection

Teece recognized the following as the key dimensions of appropriability:
For legal instruments patents, copyrights, and trade secrets are most important. For the nature of technology the product itself, the process, tacit information, and codified knowledge are most important. Patents are one of the most important types of legal protection of intellectual property. Teece argues that patents seldom work in practice, and that they rarely confer perfect appropriability. Patents can of course confer some protection, but they are often inexpensive to "invent around". Patents are also especially ineffective with regard to protecting process innovations. In the case of Omnipaque it was patented long before market launch. By patenting the chemical formula Nycomed became protected from competitors copying their formula. Nycomed faced competition from most of the larger contrast media firms, which naturally worked on their own substances to capture a share of a rapidly growing market.

Tacit knowledge is another dimension of appropriability, which can create sound protection from imitators. Codified knowledge is easier to transcribe and transmit, and is thus exposed more easily in cases of e.g. industrial espionage. Tacit knowledge by its very nature (being intangible) is difficult to articulate and thus hard to transfer.

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[8]Teece, David J. 1986

Nycomed certainly seemed to be ahead of their competitors with respect to the work conducted by Torsten Almén and Hugo Holtermann. They developed the first non-ionic contrast media Amipaque, and from the interviews conducted for this thesis the author was made aware by several of the subjects that those two should hold credit for their work. It seems that the employees at Nycomed held a high standard in the scientific work they were conducting. Nycomed was an organization focusing on science, and thus it seems that they possessed information and skills characterized as formal.

Teece divides the appropriability regime into "weak" and "tight"[9], in which tight refers to a technology that is relatively easy to protect. In the case of Nycomed it seems that the company was protecting their innovations well with patents. They relied on formal research and development, and held high standards without there being any specific tacit properties involved. The appropriability regime is to the author thus characterized as fairly tight.

The dominant design paradigm

Teece distinguishes between what he describes as "two stages in the evolutionary development of a given branch or science": the pre-paradigmatic stage and the paradigmatic stage. The former describes the situation where no single generally accepted conceptual treatment of a phenomenon exists within a field of study. The latter describes the situation where a body of theories appears to pass the canons of scientific acceptability[9]. In the pre-paradigmatic stage industrial development is fluid, processes adaptively organized and competition manifests itself amongst designs, which are markedly different. In the paradigmatic stage, after some time, one design has become the standard. Abernathy and Utterback[10] hypothesized that competition amongst products changes with the emergence of a dominant design. Teece argues further that once such a design emerges, competition shifts from design towards price. Competitive success shifts from one set of variables to another.

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[9]Teece, David J. 1986

[10]Abernathy and Utterback. 1978

When Nycomed started experimenting with contrast agents one may say that they entered the pre-paradigmatic stage. Nycomed focused on science and was an informal, fluid, and small Norwegian firm. Amipaque, their first non-ionic contrast media, was a radical innovation which laid the foundation for the more dominant design Omnipaque. Sogner argues that Amipaque not only transformed Nycomed, but also the conception of contrast media and the world market for such products. By engaging McKinsey they turned their focus from science to market, and they got a better idea of the actual economic possibility that lay in Omnipaque. Because Omnipaque sold as one of the top 10-15 drugs worldwide (1992) the author finds it reasonable to classify it as a dominant design. Nycomed had an advantage with Omnipaque, and as a small company they were aware of a potential but not the magnitude. McKinsey wanted to change the company culture, and turn the focus on contrast media. When a dominant design emerges, the market turns from design towards price orientation. One of the reasons why Nycomed was able to succeed was their change of focus.

Complementary assets

In almost all cases, Teece argues,

"*The successful commercialization of an innovation requires that the know-how in question be utilized in conjunction with other capabilities and assets*"[italics added]. Teece, David J. 1986[11]

Complementary assets are those such as marketing, sales, production, support, and so forth. Teece recognizes that the commercialization of a new drug, as in the case of this thesis, is likely to require the use of specialized information channels. In the analysis I will also look into the licensing of sales, and how employing agents for marketing and sales may affect the likelihood of successful commercialization. Teece divides complementary assets into generic, specialized, and co-specialized assets, depending on the generic, unilateral, and bilateral dependence between the innovator and the asset.

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[11]Teece, David J. 1986

[12]Sogner, Knut. 1993

The greater the innovator depends on the asset, the larger the risk and potential pitfall if opportunistic behavior emerges. In a global competitive market it is unlikely to believe that an organization would integrate all of its dimensions. Teece argues that no company could keep pace in all of the areas by itself, and that complete integration is unnecessary and expensive.

Implications for profitability

The Profiting from Innovation framework explains how managerial choices, intellectual property protection, and decision-making may influence a company's opportunity to benefit from innovation.[13] It is a theory applicable for competitive strategy. In tight appropriability regimes Teece argues that companies with ironclad protection are "almost assured" of capturing market value. In weak regimes, however, the innovator must turn to business strategy in order to keep imitators at bay, and maximize their revenues. Nycomed had to turn to business strategy in order to orientate the company towards the contrast media market, and in order to exploit the financial potential of the innovation Omnipaque. They had to change the mentality of the employees, developing a big-win culture quite contradictory to the common Norwegian mindset of not believing in oneself.

In the pre-paradigmatic stage innovators should be careful of how they design their products. It seems essential, based on Teece's argumentation, that the innovator should wait until an industry standard is set before letting design "float". In this case Nycomed set the industry standard. Once a paradigmatic design has emerged production volumes start to increase, and opportunities for economics of scale emerge. Thus in such a situation the use of specialized assets is likely to increase. Price becomes increasingly important and Teece argues that the access to complementary assets becomes critical.

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[13]Teece, David J. 1986

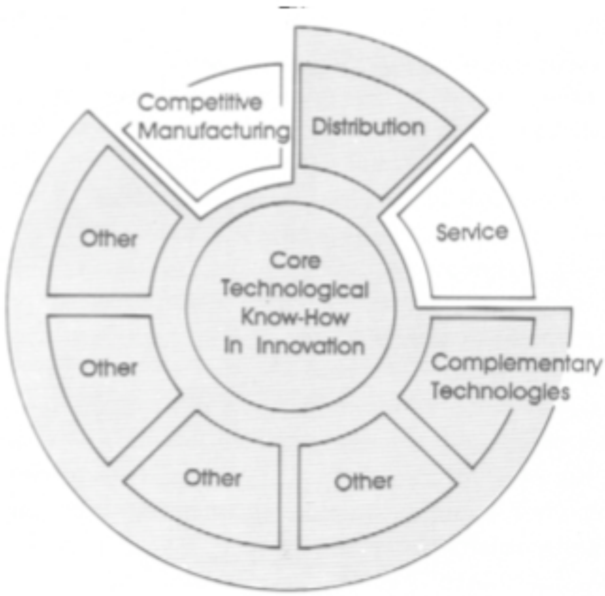

Figure 8. From: Teece, David J. 1986.[14]

The figure shows how businesses can organize what to internalize or subcontract. Larger firms tend to have the various assets already internalized and ready for introducing new products, and smaller firms will more often have to turn to the market because of the expenses of integration. In Teece's own reflections about the Profiting from Innovation paper, he argues that the taxonomy developed around complementary assets and technologies was the most important contribution of the paper.[14] Morton found that in generic pharmaceuticals the proclivity to enter new markets was greater where there were similarities in manufacturing, distribution, and marketing.[15]

Complementary assets are thus one of the keys for understanding how Nycomed turned from a small Norwegian company into a world leader in contrasts. McKinsey was a critical asset for Nycomed during the commercialization of Omnipaque, and a specialized asset in strategy and managerial consulting. Nycomed was too small to conduct proper market research, strategy evaluations and used McKinsey to assist them in changing the corporate culture as well. Mansfield and Wagner also argue that having proper market research before the launch of an innovation improves the likelihood of success.[16]

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[14]Teece, David J. 2006

[15]Morton, Scott. 1999.

[16]Mansfield, Edwin and Wagner, Emanuel. 1975

A more thorough analysis of the relationship between Nycomed and McKinsey will be presented in Chapter 4 and 5. Complementary assets can shape how an industry works, and for the drug industry they certainly can shape the magnitude of success when e.g. launching a new drug. The Profiting from Innovation framework indicates that the boundaries of the firm are an important strategic variable for innovating firms, and that ownership of complementary assets helps establish who benefits from innovation.

Profiting from Innovation and Strategy

”*Strategy is the deliberate search for a plan of action that will develop a business's competitive advantage and compound it. For any company, the search is an iterative process that begins with a recognition of where you are and what you have now – the differences between you and your competitors are the basis of your advantage”*[italics added]. Henderson B. [17]

PFI is a strategy paper because it frames how companies can make important strategic decisions by taking the business environment, protection of property rights by patents or tacit knowledge, and the positioning in complementary assets into account. It is a good framework for analyzing what Nycomed went through during the innovation process for Omnipaque.

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[17]Henderson, B. 1991

2.3. Michael E. Porter

In his book Michael E. Porter develops a framework for understanding the competitive forces of any given industry in which a company exists.[18] The comprehensive framework utilizes analytical techniques to help firms analyze its industry, the industry's evolution, understand the competitors, and to use this to form a competitive strategy. Porter's framework analyzes five competitive forces influencing an industry, and their implications. The framework is important to better understand how McKinsey analyzed Nycomed, and the results of their strategic actions.

Porter's structural analysis of industries

Porter argues that industrial structure has a strong influence in determining the competitive rules of "the game" as well as potential strategies for a firm.[18] Porter believes that competition in an industry depends on five forces, which collectively determine the profit potential. The five forces can be displayed as the following model:

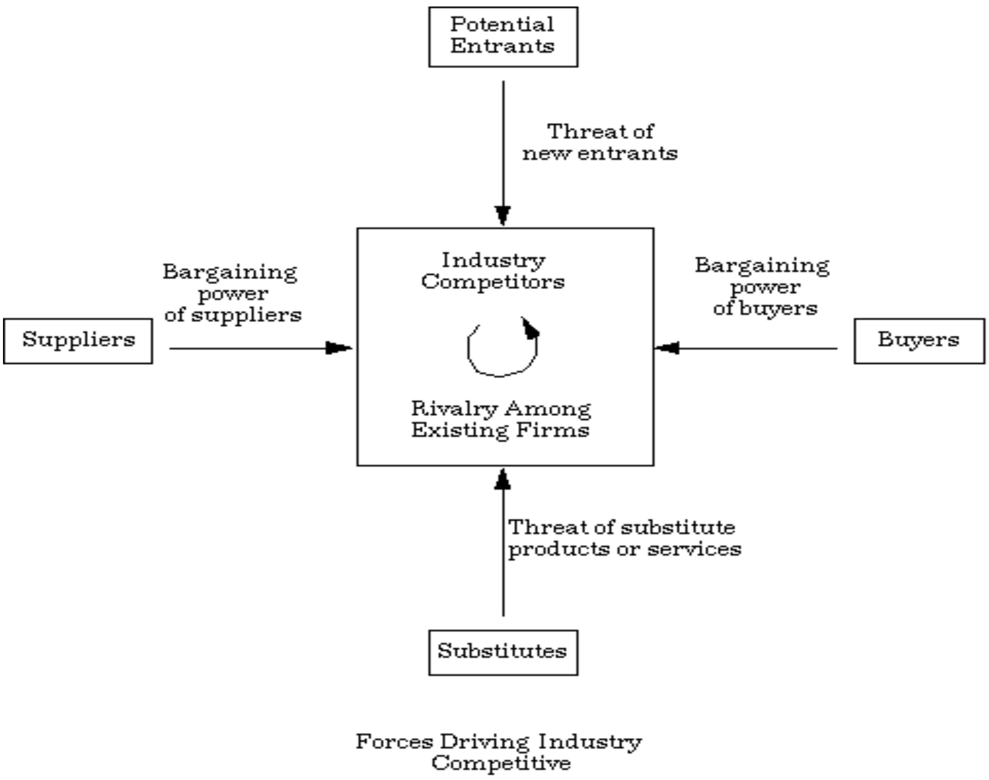

Figure 1-1. "Forces Driving Industry Competition" - from Porter 2004.[19]

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[18]Porter, Michael E. 2004. Originally published in 1980.

[19]Porter, Michael E. 2004. p. 04

The goal of competitive strategy is to find a position where a company can best defend itself against the five competitive forces. Porter argues that although the collective strength of these forces may be apparent, the key for developing a competitive strategy is to delve below the surface and analyze the sources of each.[20] The understanding of each force provides valuable information about a company's relative strengths and weaknesses. It may also create an understanding of how to position the company, as well as highlight industrial trends and strategic opportunities. Porter's framework enables companies to interpret reality. The model creates an understanding of barriers of entry, treatment of substitutes, what kind of suppliers a company depends on, industrial rivalry, and so forth. For the pharmaceutical company Nycomed, one of the key forces will be suppliers/licensees in distribution. I will get back to this in the analysis chapter. The framework established by Porter is good for understanding how McKinsey analyzed and worked with Nycomed, and Porter's thoughts about the five forces are also relevant for understanding how Nycomed succeeded with licensees, important assets for the commercialization of Omnipaque.

In the article by Sogner described in Chapter 1, he analyzes the success of Nycomed based on Porter's theory about National Clusters.[21] Sogner highlights that one of the reasons for Nycomed's success was due to what he describes as a "trans-national cluster". Nycomed collaborated with Sterling Drug and Schering AG during the development of Omnipaque. Sogner argues that tight collaboration and Scandinavian conditions led to a competitive advantage for Nycomed, which had a close relationship with Scandinavian radiologists.

There are thus many factors influencing Nycomed. On the one hand is scientific success in creating a breakthrough product, and on the other financial success changing the whole company. In Chapter 4 the story of Nycomed's success is presented.

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[20] Porter, Michael E. 2004

[21] Sogner, Knut. 1993.

Chapter 3: Method

3.1. Case Study

This case study is conducted with the intent to study and explore the particular, and single case in which Nycomed and McKinsey interacted. In this chapter I will examine the general case study, and the methods applied to this thesis.

Case studies have different meanings for different people in various contexts. Robert E. Stake[1] defines a case study as “The study of the particularity and complexity of a single case, coming to understand its activity within important circumstances”. Stake emphasizes that case studies are not limited to qualitative inquiry, but also applicable in quantitative research[2]. For the purpose of this thesis I will however use qualitative methods further explained below.
Yin[3] further explains that the case study is the relevant research method when the questions asked are “how and why questions”. The case studied in this thesis is very much related to questions like this, explained above.

There are three different approaches to case studies explained in Stake’s book. The first is *intrinsic*, where a case is studied for the intrinsic interest in the case itself. The second is *instrumental*, which is chosen to explore a research question in order to gain insight and understanding of something else. The final type of study is the *collective*, in which multiple cases are analyzed for a collective understanding of a research issue.

This thesis is seeking to investigate what happened in the interaction between Nycomed and McKinsey and could be considered an intrinsic case study. The thesis is also exploring consulting companies and their effect on clients, and could thus be considered instrumental as well. The author wishes, as described in the first chapter, to investigate not only if the relationship was successful, but also how it evolved, what it derived from, and how it came to an end.

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[1]Stake 1995, p. xi

[2]Simons 2009, p. 1

[3]Yin 2009, p. 27

3.2. Design

This study is built using a single case design. Yin[4] has given five rationales that justify the use of such a design. For this paper the following rationale made the author choose the single case design. One can argue that the case is an extreme case, or unique. Nycomed was in a particularly interesting situation, in that they had a breakthrough product but were unaware of the potential it held. There are not many Norwegian companies that have had such huge breakthrough products and who have had such a success. The possibility to investigate a case between a management consulting firm and their client is also very difficult. In this case, however, which occurred thirty years ago, it is now possible to get people to talk about it, and to find documents containing information from that specific time. The author acknowledges the possibility of such a relationship taking place in other organizations, but the ability to investigate it is in this case unique.

3.3. Interviews

The term *interview* is related to parties engaged in asking and answering questions[5]. Regardless of the design of an interview, the general sequence of interaction is question-answer. There are, however, great differences in how interviews are designed, and this is naturally related to what the interviewer seeks to discover. Questions are usually structured either as *closed*, or *open*. The intent of this thesis is not only to discover to what extent McKinsey contributed to Nycomed's success, but also what lay behind the decision to buy consultant services, and also how the relationship between the two companies functioned. The interviews in this thesis are conducted between the researcher and the individual face-to-face. The intent of these interviews was not to create a simple question-answer interaction. Closed questions seldom lead to deep insights. Open questions have broader parameters and invite the interviewed subject to elaborate on a broad or specific topic. It allows the subject to formulate his or her own answer on topics presented by the interviewer.

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[4]Stake 1995, pp 3-4

[5]Roulston 2010, pp 10-11.

Elaborate descriptions of topics also allow the interviewer to investigate new topics that might come up during the conversation. Follow-up questions, or “probes” allow for deeper investigation[6]. During the interviews in this study the author used a general interview guide, but focused on conversing with the subjects and allowing them to tell their story. The guide was designed to keep the conversation going but was not needed to any noticeable extent. The interviews were conducted at the subject’s address.

There are limitations with regards to the interviews. The case under investigation took place over thirty years ago, and some of the interviewed subjects may have forgotten facts and details. There may also be some bias connected to the fact that Odd K. Strandlie worked his entire life at Nycomed, and that Gert W. Munthe worked for both Nycomed and McKinsey. They may thus favor their own organizations and project then overly positive. During the interviews the author however felt that Gert W. Munthe and Stein Holst Annexstad were able to be more critical about decisions made by themselves and the management in Nycomed. They are both critical to the strategic direction the company took after Hafslund bought it. The author will also overcome some of these limitations by studying the McKinsey reports to confirm that what is found in the interview data correlates with the views of that time.

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[6]Roulston 2010. P. 12

3.4. Samples

In the case between Nycomed and McKinsey three subjects have been selected for interviewing.

The first subject is Odd Kåre Strandli. Strandli started in Nycomed back in the 1950's as a chemical engineer. He got his education from NTH[8] in Trondheim, and had previously held an intership at Nycomed. He became fascinated with their interest in research, and started working for Nycomed in 1963. Strandli worked his way up in the organization, and became the director of the contrast media division after Norgas bought Nycomed. Today Odd Kåre Strandli is retired.

The second subject is Gert Wilhelm Munthe. Munthe holds a degree in social economics (ex. oecon) from the University of Oslo, as well as an MBA and a MIA (Master of International Affairs) from Columbia University in New York. Munthe was affiliated with McKinsey during their work with Nycomed. He was recruited for business development, and later as managing director of Nycomed Imaging. Today Gert Munthe runs an investment company, Hercules Capital, which invest in and develop companies in Norway.

The third subject is Stein Holst Annexstad. Annexstad has a "Siviløkonom"[9] degree from NHH[10] in Bergen. Annexstad was working as director for a Norwegian industrial conglomerate company named Dyno Industrier AS when he was recruited to come work for Nycomed. He started working at Nycomed after the company was bought by Norgas, and remained there until 1991. Today he works for his own firm Holstein AS, as well as serving as chairman of the board for the Norwegian bio-chemical firm Algeta AS.

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[8]NTH is short for Norges Tekniske Høgskole, which later changed its name to Norges Teknisk-Naturvitenskaplige Universitet, or NTNU.

[9]The degree "Siviløkonom" is the equivalent of an MSc in Business and Administration

[10]NHH is short for The Norwegian School of Business and Administration.

3.5. Document analysis

The most important sample for the thesis is the documents and reports from the specific case, stored in the Norwegian National Archive. Nycomed has preserved reports, letters, and miscellaneous documents at the state archive. The documents contain information vital to the case study. In the archive there are reports from McKinsey, correspondence between management, as well as miscellaneous documents from their interaction. The main documents of interest are the reports that may show how McKinsey viewed Nycomed before and after their work, the strategic options they developed for Nycomed, and what challenges they faced.

3.6. Reliability and Limitations

Time is one of the factors that may have inflected the reliability of the thesis. The case presented in the following chapter took place between 1981 and 1990, and thus happened over twenty years ago. The interview subjects may have forgotten events that could be important to the thesis. The author feels, however, that the validity of the interviews correlates well with the findings in the archived reports. Another liability might be the subject's strong connection with their success. They might fail to see things they did wrong, and might hide facts to protect themselves. The author feels, however, that by interviewing three subjects with different backgrounds, that opportunistic behavior is limited.

The author acknowledges that the thesis is limited by its very nature: being a case study. The case is, however, a good one, with a radical new innovation and a company facing the challenges of internationalization. Nycomed is a perfect case to examine in order to investigate the potential effects of hiring consultants during the innovation process. Largely because of the large amounts of data in the National Archives, access to former employees in top management, as well as prior research about Nycomed.[11] The author recognizes the need for a larger data sample to be able to generalize completely about consulting and its contribution to innovation. The thesis is also limited by its size and timeframe.

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[11]Sogner, Knut. 1993 and Amdam, Sogner. 1994

Chapter 4: The case of Nycomed & McKinsey

3.1. Introduction of Nycomed

Nycomed's history does not start with the production of contrast media. The pharmaceutical division of the company was established in the early 1900's in Norway, and they had for many years engaged heavily in research. The company was researching within many different fields. During one of Odd K. Strandli's first visits during the 1950's he recalls:[1]

"*I opened a drawer and there I found shoe-polish*" – Odd Kåre Strandli[2]

Nycomed developed their first contrast media as early as 1934, registered as "Urotrast"[3]. Companies like Sterling Drug and Schering AG had, however, already developed new and better products within this field. Nycomed wanted to get a foot in the developing contrast media business and developed "Isopaque" in 1959.[4]

Nycomed started investing in research within this field, but it was not until Torstein Almén became involved that they discovered what would ultimately become the future of the company: "Amipaque"[5]. Amipaque was the first ever non-ionic contrast media. The product was less harmful to patients, and also held superior attributes from the ionic competitor agents. Contrast agents are injected into the blood stream of the patients, so called vascular examinations, and the older products were known to cause side effects like pain, burning sensations and even death. Torstein Almén had become increasingly interested in this during 1962-63, and was approached by Nycomed's Hugo Holtermann after circumstantial events that prevented them from cooperating.

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[1]Odd Kåre Strandli was a chemical engineer at Nycomed, who later became director of the contrast media division.

[2]Interview with Odd Kåre Strandli 10.11.11

[3]GE Health. 2010 and Amdam, Sogner. 1994, pp 120-121.

[4]Amdam, Sogner. 1994, pp 121-122.

[5]Amdam, Sogner. 1994, pp 152-155.

Almén's ideas were so new and "radical" that even his coworkers had trouble believing it was possible to create a non-ionic agent, but in 1969 they had found the solution that became known as Amipaque. The final product was released in 1974.

Nycomed established contracts for licensing their products to the global market. In Scandinavia they had their own operations with regard to sales and marketing. Outside, however, they held tight relationships with Schering AG in Europe, and Sterling Drug in the United States. In 1979 nearly 60% of Nycomed's income came from their exports[6]. The relationship with Sterling Drug was of great importance, not just with regard to the vast American market, but also with regard to collaboration in research as well as production and technical development.

Amipaque was an expensive product to produce, and was normally used only in the spinal canal. Isopaque and its competitors were still being used for vascular examinations, and Nycomed thus wanted to further develop a non-ionic contrast media for this purpose.

By the end of 1978 they had produced a substance named 545, which later was developed and named iohexol. Iohexol would be the foundation for the development of "Omnipaque" which would turn out to be the largest success for the company. By 1980 the product was ready for testing on human subjects, and in 1982 it was approved in Norway and major parts of Europe[7]. This was the beginning for one of the ten best selling drugs in the world.

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[6]Amdam, Sogner. 1994, pp, 190-191.

[7]Amdam, Sogner. 1994, pp, 199-209

3.2. Nycomed Pre-McKinsey

Nycomed had been run by the Blix family since before the 1950's, and was thus a family business. Odd K. Strandli explains that the Blix family was satisfied as long as Nycomed made money for the family, as they owned practically 100% of the company.[8] They had a genuine interest in science, research and development, but as the time came to find their successors they realized that their children would not be able to bring the company forward. Strandli explains that the Blix family started to realize the potential in the products after the launch of Amipaque around 1974, and that their family might limit the possibilities of Nycomed.

"*They were honest enough towards themselves to see that none in their next generation could take the firm further*" – Odd Kåre Strandli[8]

Towards the end of the 1970's they started looking at alternative buyers amongst the larger Norwegian firms. They approached companies such as Hydro, Hafslund and Glaxo, but none of them seemed interested, and Glaxo seemed to view Nycomed as a possible production facility in Scandinavia rather than a research facility, which was the view and ideology of the Blix family. Ulf Blix was searching for buyers, and found one at his neighboring cottage, which was owned by Kåre Moe, director of Norgas. After what Strandli described as "discussions over the fence", the result was that Norgas bought Nycomed.[8]

The merger was the result of a desire to reorganize as a conglomerate, but it also had certain tax benefits. This implied a much larger organization, but also a new view on how the company should be organized. Norgas had divisions in shipping and welding, and were interested in acquiring a chemical/pharmaceutical firm such as Nycomed. The establishment of a large conglomerate was the main interest of Kåre Moe, a leading businessman during the 1980's in Norway. Nycomed had been a family driven organization, but Kåre Moe had a different perception on how companies should be organized, and Nycomed was transformed into a company of distinct divisions.

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[8]Personal Interview with Odd Kåre Strandli 10.01.2011

3.3. Nycomed seeks external advice

Kåre Moe had a more modern approach to how businesses were run, and he was also willing to take more risk.[9] Nycomed had been organized primarily as a family business, where the owners where happy as long as they made money.[10] The Blix family had taken careful steps in business, focusing on science and research, but Moe quickly realized that there was unreleased potential within the company.

Kåre Moe had the mindset of how to run a company with respect to the stock market. He had interest in maximizing profits and organizational efficiency, with regard to shareholder value. Blix was suspicious about selling with regard to research traditions, and the annual spending of 15% on R&D was something that he "demanded" be sealed in a written agreement with Kåre Moe. At this time Nycomed was earning in the hundred millions, and 15% at this time was indeed a lot of money.

When the company developed Omnipaque and it became available on the market in 1982, Kåre Moe decided to buy services from McKinsey, which at that time was located in Copenhagen, Denmark. His interest was to acquire knowledge about the potential for Nycomed, and Omnipaque.[9] Nycomed was at the time only present in some markets but Moe had visions about there being global potential for Nycomed's contrast division. In order to expand it became clear that Nycomed would have to upgrade its entire production facility, to meet potentially new capacity demands as well as FDA standards.[11]

Norgas had good experiences from using McKinsey's services, and Gert Munthe believed that they also were called in to examine what Norgas had actually bought.[12]

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[9]Personal Interview with Odd Kåre Strandli 10.01.2011

[10]The Blix family had almost all the shares in Nycomed according to Odd K. Strandli and Gert W. Munthe.

[11]FDA is an acronym for Food & Drug Administration, an American public health regulator.

[12]Personal Interview with Gert Wilhelm Munthe 13.01.2011

3.4. Introduction of McKinsey & Company

James O. McKinsey founded McKinsey in 1926. The firm established a practice in budgeting and finance, but James O. McKinsey wanted to use "management engineers" to help poorly performing companies to do better. He established a vision "To help clients make distinctive, lasting, and substantial improvements in their performance and to build a great firm that is able to attract, develop, excite, and retain exceptional people".[13]

Management engineers in this era were largely companies working on improving efficiency by applying Taylor's techniques. Frederick Taylor believed that analyzing components of e.g. a product or product line and applying incentive systems for that specific worker/engineer could increase productivity and eliminate opportunistic behavior among industrial workers. Taylor was recognized as the pioneer of "task management".[14] James O. McKinsey believed that consultants could not only help "sick" companies with efficiency issues, but also help healthy companies reorient, restructure and thrive in a turbulent business environment.

In 1933 Marvin Bower joined McKinsey. Bower would further advocate for management consulting as a profession, and following the early death of James O. McKinsey he would shape the company into how it is today. Bower compared management consulting to law and medicine, and believed that consultants should perform at the same high standards. By the 1930's the term "management consulting" started to replace "management engineering", and Marvin Bower was later credited by the Harvard Business School as the "father of management consulting".[15]

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[13]McKinsey & Company 2011. A history of McKinsey: 1920's

[14]McKenna. 2006, p 35

[15]Harvard Business School. 2011. Marvin Bower.

McKinsey grew rapidly in the 1940's and McKenna believes this was the result of their localization near the largest American corporations, and because the firm worked only for chief executives.[16] By the early 50's they had offices in many of the largest cities in the U.S. and were expanding into Europe.

The world economy became more integrated following the Second World War and McKinsey established their first overseas office in London in 1959. According to McKenna, McKinsey decided to open an office in London after committing to install the multidivisional organization for Royal Dutch Shell Oil in their London/Hague headquarters.[17] By 1966 the London office had become the second largest, and by the end of the century half of their revenues would come from overseas activities.

Because of European firms increasing demand for the American multidivisional form the company became a verb, rather than a name. Being "McKinseyed" became synonymous with a complete restructuring of a corporation.[18] McKinsey was hence becoming the recognized brand in management consulting. McKinsey had become the leading form for rapid transfer of American know-how in the 60's and 70's, but they could only install the multidivisional model in so many firms. McKinsey shifted their emphasis to strategic planning, profitability studies, merger advice, and in the 80's and 90's they invested heavily in studies of corporate culture, especially from Japan. The trend of "new products" in management consulting established itself with Arthur Andersen & Company and BCG dominating the fields of IT consulting and corporate strategy.[18]

Journalist Sandra Salmans explained in the New York Times:
"*In the 1960's, decentralization was the vogue in management. In the 1970's, corporate strategy became the buzzword (...)* [italics added].[19]

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[16]McKenna. 2006, p 169.

[17]McKenna. 2006, pp. 173-186

[18]BCG is short for The Boston Consulting Group

[19]McKenna. 2006, p. 212

McKinsey was specifically brought into Nycomed in order to revise their corporate strategy, and prepare the company for international competition and so forth. After their first engagement McKinsey would also look into the corporate culture at Nycomed in order to ensure that the implementation of their work would be successful. McKinsey would use their 7S diagnostic tool for corporate culture and Porter's Five Forces when analyzing Nycomed.

3.5. Mckinsey's view on Nycomed

The consultants from McKinsey were a group of Americans except for Gert W. Munthe and the Indian project leader Rajat Gupta. Karl Ahrendt, was the project manager from McKinsey and held the overall responsibility for the success of the project, but it was Gupta who took the operational decisions. Nycomed was at the time organized into three separate divisions: contrast media, pharmaceuticals, and diagnostics. Nycomed had made their own estimates of how large the potential market for contrast media was, soon to be revealed as being too low. McKinsey had a larger apparatus for conducting such analyses, as well as a worldwide approach and experience. Odd K. Strandli recalled the quality to be better, and that the market estimates were thoroughly conducted with interviews at e.g. Schering and Sterling, the two biggest licensees for Omnipaque.[20]

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[20]Personal Interview with Odd Kåre Strandli 10.01.2011

3.5.1 Phase one: Project Escalation

The Memorandum of proposal in 1983 outlines the background for McKinsey's engagement in Nycomed.[21] Nycomed is described as an extraordinary but small Norwegian firm, and a leader in the market for myelographic x-ray contrast media (contrast media used in the spinal canal). The company had been very profitable in the latter years.

" (...) Nycomed's sales have grown at a compound annual rate of 22%, and pre-tax earnings have grown at 47% a year." McKinsey & Company[21]

The report states that although the company is showing signs of success, the management at Nycomed thinks the time has come to re-examine the company's overall strategic direction. Specifically, Nycomed was interested in investigating additional product/market opportunities in each of its three major business units and in identifying the business system, organizational, and financial resources, which would need to be executed for a revised strategy vision through the 1980's and beyond. Nycomed had increasingly become dependent on its contrast business, and McKinsey believed that the company was moving from a "me too" position towards a leader in the contrast field. It would thus be necessary to revise the corporate vision and identify new separate strategies for the three divisions. The project was named "Project Escalation".

Objective: "Simply stated, the overall purpose of the project will be to help Nyco's management select a strategic roadmap for achieving sales growth and return objectives through the 1980's and beyond.[21]

Sub-objectives:

1. To identify the principal realistic opportunities and strategy alternatives available to each of Nyco's business units and to evaluate them in sufficient depth so as to enable management to make an informed choice among them.

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[21]Memorandum of Proposal September 1983. Archive Di – 0037

2. To refine the company's overall strategic framework based upon the sum of each of the individual business unit strategies and then to develop a consensus around the new corporate `vision´. This refined corporate vision will provide the base for the development of an overall `game plan´ for resource allocation, organization strengthening, and implementation efforts."- McKinsey & Company, Memorandum of proposal. 1983[22]

The contrast division had been profitable for a long time and shown impressive growth. Nycomed had acquired a good position in the market and held a brand recognized for their research. McKinsey, however, felt that their presence in the global market was too weak. The following questions needed an answer. What strategic market-focused moves were required for Nyco to capitalize on its full potential in the world marketplace? Should Nyco devote major resources to assist current downstream licensees to capture additional world shares? Should Nyco shift its primary marketing focus to creating a stronger internal and daughter company marketing presence? Should Nyco seek to acquire a European or U.S.-based marketing company/organization? McKinsey considered the possibility of Nycomed establishing a Nycomed Inc in the United States to compete with Sterling Drug.[23]

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[22]Memorandum of Proposal September 1983. Archive Di - 0037

[23]Personal Interview with Odd Kåre Strandli 10.01.2011

3.5.2 Conclusions from the Memorandum of Proposal

From the steering committee presentation presented in the end of 1983[24] McKinsey made the following conclusion: Nycomed's contrast division had become the predominant contributor to the company's overall profit during the recent years. McKinsey assumed that profits generated by the contrast division would count for 90% of the profits for the remainder of the decade. In 1975 contrast media stood for 10% of the profits, but by 1983 the percentage had risen to 60%. The market developments for contrast media were at the time developing into a highly competitive global arena, a situation Nycomed would face for the first time. In recent years Amipaque had held almost a monopoly within its respective field, but in the coming era Omnipaque would need strategic direction in order to obtain maximum market penetration.

McKinsey utilized the Porter's five-forces analysis to analyze the current environment.[24] The model was developed by Michael E. Porter and is described in the Theory chapter.[25]

Industry rivalry: Nycomed's product is seemingly the best product on the current market. Other competitors have similar products on the market but they have not the same qualities as Omnipaque. Nycomed also holds a strong position with regard to brand and quality awareness created by Amipaque.

Nature of demand: Contrast media products are considered sold on a value-based form. Consumers demand the product based on quality and its properties. Omnipaque was by McKinsey in 1983 considered not to have any comparable substitutes.

Market position of customers: Customers were described as a group of specialists, widely dispersed globally.

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[24]Steering committee presentation, December 22, 1983. Di – 0037

[25]Porter, Michael E. 2004

Barriers to entry: McKinsey acknowledged the patent protecting the substance iohexol, as well as developing economies of production, which could enable Nycomed to outperform its competitors by price. This would require significant upgrades in production facilities.

Market position of suppliers: Barriers for success were supposedly the possibility of production limitations amongst suppliers, as well as price determination.

3.5.3 McKinsey 1984 Final Report

From the final McKinsey 1984 report it is possible to divide their work into 3 phases:[26]

- Phase 1a
    - Diagnostic situation analysis
- Phase 1b
    - Identify strategic actions and alternatives
- Phase 2
    - Decide on alternatives and refine corporate vision
- Phase 3
    - Implementation planning

3.5.3.1 Diagnostic situation analysis

McKinsey did a classic analysis of the market, analyzing things like the number of x-ray machines, the number of machines being used with contrast agents, number of patients with disease x or y, and so forth. While Nycomed aimed straight ahead McKinsey had larger predictions of the commercialization of Omnipaque. They aimed at the ceiling. While executives at Nycomed believed that the world market was the size of about seven or eight hundred million NOK, McKinsey closed in on an estimate of about ten billion NOK. [27] Gert W. Munthe says that the first thing McKinsey did was to try to communicate the potential that lay within the market for contrast media.[28]

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[26]McKinsey Final Report Vol.1 1984. Di - 0039

[27]NOK is short for the Norwegian currency kroner

[28]Personal Interview with Gert Wilhelm Munthe 13.01.2011

There was naturally argumenting between McKinsey and Nycomed, but Strandli maintains that there was largely consensus between those engaged in the project. It was Nycomed's top management that needed convincing. For the leaders of Nycomed the numbers were mind-boggling, but nonetheless a more adequate estimate.

McKinsey started drawing a larger picture of the possibilities. The potential that lay in the revenues also generated other business potential in form of acquisitions, which will be discussed in the chapter "Continued relations".

The potential was in contrast media, and McKinsey tried to convince the organization to put most its effort into the contrast division. Nycomed had, however, always focused on diversification of research and were reluctant to abandon the other divisions. It became apparent, however, that the contrast media division was funding the other parts of Nycomed's operations and McKinsey said, "This is what you know". They wanted Nycomed to concentrate on contrast media, and look into the possibility of restructuring the other divisions.

In the Final Report Vol.1 McKinsey started to draw a strategic overview of Nycomed.[29] Nycomed was entering a new competitive era, and had to make hard strategic decisions in order to become the market leader in contrast media. Nycomed was facing poor opportunities in the pharmaceutical division, and McKinsey wanted them to change their pharmaceutical operations to try to become the leading drug distribution company in Scandinavia. This would require a complete restructuring of the division.

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[29]McKinsey Final Report Vol.1 1984. Di - 0039

Division analysis summary

The contrast media division was facing an explosive growth at about 40% per year through the 1980's and 1990's. There were major opportunities in developing markets, as well as within new emerging imaging technologies.[30] Nycomed would have to assume that other companies also would fight for their piece of the market. The profit margins were extraordinary at about 35-70%. McKinsey characterized the divisions by either a weak, parity, or strong market position. The contrast division was seen upon as being at a "parity" state, with the potential of becoming strong. Nycomed had acquired a lot of trust worldwide with its former product, Amipaque. In Sweden, Odd K. Strandli said that the use of products other than Amipaque was considered unethical by the Swedish drug administration.[31] McKinsey felt, however, that the division lacked the ability to leverage their position, and that there were substantial possibilities for acquiring market shares.

The Diagnostics division was facing great challenges during the end of the 1980's. The market for diagnostic products like enzymatic kits and control sera was mature with moderate to good profitability. McKinsey felt that control sera faced a depressive strategic outlook, with poor margins. The coagulation part of the diagnostics division was in a stable growing market, expected to undergo strong growth in Scandinavia due to new applications over the coming 5 years. The coagulation diagnostics were showing excellent profitability in niche world markets. McKinsey felt that key factors for succeeding within this area required an increase in quality and quality control as well as more marketing muscle. Nycomed's position was, however, quite weak. They held a limited presence in Scandinavia, and their current strengths were in an unattractive controls business. Their products also required upgrading. This division was thus heavily challenged.

The Pharmaceutical division was in most trouble according to the report. A mature market characterized the industry, with modest profitability, many competitors, and Nycomed in a weak position.

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[30]McKinsey Final Report Vol.1 1984. Di - 0039

[31]Personal Interview with Odd Kåre Strandli 10.01.2011

The division was not profitable, it was vulnerable, and held no competitive advantage. McKinsey had major concerns and questions about the sustainability of this division. In order to turn the division around McKinsey felt that it would need restructuring. Nycomed would have to hire new marketing and sales expertise as well as try scale and volume penetration in the Scandinavian market.

McKinsey conclusion:[32]

On the basis of their strategy work, McKinsey concluded that the contrast media business represented the major core business for the near- and medium-term future. As such, it should receive highest priority investment for growth over the next decade. While attractive and requiring considerable resources, the coagulation business is less clearly a core thrust at this time. Nyco's pharmaceutical business faces a substantial turnaround effort in order to develop a sustainable competitive position in the Scandinavian distribution arena.

3.5.3.2 Strategic opportunities

The findings from the 1984 McKinsey reports implicated that Nycomed would have to make significant changes to how they ran each of their divisions. McKinsey also outlined strategic choices they wanted Nycomed to make.

Strategic Options for Contrasts

Nycomed faced worldwide competitive challenges for the first time, and the market for Omnipaque was growing faster than expected. In McKinsey's final report they forecast that the 1990 market would be as high as 17 billion NOK[33]. In addition to the rapid growth ionic contrast media was becoming substituted by non-ionics faster than they first anticipated.[32]

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[32]McKinsey Final Report Vol.1 1984. Di – 0039, McKinsey Final Report Vol.2 1984. Di – 0039

McKinsey suggested that Nycomed should take the following strategic actions in the coming decade:[33]

1. Aggressively invest and grow to solidify contrast media as the core business.
2. Nycomed should put major emphasis in investments, maintenance, basic R&D, and clinical trials to expand their product line in contrast media.
3. They wanted Nycomed to increase their production capacity but also maintain flexibility.
4. They wanted to develop a new "big win" mentality or corporate culture in terms of marketing and sales. In order to succeed McKinsey felt that Nycomed should aggressively manage their subsidiaries, develop an external focus towards the global market, consider one or more acquisitions, and most importantly: Review all contracts, further explained in the chapter "Nycomed Responds"

Gert W. Munthe said that the challenge was convincing the employees at Nycomed that they could do this. After McKinsey had presented their final report in 1984, with the market estimates, he recalled one of the men from Nycomed saying: "Why become big when you're happy as small".[34]

Strategic options for Diagnostics

Nycomed would have to strengthen their competitive position for Enzymatic kits and controls. Controls would either have to be turnaround or withdrawn from the market. The coagulation part of the division should invest to strengthen their position in Scandinavia and Japan. McKinsey saw a possibility for the division to grow coagulation into a core business. They proposed three strategic actions. 1. Build new scientific knowledge, 2. Consolidate their franchises in the extended home markets and Japan, and 3. Expand geographically on an opportunistic basis.

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[33]McKinsey Final Report Vol.1 1984. Di – 0039, McKinsey Final Report Vol.2 1984. Di – 0039

[34]Personal Interview with Gert Wilhelm Munthe 13.01.2011

Strategic options for Pharmaceuticals

The pharmaceutical business would have to be turned around. McKinsey wanted Nycomed to try to gain market leadership in Scandinavia. The business system needed to be redesigned to improve their current weak position. McKinsey developed the following strategic actions for Nycomed:
A redesign of the overall business system for the division, with reallocation of research funds, research focus, and refocus on clinical efforts. They also wanted the division to focus on reducing production costs, as well as gain scale. The division would have to establish a marketing and sales intelligence function, build their own marketing department, and refocus their sales efforts.[35]

Additional business

In addition to the portfolio of current business, McKinsey recommended strategic opportunities in the radiological catheters (contrast division), non-isotopic immunoassays (diagnostics/reagents division), and cancer care arena (diagnostics and pharmaceuticals).

The market for radiological catheters was large and rapidly growing. McKinsey viewed this market as attractive for Nycomed due to high margins, excellent competitor opportunities, and Nycomed's success in marketing a United Kingdom catheter line with excellent results. Catheters are used to inject contrast media into the blood stream and would thus fit with Nycomed's new focus.

The non-isotopic immunoassays were a high potential pre-emergent business of which Nycomed already had basic scientific knowledge. For cancer care McKinsey saw a rapidly growing worldwide market, already quite large. There were good competitive opportunities, and McKinsey believed Nycomed could get a strong position here due to their excellent scientific reputation.

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[35]McKinsey Final Report Vol.1 1984. Di – 0039, McKinsey Final Report Vol.2 1984. Di – 0039

3.5.4 New Vision

Based on the strategic thrusts McKinsey developed elements of a potential new Nyco vision – including fundamental changes in strategic arenas, competitive role, sources of competitive advantage, and organizational capabilities.

A model of "Nycomed New Vision Development" from McKinsey's Final report, Volume 2:[36]

→	Implicit old vision	Suggested new vision
Strategic arenas	- High quality products - Norway	- High potential diagnostic/therapeutic - R&D ventures in Scandinavia – Global
Competitive role	- Niche research house - Norwegian licensor/licensee	- Integrated market segment leader – world - Towering distribution leader – Scandinavia
Sources of sustainable competitive advantage	- Narrow technical innovation - Brand franchises	- Sustained investments in broad span of technical innovation - Downstream marketing strengths
Actions required	N/A	- Rapidly build research capability/joint ventures/licensees - Expand clinical skills - Consolidate distribution businesses - Acquire key products/companies - Develop management/corporate center
Organizational capability	- Centralized - Risk averse - Technical	- Decentralized - Entrepreneurial - General management

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[36]McKinsey Final Report Vol.2 1984. Di – 0039

3.6 Nycomed responds

The reports from McKinsey implied that the firm had to focus their investments in the contrast agent division. Nycomed was already pouring about 10-15% of their surplus into research each year. They also had to invest large sums for upgrading the production facilities in order to meet the coming demand. McKinsey assumed that iohexol would have a 33% penetration by 1990[37], and thus would Nycomed have to invest about one hundred million Norwegian kroner to be ready for the coming demand.

Another key point McKinsey focused on was distribution. Nycomed had their own offices in Scandinavia, Eastern Europe, and Benelux. They were reliant on pharmaceutical firms to distribute their contrast agents in Western Europe and USA. The potential McKinsey saw in Omnipaque implied that Nycomed had to thoroughly evaluate their license contracts with the distributors. It was the American company Sterling Drug who handled Omnipaque in the Americas as well as in Japan through Daiichi. In Western Europe it was the German pharmaceutical firm named Schering who had the license for Omnipaque. The normal royalty for any drug was around 7-8%.[38] McKinsey wanted Nycomed to try to increase their license fees with the two licensees. Neither of them would initially be willing to change them. Gert W. Munthe explains that they viewed the potential as so great that McKinsey initially suggested that Nycomed founded a "Nycomed Inc." to distribute Omnipaque in the Americas.[39] Together, however, they decided to prepare for discussions with Sterling Drug, something they spent the final years of the 1980's on.[38] Sterling had such a good market position, and reaching up to their level would require significant time and money.

Nycomed wanted to increase their royalty options on future products and get support for further research. Odd K. Strandli called it "a fight".[38]

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[37]McKinsey Final Report Vol.2 1984. Di – 0039

[38]Personal Interview with Odd Kåre Strandli 10.01.2011

[39]Personal Interview with Gert Wilhelm Munthe 13.01.2011

The potential earnings for Omnipaque in USA were about $500 million. Sterling recognized the potential that lay in the current and future products, and was thus willing to start negotiations with Nycomed. While Nycomed was negotiating with Sterling, McKinsey was working “back office” alongside a Nycomed employee. They had stationed one of their employees at McKinsey’s office in New York. The reason for this arrangement was so whenever any point of the deal would be renegotiated, the employee and McKinsey could do calculations on what this meant for Nycomed. Odd K. Strandli recalls that whenever new terms were prospected they often had to take short breaks to communicate with the McKinsey office[44]. After a thorough series of negotiations Nycomed ended up with a royalty increase from a 7% to 12% average. Sterling got options on new products and a research collaboration were Sterling financed a part of Nycomed’s research. Negotiations had been successful. This is perhaps the most significant strategic move that Nycomed made.[40]

McKinsey had developed an acquisition strategy for Nycomed during the late 1980’s, and it said “Buy Sterling within 1994”. By October 1994 Nycomed bought Sterling Drug.

With Schering however, the case was different. Schering had the rights to market Omnipaque in Western Europe, a product that competed with their own contrast media product. Schering made less effort, after developing a competing product, to market and sell Omnipaque and although their relationship remained professional, it was not to be considered “good”.[41] They would rather market their own products, which led Nycomed to develop competing products to Omnipaque which they distributed themselves.

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[40]Personal Interview with Odd Kåre Strandli 10.01.2011

[41]Personal Interview with Stein Holst Annexstad 24.05.2011

3.7 Phase two: Building an excellent company

The relationship between Nycomed and McKinsey started out in 1983 and prolonged into the 1990's. The first project, which began in 1983 and ended in 1987, was to Odd K. Strandli and Stein H. Annexstad the most significant.[42] Project Escalation would turn Nycomed into a global leader in contrast media. After successfully implementing the new vision developed by McKinsey, Nycomed's Omnipaque would become one of the most selling drugs worldwide. It was the 1983-87 relationship that caused the most fundamental changes within the company, but the relationship with McKinsey would prolong in various forms into the 1990's.[43]

After McKinsey had finished "Project Escalation" they wanted to make sure that their strategic directions were thoroughly implemented in Nycomed, and initiated a second phase. Nycomed had for many years, as mentioned, focused on science and research, but now they were competing internationally. McKinsey wanted to create a "big-win" mentality. McKinsey and Nycomed started collaborating, focusing on phase two -- "Building an excellent company" -- which more or less was a continuation of the work done during 1983-84. The project objective was to implement the results from "Project Escalation" successfully, and develop a new corporate culture in Nycomed.

McKinsey had developed a tool named "McKinsey's 7S Framework", mentioned earlier in the theory section, for analyzing the corporate culture. Robert H. Waterman Jr. and Tom Peters developed the model displayed in the book "In Search of Excellence". The model was designed as a tool for assessing the internal structure and situation of a corporation.

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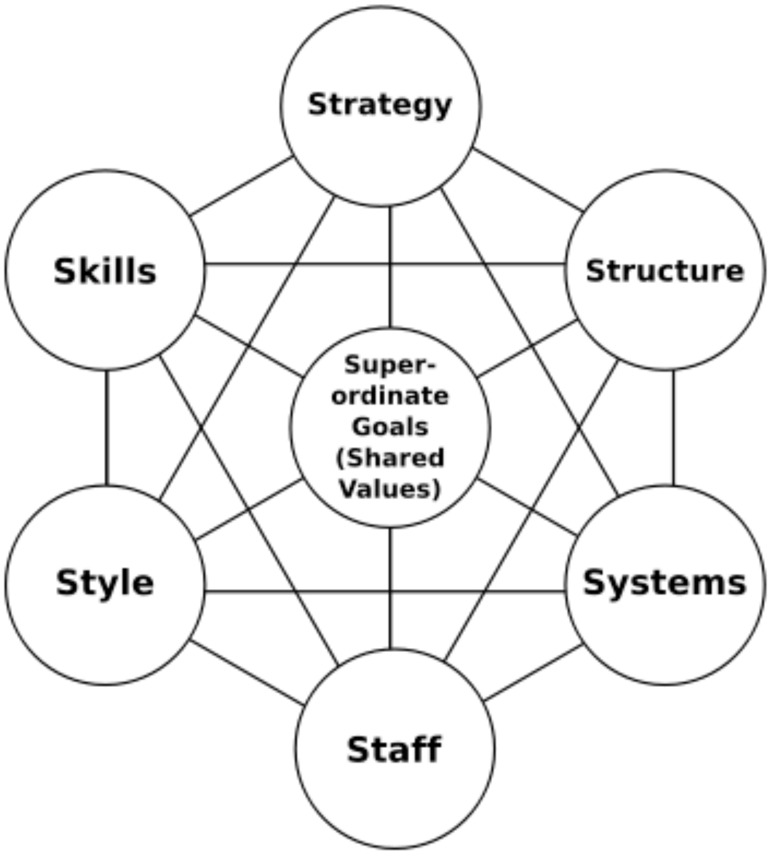
[42]Personal Interview with Odd Kåre Strandli 10.01.2011 and with Stein Holst Annexstad 24.05.2011

[43]Personal Interview with Gert Wilhelm Munthe 13.01.2011

The following model has been collected from Wikipedia.org[44], and McKenna's Book.[45]



From the senior management seminar on organizational development McKinsey draws the following picture about Nycomed's seven S.[46]

- Structure: Nycomed is divisionalized from functional. The company has 3 separate marketing and production organizations, but a central R&D department. Nycomed sales are organized into international sales subsidiaries and licensees.
- Style: Nycomed had a tradition of tight budgetary controls, and operating decisions were usually pushed up. Hard decisions and unresolved issues were often avoided.

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[44]Wikipedia.org 2011. *McKinsey 7S Framework.svg*

[45]McKenna. 2006

[46]Senior Management Seminar on Organizational Development. June 20, 1984.

- Systems: Sales, costs, production etc. were recently changed toward product segments. Nycomed had limited financial and quantitative reporting, and restrictive senior management controls.
- Staff: Most of the employees at Nycomed were “older” people with narrow technical backgrounds. Nycomed had very low turnover of employees, but was also poor at recognizing outstanding performers and poor at people development
- Skills: Nycomed was at par with the best in the world in contrast media. They had an early exposure to internationalization, but had little sales and marketing driven skills.
- Shared Values: Some of the employees were reluctant to change, and wanted to defend the status quo. There was little sense of urgency in the organization, as well as a lot of freedom without accountability. People down the line were not aware of what was expected of them.
- Strategy: Nycomed had a new strategy, which meant that they were to strengthen contrast media, and make it the core of the business as well as to research to find new “legs” for the future.

The old Nycomed had characteristics of being a slow organization, with little belief in the possibility of perhaps being a world leader in a given market. Some of the issues that McKinsey discovered was the lack of management skills that was imminent within the company. Then there was the perception that everyone had to agree on anything in order to make a decision. There was a need to acquire people with skills and efficiency in management. From the interviews done by McKinsey there can be found quotes like: “We are so slow it’s unbelievable” and “Leaders are afraid to knock heads”.[47] McKinsey wanted to change the corporate culture in order to successfully implement the goals developed in the new strategy. The employees at Nycomed had to want to be big in contrasts.

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[47]Senior Management Seminar on Organizational Development. June 20, 1984.

3.8 The end of Building an Excellent Company

Nycomed had already, as mentioned above, renegotiated their licensees, which was perhaps the most important strategic direction given. Stein H. Annexstad was the economist recruited to Nycomed to renew their approach to management. He was responsible for implementing the strategy developed along with McKinsey. When Annexstad started working at Nycomed he also recognized the scientific culture, and some resistance towards the thought about becoming a world leading company in contrast media. Employees were wondering why they should want to be big. One of the most important tasks related to implementation was thus changing the corporate culture, and getting the right people working on strategy. Annexstad said that the most positive thing McKinsey did was functioning as a catalyst for changing the company approach.[48]

During the implementation of the strategy, McKinsey wanted to involve employees in Nycomed who might have leadership potential. They had tried to recruit managers from the outside but often failed due to the newcomers having issues with fitting into the culture. They found it more useful to find people inside who had potential, such as Odd K. Strandli. Annexstad recalls some resistance as mentioned earlier, but says that the attitude towards a worldwide approach changed after some time.[49] The company had seen itself as a pharmaceutical firm, but it became a contrast media firm instead. Although the main focus was to be on contrasts, the company never lost sight of their diagnostics and pharmaceutical division.

Odd K. Strandli and Stein H. Annexstad both feel that McKinsey contributed significantly in turning the company into a world leader in contrast media. Had it not been for their work, Nycomed would not be the story it is today[48, 49]. They had a world-leading product naturally, but it would not have been such a success for Nycomed.

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[48]Personal Interview with Stein Holst Annexstad 24.05.2011

[49]Personal Interview with Odd Kåre Strandli 10.01.2011

3.9 Nycomed change after 1990

The Norwegian energy company Hafslund bought Actinor in 1986 with the intention of acquiring Nycomed. There was a discussion about Nycomed going on the stock exchange by itself, or as part Hafslund, which already was present at the Oslo stock exchange. Annexstad debated this issue with the director of Hafslund, Svein Aaser, and they ended up launching Nycomed on the stock exchange through Hafslund as one conglomerate. Annexstad acknowledges making a mistake here.[50] He wished they had launched the company separate from Hafslund. In 1991 Annexstad left Nycomed, and Gert W. Munthe, who had been working as a business developer for Hafslund, took his position as CEO of Nycomed Imaging.[51] Annexstad recalls there being "a lot of chefs" during his time in Hafslund Nycomed. The focus on corporate strategy changed, and both Munthe and Annexstad felt that the strategy focus was on pleasing the stock market rather than developing the company further. The initial thought was that Hafslund was going to be a "cash cow" funding R&D and so forth at Nycomed. Instead it turned out that Nycomed was going to generate the highest cash flows of the two companies. In 1996 Hafslund-Nycomed was split back up into two separate parts, in order to focus on their quite separate business units.

Nycomed had acquired Sterling Drug in 1994 and in 1997 Nycomed merged with the British pharmaceutical company Amersham.[52] Finally in 2004, GE Healthcare acquired Amersham Nycomed.[53] Before GE Healthcare acquired Amersham Nycomed the old divisions pharmaceutical and diagnostics had both been split up from the original company. GE Healthcare still has their contrast division and production located in Oslo and Lindesnes, Norway. Most of GE Healthcare's work and research within contrasts still take place where it all began.

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[50]Personal Interview with Stein Holst Annexstad 24.05.2011

[51]Personal Interview with Gert Wilhelm Munthe 13.01.2011

[52]Personal Interview with Odd Kåre Strandli 10.01.2011

[53]GE Health. 2010. *GE Norway: Velkommen til GE Healthcare I Norge*

Chapter 5: Analysis & Conclusion

Nycomed has by far profited from their innovation “Omnipaque”, and by looking at the theory presented in Chapter 2, and the case in Chapter 4, it is possible to draw some probable assumptions as to why they were successful.

Nycomed had a fairly tight appropriability regime by patent protecting Omnipaque, and they had basically developed a dominant design paradigm. The author believes, however, that much of their success was the ability to change strategic focus and culture.[1]

When analyzing the case with regards to complementary assets, the author believes that McKinsey was a critical complementary asset during the commercialization of Omnipaque. McKinsey brought specialized knowledge on market analysis during the first phase, which led to the understanding of the potential success of Omnipaque. In the second phase they brought specialized knowledge about organizational culture and management, which prepared Nycomed for fully exploiting their potential. McKinsey had an apparatus that Nycomed could not create internally, but also an understanding of market and cultural analysis which would be impossible to construct while still being efficient in scientific drug development. In the McKinsey reports there is evidently some influence from Michael E. Porters “Competitive Strategy”, and the consulting firm contributes to an understanding, and to projections about a whole industry. It may also be likely that Michael Porter was influenced by the consulting industry as his theories go toe-to-toe with the management consulting approach. McKinsey helps Nycomed achieve new goals and visions through a restructuring of the organization and the corporate culture, and the author believes that it would be difficult to create such an extensive process internally for Nycomed. The product Omnipaque would probably become a large success for Nycomed, but their competitors would likely buy the company if McKinsey had not been brought in. It is thus reasonable to assume that their benefits from innovation would have been significantly smaller than they became.

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[1]Teece, David. 1986

McKinsey also helped Nycomed in negotiations with their perhaps most important asset, the licensees. Nycomed did not have their own operations in Western Europe, USA, and Japan and was thus reliant on having other drug companies marketing and selling their drugs in the respective markets. They did have their own sales operations in Scandinavia and Eastern Europe, but the largest markets were the Americas, Japan and Germany. Nycomed's most important partners were Sterling, Schering and Daiichi, which licensed Omnipaque. During the commercialization of Omnipaque McKinsey helped Nycomed prepare and renegotiate the contracts with the respective companies, an event critical for the success of Omnipaque. Nycomed was, as mentioned, considering opening their own branch in the US, but got a lucrative contract with Sterling, eventually enabling them to buy the company years later. With Schering, Nycomed encountered opportunistic behavior. Schering had licensed a certain quantum of Omnipaque, but were focusing on developing and marketing their own product instead. A situation commonly known as post-contractual opportunism, where the agent exploits its position after a contract is signed. Teece recognizes that the commercialization of a new drug, such as in the case of this thesis, is likely to require the use of specialized information channels.[2] One might argue that Nycomed had a bi-lateral dependence on its licensees. Nycomed depended on the licensees to market and sell Omnipaque, and the licensees depended on Nycomed to grasp market share in their region, as well as collaborating on R&D. Nycomed had the opportunity to open their own branches, but the complexity and size of the overseas markets were so large that the cost of entering were outperformed by the cost of licensing. In the case with Schering, Nycomed developed competing products to Omnipaque and marketed them themselves.

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[2]Teece, David J. 1986.

Conclusion

Nycomed succeeded in the commercialization of Omnipaque, and the success became greater because of their collaboration with McKinsey. Omnipaque would have become a success story had McKinsey not been engaged with Nycomed, but the success would not likely benefit Nycomed to the same extent. Teece's framework creates a framework for understanding how Nycomed succeeded, and if we look at the article, and probabilities presented by Mansfield and Wagner, it is possible to further explain how they succeeded.[3]

By bringing in McKinsey they increased their probability for commercialization and economic success through the stake they put in contrast media, and transformation of the organization. McKinsey established an idea about the probability for economic success, and the strategic options they would have to take to achieve them.

The answer to the research question is thus: Yes, McKinsey contributed directly to the success of Nycomed's innovation "Omnipaque".

Implications for further research

Because this thesis is limited to one case the author would like to promote further more detailed studies into the subject of commercialization and innovation. Is it possible to assume that bringing in an outside actor such as a management consulting firm always will enhance a company's probability in succeeding with their innovations? I believe that further, and more thorough research is needed on the subject.

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[3]Mansfield, Edwin and Wagner, Emanuel. 1975

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