

High Tech High Touch
*How Top Managers and Consultants Facilitate
Organizational Transformation
by Improving Social Competencies and Total Quality*

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HIGH TECH - HIGH TOUCH

How Top Managers and Consultants Facilitate Organizational Transformation by Improving Social Competencies and Total Quality. The Case of Grundfos (the client) and Strandgaard Gruppen (the consulting firm)

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ABSTRACT

This report describes a transformation process that concerns competence development and total quality in an industrial production company. It investigates the cooperation between Grundfos, the world’s foremost global producer of water pumps, and Strandgaard Gruppen, a Danish management-consulting firm. Together they developed ‘values-based’ management and ‘social competences’, and implemented a Business Excellence solution at Grundfos Management (the group function) and Grundfos A/S, the Danish unit of Grundfos. The improvement of Total Quality started originally in 1993 by developing the idea of self-organizing groups. In 1995 the project was specified further to include the implementation of two supplementary aspects, ‘high tech’ and ‘high touch’. These concepts refer to EFQM (The European Foundation for Quality Management), and ‘Learning Organization’ model, respectively. The transformation process was motivated by Grundfos’ need to attract skilled people into the industry. It was supported by the firm’s top management and other leaders who themselves went through an education process and improved their competencies as leaders. The major changes occurred, however, in the self-organizing groups. The transformation influenced the individual employees’ and leaders’ self-consciousness, work-life and partially also their private life. It empowered the groups and radically changed the leaders’ role. Moreover, it inspired other firms, influenced the partners’ ways to do business with Grundfos, and caused changes in the national agreements between the industrial organizations and labor unions. As the recognition of this work, Grundfos A/S won 1999 the Danish Quality Award. The company has applied for the European Quality Prize in 2002.

Keywords: Transformation, Change management, Competence management, Value-based management, Industrial production, Management consulting.

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The picture presented in this description is based on interviews at Grundfos and Strandgaard Gruppen, written material, and visits in the Grundfos Electronics factory and the Head Quarters in Bjerringbro, Denmark. Several directors and managers at Grundfos contributed to the study, especially Steen Ejlersen, Production Director, Grundfos A/S, Per Lauridsen, Production Manager, Grundfos Electronics, Kurt Mikkelsen, HRD Manager, Grundfos A/S, Ole Rudkilde, Vice President, Grundfos Electronics, and Peter Schmidt Mikkelsen, Quality Manager, Grundfos Electronics. I want to thank them for inspiring and informative interviews.

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Marjatta Maula

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1. INTRODUCTION

This chapter will review shortly the literature about competence development and management, and present some pragmatic aspects about competence development, transformation processes, the role of top management and consultants in such processes, and the question of knowledge, power and democracy. Furthermore, the chapter will present the purpose, content and method of this report.

1.1 COMPETENCE DEVELOPMENT AND COMPETENCE MANAGEMENT

Since the year 1990 organizational competence has been one of the major themes in the literature about strategic business management. The seminal article of Prahalad and Hamel about the Core Competence of the Corporation (1990) was a starting point and created interest in the topic. Later the discussion covered competence-based competition (Hamel and Heene, Eds. 1994; Doz, 1994). New approaches emphasize the dynamic and systemic nature of competencies and competence-based competition (Sanchez, Heene, and Thomas, 1996a, 1996b; Sanchez and Heene, 1997; Sanchez, 1999).

Related topics to competence development are, for example, organizational learning¹ (Argyris, 1962, 1992; Argyris and Schön, 1996; Dodgson, 1993; Senge, 1990), knowledge creation (Nonaka and Takeuchi, 1995), and knowledge management (Davenport and Prusak, 1997; Prusak, 1997; von Krogh and Roos, 1996). The literature investigates the firms' capabilities to organize their internal communication, processes and knowledge flows so that they continually facilitate learning, creativity and innovation. The literature about intellectual capital (Sveiby, 1997; Edvinsson and Malone, 1997; Roos et al., 1997) emphasizes the economic value of human capital, knowledge and other intangible resources for a company. The terms 'competence'² and 'human capital' may refer to the possession of different kinds of knowledge (Docherty and Nyhan, 1997). Competency development and competency management can also be seen in a wider perspective. They may refer to the identification and

¹ The Danish, practically oriented literature about 'organizational learning', 'learning organization', and related topics includes, for example the following literature (in Danish):

- Van Hauen, Finn; Strandgaard, Vagn and Kastberg, Bjarne (1995 / 1998) *Den Lærende Organisation – om evnen til at skabe kollektiv forændring*. Industriens forlag / Peter Asschenfeldts nye Forlag. Copenhagen.
- Strandgaard, Vagn; Van Hauen, Finn and Kastberg, Bjarne (1995) *Det Samarbejdende menneske – team building for 'den lærende organisation'*. Industriens forlag. Copenhagen.
- Van Hauen, Finn and Kastberg, Bjarne (1997) *Dig og dine skjulte ressourcer – om at anvende dine skjulte ressourcer på jobbet*. Industriens forlag. Copenhagen.

² In the (narrow) everyday practice 'competence management' is sometimes associated to software and methods that help the human resources department identify the skills of individual employees and find proper candidates to specific tasks.

development of the firm's strategic core competencies, and to the creation of organizational solutions that help the company and its individuals continually learn, evolve and renew themselves (Maula, 1999).

The success of the Japanese firms, and Peters and Waterman's book about business excellence (1982) inspired to creating comprehensive and detailed management models such as Total Quality Management. Also the term 'value-based management'³ has become increasingly popular. 'This report uses the term 'values-based management' to refer to the individual and organizational values and their role as the basis for leadership.

The new concept 'social competence' refers to personal and interpersonal skills and communication. It can be regarded as an organizational and individual competence and asset. This report focuses on this new 'social competence' concept and the ways to develop it in an industrial organization.

1.2 THE PROBLEMS OF COMPETENCE DEVELOPMENT AND TRANSFORMATION

Organizational transformation is a challenging topic for managers, consulting firms and researchers. Transformation is defined here as a profound, qualitative change in an organization. It may affect radically the objectives, strategy, and the methods to achieve the objectives and to implement the strategy. A transformation includes a qualitative and not only a quantitative change. Organizational transformation refers to a strategic socio-technical change that may influence the firm's business systems, culture, and individual employees.

Several aspects force companies to consider new ways to run their businesses in the changing business environment. Some examples of them are the liberalization and new rules of competition, the emergence of new economy, increasing focus on quality, knowledge, and information and telecommunication technologies (ICT), the lack of skilled employees, and skewed production costs in different parts of the world. For these reasons consulting firms provide various methodologies to help firms transform themselves so that they can better respond to the new needs. However, such processes are risky. The availability of knowledge does not necessarily guarantee changing (Maula, 2000a; Pfeffer and Sutton, 2000). Therefore implementing a transformation successfully is a major concern for managers. Especially in big, global high-tech firms the needs and expectations for transformation may be very high ('world class'), the investments big, and the tolerance for failures small. While in high-tech firms people often have mainly technical education, the transformation process may also require the development of 'soft' aspects, such as culture and values. Multinational firms are often culturally and ethnically diversified which may increase the difficulty of the task. It may be necessary to coordinate among various organizational aspects and the business environment. Therefore, a transformation process often causes uncertainty. As a qualitative change a transformation may include the risk of losing identity, but it may also provide an opportunity to create a new, stronger identity.

³ Not all changes can be regarded as transformations. For example implementing an Enterprise Resource Planning (ERP) helps align and standardize practices, but does not necessarily change the organization in a qualitative and profound way.

For the consulting firms, the transformation processes involve high risks because their success is dependent on several interconnected and more or less controllable aspects. Also, the projects tend to be big and complex, and they last long. Therefore the consulting firms have developed a wide array of standardized approaches that help implementing transformation processes efficiently. However, when developing organizational culture and tacit ('hidden') competencies, the consultants' personal characteristics and experience may be critical for the successful implementation.

For the managers, the following aspects are relevant:

- How to set the objectives of the transformation, and how to measure the success.
- How to prioritize changes among various aspects, such as values, culture, leadership, people, business processes and technology, such as information and communication (ICT) systems.
- How to organize the transformation process, and how to include the top management, middle management, employees, consultants, and other parties in the process.
- How to conduct the process in practice.

For a researcher, several aspects of a transformation are relevant, such as:

- The factors that influence the objectives and needs.
- The magnitude and logic of the process, such as incremental changes, continuous evolution, or revolutionary 'leaps'.
- Control and autonomy in the transformation processes.
- Participants and organizing.
- The methods to facilitate the process.
- The impact of knowledge, communication and learning on transformation.
- The results and impact of the transformation.

1.3 THE ROLE OF THE TOP MANAGEMENT AND CONSULTANTS

As a result of the environmental pressures and internal needs, numerous firms have started organizational transformation processes in order to improve their organizational competencies. The success of such a process depends on the commitment from the top managers' side. However, it is not always clear what kind of role they should take, how the consultants should be involved in the transformation processes, and how new knowledge is created and transferred in their interaction. This report therefore investigates the roles of top managers and management consultants in a transformation process.

1.4 THE PRODUCTION AND IMPACT OF MANAGEMENT KNOWLEDGE

In knowledge society, the consulting firms have an important role in facilitating changes in the firms (Sevón, 1999a, 1999b). The companies and their consulting firms constitute a network of actors that shares knowledge, often with the purpose of improving the competitiveness of the client organization. In this role, the consulting firms aim to develop innovative solutions for their clients and to remain themselves profitable and competitive.

The traditional societal norms claim that knowledge is centrally produced, certified and legitimized at universities and other public institutions (Gibbons, 1994; Stehr and Ericson 1992; Stehr 1994). Consultants' knowledge-production represents market forces and does not fit these conventional norms (Clegg and Palmer, 1996). It is therefore possible to argue that

the management consultants' knowledge creation escapes the traditional, university-based, 'top-down' -conducted democratic control.

On the other hand, consultants create and implement new knowledge in close interaction with their clients 'on the grass-root level', without subordinating it to any central control. Moreover, the firms create knowledge themselves (Clegg et al., 1996). It is therefore relevant to investigate whether their 'bottom-up' methods to produce management knowledge satisfy the needs for democracy.⁴ 'Democracy' refers here to the general atmosphere and culture that are characterized by equality and respect. Democratization process refers to the empowerment of the employees and to the changing power relations among them and the leaders. The company, its leaders and employees belong simultaneously to the larger society.

The question of democratic control is especially difficult in the context of tacit (hidden) knowledge and competencies (Nonaka and Takeuchi, 1995).⁵ For a firm it may be crucially important to create and improve tacit competencies. However, tacit knowledge is by definition outside the direct control of the academic institutions that traditionally operate in the sphere of explicit knowledge.⁶

As to the impact of a transformation, the changes in organization, management, systems and economic measures are natural objectives for investigation. In the modern knowledge society, the knowledge flows among people are changing. Traditionally it is believed that 'knowledge is power' (Francis Bacon), which implies that sharing knowledge decreases power and should therefore be avoided. However, in the knowledge society 'sharing knowledge is power'. Successful knowledge-intensive firms implement methods and organizational structures that facilitate knowledge sharing (Maula, 1999). Therefore also the impact of an organizational transformation on power and democracy is a relevant question.

1.5 THIS REPORT

This report attempts to clarify the role of top management and consultants in a transformation⁷ process. It investigates the cooperation between Grundfos, a global producer of water pumps, and Strandgaard Gruppen, a Danish consulting firm. More specifically, it describes the creation and transfer of new knowledge and skills during the development of Business Excellence at Grundfos. The transformation process included the implementation of two supplementary philosophies: Total Quality (EFQM, The European Foundation for

⁴ However, the knowledge created in such interaction may be more easily used in new contexts if it is tested and 'legitimized' by using academic methods.

⁵ A new type of knowledge, 'chaotic digital knowledge', has been identified that does not fall into the pure classes of tacit or explicit knowledge. It is simultaneously personal and digital (=explicit), and it is created and shared, for example, in electronic communication networks. This 'chaotic digital' knowledge is an important source of innovativeness because it can be monitored and shared (Maula, 2000b).

⁶ However, increasingly popular qualitative and participative research methodologies help investigating the tacit ('hidden') knowledge and skills.

⁷ Grundfos has also implemented simultaneously SAP R/3 ERP-system in 17 European companies to support distribution and administrative routines. The project is the largest-ever IT-project at Grundfos. However, it is not regarded here as a transformation project.

Quality Management, the European Quality Prize⁸) and 'Learning Organization' Model.⁹ Some initiatives were taken by Grundfos itself (concerning, for example, self-organizing production groups and TQ), and others by Strandgaard Gruppen. In this framework the report focuses mainly on the process and methods of developing and implementing the 'Learning Organization' Model, and less on implementing the Total Quality Model.

This report largely focuses on Grundfos Electronics that belongs to Grundfos A/S, the Danish part of the international firm. While the idea of self-organizing production groups had been developed earlier at Grundfos, Grundfos Electronics applied TQ concept on the production groups.

This report will draw attention to the following aspects in the transformation process during 1995-2000:

1. The role of Grundfos' top management and Strandgaard Gruppen in improving Business Excellence and its various aspects.
2. The development and implementation of new ideas and methods.
3. The implications of Grundfos' transformation process on the employees, the relationship between the employees and managers, and the society in general. The impact on democracy and power.

1.6 METHOD

The primary data for this study was collected by Marjatta Maula in Denmark (Bjerringbro and Copenhagen) through interviews in 2000. The interviews were conducted in Danish and tape-recorded. The interviewed persons are (see Appendix 1):

- Steen Ejlersen, Production Director, Grundfos A/S.
- Per Lauridsen, Production Manager, Grundfos Electronics
- Kurt Mikkelsen, HRD Manager, Grundfos A/S,
- Peter Schmidt Mikkelsen, Quality Manager, Grundfos Electronics
- Ole Rudkilde, Vice President, Grundfos Electronics.
- Vagn Strandgaard, Managing Director, Strandgaard Gruppen.

A Danish person transcribed the tapes at the Copenhagen Business School. Marjatta Maula translated the transcriptions further into English. The interviewees checked the transcriptions. The secondary data consists of printed material such as annual reports, management contract report, information newsletters and brochures (see Appendix 2). The analysis was conducted in several stages. The interviewees and Prof. Guje Sévon checked and commented the intermediate and final reports, which provided the interviewees an opportunity for self-reflection during the research process. Moreover, Lotte Møller Sørensen, Strandgaard Gruppen, provided insightful comments for the final version of the text.

⁸ The EFQM Model includes the improvement and measurement of the following areas: (1) Leadership, (2) Human Resources Management, (3) Politics and Strategy, (4) Resources, (5) Processes, (6) Employee Satisfaction, (7) Client satisfaction, (8) Impact on the Society, and (9) Results.

⁹ Strandgaard Gruppen defines a Learning Organization as 'an organization that has made the learning from experience into its most essential cultural characteristic, and where the leaders lead the organization through shared learning'.

The case description is quite extensive. It presents Grundfos as 'dense' case that also serves further analysis. The assumption was that the leaders' and managers' attitudes and participation are important for a successful transformation process, and Grundfos' case proved to be very rich in this respect. Therefore the description includes plenty of quotes that demonstrate their approaches and reflect their positive and optimistic attitudes.

Moreover, this report also describes the consulting methods quite carefully. Many of them are untraditional and illustrate the nature of the project. They may also inspire other firms. The consulting methods are tools for change. In this case they are also partially results of the process. Some of them have been created, tested and developed further during the process. Thus methods themselves are an important part of the created new knowledge.

It is obvious that the results are influenced by the fact that all interviewees are managers. The author did not interview production group workers. For these reasons, the effects of the transformation process on the employees have been described from the angle of the leaders and the consulting company. It is possible that the employees, or some of them, do not share the positive view of the managers. This risk is to some extent decreased by the fact that the author visited the Grundfos Electronics factory and could shortly observe the environment and the production workers in an ongoing production process. Moreover, there was available an earlier interview of people in the production groups (transcription, 30 pages), results about employee satisfaction surveys, and material about the changes in the employees' attitudes (a study made by an anthropologist).

2. GRUNDFOS, GRUNDFOS A/S, AND GRUNDFOS ELECTRONICS

Grundfos is one of the world's leading pump and pump system manufacturers. The mission of Grundfos is to successfully develop, produce and sell high-quality pumps and pumping systems worldwide, contributing to better quality of life and a healthy environment.¹⁰

The late Poul Due Jensen in Bjerringbro, Denmark established Grundfos in 1945. Grundfos Holding AG is located in Switzerland. Poul Due Jensen Foundation owns 85 % of Grundfos Holding's shares, and the founder's family owns 15 %. The Grundfos Management (Group management) is domiciled in Bjerringbro. 55 companies in 38 countries represent Grundfos Group globally. Moreover, Grundfos' products are merchandized by distributors in a large number of countries.

Grundfos' turnover was 8.145 million DKK in 1999, with the growth rate of 8,3 %. The number of employees was 9591 in the same year.¹¹

Grundfos started in the first half of 1990's to consider and develop the idea of self-organizing production groups. In 1995 the firm started to implement an organizational transformation process that integrated two major aspects: Total Quality (TQ¹²) and Learning Organization

¹⁰ About Grundfos' vision and values later in this report.

¹¹ More information about Grundfos on the home page <http://www.grundfos.com>

¹² Grundfos did not want to use the original term TQM because it wanted to send out the signal that this was not only the managers' responsibility – it was/is everybody's responsibility.

principles. Grundfos' success has been recognized in terms of several national and international awards. One of them is the Danish Quality Award in 1999.¹³

Grundfos' products are divided into three market segments:

- *HVAC*: Heating, ventilation and air-conditioning in domestic houses, offices, hotels, etc. (circulator pumps),
- *Industry*: Industry processes, plant maintenance and OEM products (Original Equipment Manufacture),
- *WS&WW*: Water-supply and waste-water segment for private, municipal and industrial applications.

Grundfos produces about eight million pump units annually. They consist of circulator pumps, submersible pumps and centrifugal pumps, and covers about 50 % of the world market. Grundfos also manufactures electric motors for the pumps, and develops and sells state-of-the-art electronics for control pumps and other systems. Grundfos Electronics also produces electronics cards. They regulate, for example, the pressure of water in the pumps.

Grundfos A/S is the biggest subsidiary employing 4,500 persons, almost half of the Group's personnel. Its production is sold internally to other subsidiaries, not to external customers.

Grundfos established the Electronics production in 1985 and inaugurated Grundfos Electronics in Denmark in 1991. It includes a Hybrid Factory with clean room production and fully automated line, including testing. Also other production lines at Grundfos Electronics are under construction and automation. Three robots are in use at the moment. Grundfos Technology Center was inaugurated in 1990, and the Innovation Center for Development, Design and Product Management in 1993. Grundfos Electronics has 400 employees and 27 production groups, divided into max. 11 sub groups. Each group consists of 8-14 employees.

Grundfos is going to implement the solutions also in other parts of the global organization. The firm has decided to build The Poul Due Jensen Academy in Bjerringbro, Denmark, to educate 1,000 – 1,100 salesmen. The Academy will utilize the methods developed in the transformation process. Also the local milieu has the opportunity to use the Academy.

3. STRANDGAARD GRUPPEN

Strandgaard Gruppen¹⁴ is a consultancy and educational company established by Vagn Strandgaard and Lotte Møller Sørensen in Copenhagen, Denmark. The firm opened a new department in Stockholm in 1999 to serve the Swedish market.

¹³ Other awards are, for example:

- The gold metals at the Leipziger Fair for the circulators (1964) and pumps (1968),
- The European Better Environment Award (1987),
- The Quality Award of the Danish Society for Quality Assurance (1990),
- The Bosch Group Award for sub-suppliers (1991, 1993),
- The European Environmental Award for Green Products (1999).
- The Danish Milieu Prize in 1999 (based on milieu certification in 1996).
- An award for social responsibility (a separate project).

¹⁴ More information on the home page <http://www.sg.dk>

The mission of Strandgaard Gruppen is to train and coach people to make conscious and wise choices and therefore design and implement innovative development processes that create learning cultures radiating integrity, joy, and creativity. The firm seeks the foremost knowledge to provide organizations and people with the competencies that ensure growth and results. *The values* of Strandgaard Gruppen are: Results, Excellence, Trustworthiness, Enthusiasm, Learning, Innovation, Flexibility and Humor.

The principles of Strandgaard Gruppen are based on the philosophy of the Learning Organization and NLP (Neuro Linguistic Programming). The founders' education and expertise ranges from the implementation of Learning Organization, Total Quality management (TQM) and Business Excellence Model (EFQM, The European Foundation for Quality Management) to Executive Coaching, Value-based Management, Project Management, Adventure Training and Virtual Teambuilding. The services cover mainly consulting work, training and seminars in the areas of expertise.¹⁵ The founders of the company have published and translated several books, such as 'Mental Jogging' and 'NLP at work', and acted as co-authors of the book series 'The Learning Organization'.

The clientele of Strandgaard Gruppen covers Danish and international companies. The firm has 13 permanent employees who have mainly psychologist and consulting background. In order to support the firm's expertise in knowledge management, Business Excellence and Balanced Scorecard, Strandgaard Gruppen implemented in 1999-2000 a new internal IT and communication system¹⁶.

4. THE TRANSFORMATION PROCESS

This chapter describes the transformation process, clarifies key concepts, and presents various interconnected aspects that were essential for the process. The transformation process is described in the following picture.

¹⁵ The services of Strandgaard Gruppen include:

- The Learning Organization
- Knowledge management
- The virtual organization
- Coaching and value-based management
- Innovation and strategies of creativity
- Total Quality Management (TQM)
- Business Excellence (EFQM)
- Service management
- NLP (Neuro Linguistic Programming)
- Future scenarios
- Emotional intelligence and self-esteem
- Virtual team building
- Outdoor training
- Project management
- Personal coaching

¹⁶ ERP system Axapta

4.1 MOTIVATION FOR TRANSFORMATION

Grundfos started quality development already in 1984-85 by conducting courses about Personal Quality and Quality Control. Systematic education started in 1986, and the first ISO 9001 certificate was received in 1988. In 1993 Grundfos became more conscious of the need to accelerate the development process. International comparisons¹⁷ indicated that the costs of industrial production were not favorable for production in Denmark. In 1991 the costs per man-hour were quite low in newly industrialized countries such as in China (2 DKK), slightly higher in Hungary (9 DKK), and very high in Denmark (116 DKK).¹⁸ Moreover, the demographic prognosis about Denmark¹⁹ indicated that in 2006 there would be 35 % more people in the age group 55-65 years leaving the job market for pension, compared to the situation in 1996. Respectively, there would be 20% less people in the age group 20-30 years entering the job market.

Grundfos also decided to learn from other firms and to apply ideas from abroad, especially from the successful Japanese car companies. Especially Konsuke Matsushita's clear message in a conference in the USA helped define guidelines for Grundfos' solutions.²⁰

Grundfos' leaders also visited other firms, such as Nissan in England, to learn about 'continuous improvement' and 'employee involvement', which means proceeding from a 'job function' to a 'problem solving function'. The comparison indicated that the differences between Japan and Europe were considerable.

	Japan	Europe
Hours needed to produce a car	16,8	36
Mounting errors per 100 cars	60	97
Production groups, % of the employees	70 %	0,6 %
The firms' education per employees	380 hours	173 hours

Table 1: The comparison between Japanese and European companies. Source: IMVP World Assembly Plant Survey, 1989 and J.D. Power Initial Quality Survey, 1989.

It was important for Grundfos to create a philosophy that was not a copy of the Japanese system and could be accepted in the Scandinavian and international context. Grundfos

¹⁷ Source: Morgan Stanley : 'Hvad skal Danmark leve af'. Report, Strategisk Forum, 1993.

¹⁸ Grundfos' sources (1998) also show that in western countries such as Germany and Denmark the employees have the highest salaries, they work least in terms of annual working hours, and they are most absent from their job because of illness.

¹⁹ Source: Danmarks Statistik Befolkningsprognose, Okt. 1995.

²⁰ Konsuke Matsushita (Pascale, 1991. Translation from Danish: Marjatta Maula):

- "We will win and the industrialized world will lose; there is not much you can do to it because the reason to your fiasco is located inside you."
- "Your companies are built along the Taylor-model. And what is worse, so are your mental models. You are convinced that the correct method to manage a company is to leave thinking to the leaders and screwdrivers to the workers. Management means for you moving the ideas from the heads of the leaders to the hands of the workers."
- "We don't think as you do. It is clear for us that the business world is so complex and difficult, and the firms' survival so unsure in a milieu that is becoming more and more unpredictable, competitive and dangerous, that their survival depends on the daily mobilizing of every gram of intelligence."

decided therefore to develop the role of leaders and to empower the employees by creating self-organizing production groups. The starting point for transformation was not a crisis but the willingness to ensure the availability of skilled resources. According to Steen Ejlersen, Production Director at Grundfos A/S, the development included two interconnected aspects: *the education of the employees* that started in 1993, and *the education of the leaders*. From the very beginning Grundfos set the objective to become a 'world class' company.

In 1995 the TQ model was applied on the self-organizing production group principles. This development was started at *Grundfos Electronics* in Denmark because it had a new factory. It was estimated that the changes would be necessary and easier to implement in the electronics factory than in Grundfos' other units.

4.2 SELF-ORGANIZING PRODUCTION GROUPS

Inspired by the visits in other countries Grundfos A/S started educating the leaders and hourly paid production workers. The workers should become independent enough to run the daily production. The purpose was also to increase the employees' responsibility for the quality and development of their own work. The objective was a 'win-win' situation for the company and the employees, in terms of continuous improvement in work planning, methods and quality, independent employees, increased education, productivity, flexibility, new opportunities, improved job satisfaction, and extended content of the work. For this purpose the employees' hidden resources had to be identified. Kurt Mikkelsen, HRD Manager at Grundfos A/S, suggested a course in 'Production Management' (Production Groups), later called 'The Quality in The Own Department'. The instructors inspired the employees to take the responsibility for the changes, and to identify aspects that prevented them from keeping the quality requirements. Another course, 'Problem Solving in Your Department', was about communication. In 1994-1995 Grundfos organized 'Production Group' courses for the employees, and 2-days' seminars for the managers.

It was not easy to implement the ideas because too many problems were unsolved. The process focused on the two extreme ends in the organizational hierarchy, the employees and leaders. The middle management received less attention, which was later recognized as a failure. Moreover, the middle managers were not interested in the process because they were afraid of their future. In 1994-1995 the transformation process therefore faced plenty of turbulence. Finally, in September 1995 a theme day about 'Production Groups' was organized to provide guidelines for the transformation process.

4.3 COOPERATION BETWEEN GRUNDFOS AND STRANDGAARD GRUPPEN

Earlier, Vagn Strandgaard²¹ had developed concepts such as the 'Train the trainer' concept for the vocational training centers in Denmark (AMU-Centers, arbejdsmarkedsuddannelser). They were targeted primarily at uneducated, unskilled people. The concepts were applied in big organizations that educated 500 – 700 persons each. They were also applied in a big EU project, resulting in an award, international recognition, and implementation in Portugal and Ireland in the course of two years.

²¹ When starting the cooperation with Grundfos Vagn Strandgaard was working for Scandinavian Training Design.

In 1992 Kurt Mikkelsen had met Vagn Strandgaard who was invited to participate in a project concerning Grundfos' Danish factory. As a result of the inspiring cooperation, Vagn Strandgaard designed two short courses for the vocational training system, AMU. They were "*Team building for production groups*", and "*Employees' resources and the firm*" that deal with communication, creativity and self confidence. 60 AMU instructors were taught to run these courses all over Denmark. The courses received financial support from public sources. According to Vagn Strandgaard today about 100,000 people have attended these courses in Denmark, which includes Grundfos' 3,500 hourly paid employees.

In the spring of 1995 Vagn Strandgaard was presented to Steen Ejlersen and invited to plan a 2-days' theme day about 'Production Groups' in September with his colleague consultant. About this plan Steen Ejlersen says:

"... I realize now, when I look backwards, where we went wrong. In the early stage we were not capable of talking about and developing the skills to work together. The capability to understand each other is always in the focus, the hard part, and it takes professional expertise. And it was totally clear that Vagn came in and made me aware of that it was 'social competence' that would be extremely important to us to develop, primarily for our leaders, but also for our production workers." (Steen Ejlersen, Grundfos A/S).

Another seminar was organized in December 1995. Grundfos decided to continue the development of production groups by establishing a volunteering pilot group of 6-7 persons, one person from each factory. Grundfos defines the goals for creating the production groups as follows:

- The purpose is to activate the employees' hidden resources, to increase productivity and flexibility, and simultaneously provide the employees with more job satisfaction through increased content in their work.
- The new work form has to make an individual worker so independent that he or she can steer and run production and ensure that there is continual improvement in the work planning, methods and quality.

4.4 EDUCATING THE LEADERS AND EMPLOYEES

The top managers and especially Steen Ejlersen, Kurt Mikkelsen and later also Ole Rudkilde, Vice President, Grundfos Electronics, facilitated the process and took the responsibility for the education process. Kurt Mikkelsen started the project and acquired the resources for it. He also organized the education of 3,500 production workers in the AMU courses, planned by Vagn Strandgaard, 2x4 days each. Steen Ejlersen has acted as the 'highest chief' in the transformation. He implemented the idea of self-organizing production groups. Ole Rudkilde joined the process as a newly appointed factory manager somewhat later. He was responsible for the implementation at Grundfos Electronics, one of the seven production factories at Grundfos A/S. The process was conducted in close cooperation with other leaders. As a consultant Vagn Strandgaard was the main player already when he was working for the Scandinavian Training Design and later for his own company Strandgaard Gruppen.²²

²² Vagn Strandgaard trained NLP and teambuilding. Lotte Møller Sørensen was responsible for training presentation skills. Some former consulting colleagues and four current colleagues were responsible with the

Together with the factory managers Steen Ejlersen organized six 1-day *introduction seminars* that all 100 leaders and the local shop stewards²³ attended. The objective was to commit the leaders to the process. It became evident that many practical questions about self-organizing groups were unanswered, and the new roles for leaders and production groups had to be specified more clearly. Grundfos also organized *work seminars* to remove aspects that might prevent implementing the necessary changes.

“And what Steen Ejlersen did was very brave at that point of time. He took 20 days of his calendar, asked his secretary to select 20 days, and committed himself to teach on all seminars. And I think that it is quite exceptional.” (Vagn Strandgaard, Strandgaard Gruppen).

“Then I developed a plan for an introduction seminar and a work seminar. I ran the first seminar for the first group of leaders. Steen and the other factory managers did the rest. (...) We made a description of the education process that we were going to offer to the leaders to bring them away from a controlled, very traditional managing style to become coaches.” (Vagn Strandgaard, Strandgaard Gruppen).

However, the process was not unproblematic in the beginning. Grundfos faced difficult times, especially in 1998.

“And Steen (Ejlersen) as a production director had been brave and said “This is interesting. Let us do that”, even if the curve had gone downwards. We have to remember this because the whole history includes the fact that he did not get support. Quite many leaders at Steen’s level probably thought that it was somewhat strange to promote production groups. One has to understand that in any organizational development there is much pioneer work that is later forgotten.” (Vagn Strandgaard, Strandgaard Gruppen).

“Steen Ejlersen experienced the changes himself as well. And it is quite interesting that a top manager experiences being at first a little skeptical, perhaps, and then suddenly changing the attitudes. And therefore exactly because it was him, Steen Ejlersen, who did not originally support these ideas, he has been later very willing to take risks. He has had much trust on it and also on his leaders.” (Vagn Strandgaard, Strandgaard Gruppen).

Several seminars were held in the seven factories from January 1996. Every one of the 120 leaders had 16 days’ education. ‘Frames For Production Groups’ (a 5-day course) included training in presentation skills to improve communication and social competencies. The production leaders received training in team building. Others attended the ‘Leader Behavior’ course, largely with the same content. External forces were also invited to provide new knowledge to the process.

factory managers for working with project groups, the theory and frame of self-organizing production groups, and other parts of the education program.

²³ In Danish: ‘lokal fagforeningsrepræsentant’.

“And then Ole started to change the structure of his own leader group. He began to teach them how to empower the employees and involve them in strategic planning. The leaders began to train all the people in their own production groups. One of the leaders has 120 employees and today he conducts 120 development talks and uses about 36 days a year to teach and train the staff. He has completely changed his original, traditional management function to a more coaching style. Today the teams take care of all the planning, goalsetting, quality control and budgetary procedures themselves.” (Vagn Strandgaard, Strandgaard Gruppen).

All leaders (factory managers and production managers) started to teach their teams for four days. As a result all factory managers have now educated all their employees themselves. The purpose was to change the leaders’ role from controlling and telling to coaching and empowering the employees. Grundfos furthermore initiated three pilot projects to develop production groups during a three months’ period.

“The group leaders educated their own groups. And what we did was a fantastic change, because earlier we always went out and bought teachers to teach and influence people’s attitudes. Earlier it was external trainers who helped us, now we can do it ourselves.” (Kurt Mikkelsen, Grundfos A/S).

”We have had a lot of courses here. During the first three years, once a month, I was involved in telling the employees what was going on in the world and how we had to change ourselves, and that it was not dangerous to change oneself (--) and to do various, small exercises with them.” (Ole Rudkilde, Grundfos Electronics).

Moreover, ‘8-point plan’ was developed that is a key concept for developing self-organizing production groups. It illustrates the key objectives that one has to know in order to work successfully in his or her unit. The 8-point plan includes:

1. The expectations.
2. The identity of the production group.
3. The goals of the production group.
4. The workflow of the production group.
5. The division of work, and competence.
6. The qualifications and shadow qualifications of the production groups.
7. The needs for education and training.
8. The necessary information.

Grundfos used plenty of time discussing the two conflicting objectives: *the long-term objective of building up high competence* versus *reaping quick results*. Grundfos chose the first alternative.

The final framework for educating the leaders and employees consisted of several seminars and courses. The basic education program includes the following courses:

1. Theory about self-organizing groups.
2. Frames for self-organizing groups.

3. Presentation skills. This refers to communication techniques that help simplifying a message and finding methods that supplement conventional auditory methods.
4. NLP Neuro Linguistic Programming. It is a method that studies the structure of how human beings think and experience the world.

The extensive education worth more than three million DKK was financed as a project. It was justified by the opportunities to solve some critical bottlenecks in the organization.

4.5 HIGH TECH – HIGH TOUCH: INTEGRATING TOTAL QUALITY AND LEARNING ORGANIZATION

Grundfos also implemented Total Quality (TQ) as a new management model that supplemented the development of self-organizing production groups. In June 1995 the Vice Group President and Administration Director Poul Vesterbæk recommended the implementation of TQ and started initiatives for that purpose. In December 1995 the decision was made to implement TQ at Grundfos A/S. The resulting solution integrates two management models, TQ and ‘learning organization’.

“We made a model called ‘high tech’ and ‘high touch’ that they (Grundfos) also use in their education planning. ‘High tech’ is everything around total quality and changing the systems. There are six disciplines that we emphasize in Total Quality. And then we said: “If you want to make it work, you have to have six disciplines around people. If you want to change work processes, you have to change the ways people think. If you want to remove fear, you have to strengthen self-confidence. If you want to build production groups or quality teams, you have to work with team building.” In that way we combined the structure of TQM with the ‘soft’ thinking in the ‘Learning Organization’.” (Vagn Strandgaard, Strandgaard Gruppen).

According to Ole Rudkilde the Learning Organization²⁴ principles were necessary because of the future changes in industrial production. The competition would become increasingly global, the traditional products would be supplemented by solutions and systems, the criteria of evaluating products and services would become multidimensional (including environmental, ethical and other aspects), and ‘mass individualization’ would replace mass production. The most important sources for competitiveness would therefore be innovativeness, effectiveness, and the capability to deal with complexity, cross-cultural aspects and language barriers. To obtain these capabilities, Grundfos A/S should be more chaotic, cross-functional, multicultural and focused on solving problems. It should act as a network internally and externally. It should be managed through values, attitudes and knowledge. It should act internationally and use information technology, especially in the context of unstructured information. The objective was to create a culture where people have the opportunity to ‘bloom’.

“An organization can only change when people change. That is where the ‘Learning Organization’ comes in. And that is why 140 leaders went through a 6-day training programme with NLP and team building. And even Niels Due (Jensen²⁵) the CEO,

²⁴ Source: Ole Rudkilde: ‘Hvorfor Den Lærende Organisation?’

²⁵ Niels Due Jensen, the CEO of Grundfos.

participated in all the exercises, team exercises and so on. It is totally unique. Everyone participated. And they (Grundfos) had a fantastic development around quality development and won the Danish Quality Award. The next they are going for is the European Quality Prize. They are applying in 2002.” (Vagn Strandgaard, Strandgaard Gruppen).

The ‘*high touch*’ part of the process, the education about ‘Learning Organization’ did not have any strict formal project organization. The top managers took responsibility for the implementation and education. The ‘*high tech*’ part - the TQ process - had a formal project organization including TQ-process owner, steering group, TQ-Process leader, facilitator groups, TQ-engineers, TQ-assistants for the function managers, and seven TQ-teams. The TQ process included also 30 teams and about 120 improvement projects, each having their own project leader.

4.6 THE ‘GOAL CONSENSUS DOCUMENT’.

On 26th June 1996, all 40 function leaders signed the first ‘Goal Consensus Document’. It is a concrete expression of the leaders to actively commit to the cultural values and to create and implement the necessary reformations. The second version of the document was signed on November 17, 1999. The signed document is located at a visible place on the wall in the Grundfos Electronics’ factory area. It is “the most important document in the whole organization”.

The document, titled ‘TQ-processen. Goal Consensus document II’, includes three parts:

1. The vision of Grundfos and the purpose of the TQ process
2. Five cultural values that are described on a detailed level:
 - The engagement of the leaders
 - Focus on facts
 - Focus on the customer and employee
 - Continuous improvement
 - The participation of everyone
3. Measurement that is organized into nine groups according to the Business Excellence Model (EFQM).

“And for the first time in Grundfos’ history we visualized what kind of vision we had and what the goals were and what kinds of cultural values we thought we had in 1996 and what we thought we would or should have in 2002 to be able to reach ‘world class’. So, for the first time it was written down that we have (--) focus on the customer and employees, on facts, continuous improvement and the engagement of the leaders.” (Steen Ejlersen, Grundfos A/S).

“When we started, we made something that we called a ‘consensus document’. We signed it as function managers. There were also some function managers who signed it by shaking hands because they did not believe in it, and also one director who did not believe in it. And they are not here today. They were simply told that if they did not want to live according to the values that the rest of Grundfos wanted, they had to find a company that fits their values. And I think it was also proper to do that. A company cannot have top managers who do not contribute to a cultural change if the

firm has made the decision. It is what we did during the first half year. It was one of the tasks that all function managers had, to describe all Grundfos' cultural values within these areas (--) and then describe how they should be six years later. Something must be kept and something must be changed. But we also wrote for the employees why we would like to keep this and change that. And this²⁶ was discussed by all of our employees with their function managers, all 4,500 employees, and we also said to the employees: "It is here, this is my bible, I mean it, and if I do not do as is described here you can come and kick me in the pants because I have promised to lead in this way". And then the employees got this booklet. Now we have made a revised version, but basically it is the same. There are only some differences in the wording." (Ole Rudkilde, Grundfos Electronics).

4.7 A SCANDINAVIAN APPLICATION WITH JAPANESE FLAVOUR

As a result Grundfos has included some Japanese ideas but not copied American or Japanese solutions as such. The end result is more based on Scandinavian values and motivational aspects. The company picked those ideas that fit its organizational culture and could attract the right people. Grundfos abandoned the uniformity and respect of authority that is generally associated to the Japanese and Chinese organizations, and favored individuality instead.

4.8 THE CEO AND GRUNDFOS' MISSION, VISION AND VALUES

Grundfos' transformation is an example of 'values-based' management and has its roots in the ideas of the firm's founder. The new leaflet about the firm's mission, vision and values has been translated into 25 languages and distributed to every employee in the company. It aims to contribute to the understanding of the shared values, especially to the underlying values of sustainability and accountability.²⁷

"Our owner – there are very fine words in that leaflet, especially about our mission and so on ... it is really his own words. Yes, that is what he has written." (Ole Rudkilde, Grundfos Electronics).

"It has been commented by the companies. It is Niels Due Jensen's own ideas and thoughts in this leaflet." (Peter Schmidt Mikkelsen, Grundfos Electronics).

²⁶ A leaflet about Grundfos' cultural values.

²⁷ Within this framework, Grundfos Electronics has defined its own Mission, Vision and Values. Grundfos defines its mission as:

- Our customers acknowledge us as the leading producer and partner when it comes to high-quality pumps – both in terms of performance and the environment
- Our employees thrive and demonstrate their satisfaction because their jobs and working conditions provide them with great opportunities for professional and personal growth and development. In addition, their satisfaction stems from a good work environment that takes the individual's needs and qualifications into consideration.
- The world around us recognizes and regards Grundfos with respect as a result of our responsible conduct in relation to the laws of our society, the principles of democracy, local traditions and the environment – as well as our relations to the people whose lives and circumstances we touch.

Grundfos' eight basic values are: (1) Sustainable Development, (2) Focus on People, (3) Global Thinking, (4) Open and Credible Conduct, (5) Leadership, (6) Partnership, (7) Responsibility, and (8) Independence.

“(The leaflet was...) personally distributed. It was very important for the process that it must not be sent by mail or something like that. It had to be given personally by the leader to the employee so that he or she knew that it was important. That it was not just another print product that comes via mail. It is simply our value basis.” (Peter Schmidt Mikkelsen, Grundfos Electronics).

4.9 TOTAL QUALITY (TQ)

In 1989, Grundfos A/S, as the first pump manufacturer in the world, was certified according to the quality standard ISO 9001. Since that, several other Grundfos companies have been certified. The firms' production companies have been registered according to ISO 9002, which covers quality assurance within production.²⁸

As mentioned earlier, Grundfos decided to implement the Total Quality (TQ) concept in 1995. According to Vagn Strandgaard, it was a problem that there were several quality standards, such as ISO 9000, Business Excellence model (EFQM), and the Danish Quality Award that is a national application and basically the same as EFQM.²⁹ ISO 9000 measures the praxis how to do different things 'from the outside and inwards'. EFQM model lets the company set the standards without writing a mass of procedures. It aims at changing consciousness and peoples' minds by steering 'from within and outwards'.

Grundfos decided to implement the EFQM model as the basis for total quality (TQ) development. The implementation process was experienced as heavy in the beginning. According to Ole Rudkilde it took 1½ year before everyone understood the model. At Grundfos, TQ and 'learning organization' supplement each other and provide a balanced, innovative and durable solution.

“One could say that TQ model is system oriented, very system oriented. TQ is a kind of 'brain' in this process while the Learning Organization is the emotional part. It is the 'heart', and you cannot create sustainable changes if your brain and heart disagree about where you are going, because if your mind says that is this way and your heart says it is that way, there is disunion. There should be agreement.” (Peter Schmidt Mikkelsen, Grundfos Electronics).

“And it is the reason why so many, really many companies start with that model but have to stop. I don't think that their heart is included.” (Ole Rudkilde, Grundfos Electronics).

“Exactly. I would prefer to have it called 'Total Culture' rather than 'Total Quality'. I mean that the word 'quality' is a cliché in many ways, and there is much more than only that.” (Peter Schmidt Mikkelsen, Grundfos Electronics).

²⁸ Moreover, all Grundfos production companies have been certified according to the international environmental standard of ISO 14001, and the EMAS registration of the European Union.

²⁹ Examples of other international quality measurement systems and prizes are: Deming Prize (1951-), Malcolm Baldrige Prize. (1988-), and the Japanese management philosophy CWQC (Company Wide Quality Control).

It was not self-evident how to integrate the two models. However, Grundfos developed and implemented its solution rapidly and won the Danish Quality Award in just three years.³⁰ According to Ole Rudkilde it is a very short time to change the organizational culture.

Grundfos is going to apply for the European Quality Prize 2002. In order to win the prize each individual company at Grundfos evaluates itself every year. In each company two other leaders from Grundfos come in and make the standardized evaluation and also measure the leadership. Finally, an external group evaluates (audit) the whole of Grundfos. If the result is favorable, it is possible to apply for the European Quality Prize. This may happen after the firm has for years made the status reports and demonstrated that the organization works systematically using the TQ method. Grundfos and Strandgaard Gruppen plan to apply the method to also measuring the individual leaders.

4.10 TQ CYCLUS, STRATEGY FORMULATION, AND KNOWLEDGE SHARING

Grundfos' TQ process is steered by the annual TQ cycle. It includes self-evaluation and cross-unit evaluations that create the basis for improvements. It also includes a grading system that results in information about the leadership improvements at Grundfos.

The annual cycle concerns the whole Grundfos and individual factories within it. It starts in February by acquiring information about various interest groups, such as employee satisfaction and customer satisfaction surveys. In April the company describes its current status. In May-June all function managers and leaders make a cross-organizational 'assessment'. Two peers evaluate each leader's area. All evaluation information, 75 pages about the 23 areas, will be saved in an open knowledge base that all employees have access to. Professional knowledge is documented in separate databases.

“Our production workers can go in and see the description about the leaders and where they are good and what mistakes they have done. And everything we do is open to everyone who is employed at Grundfos. There is equal trust in everyone's capability to handle data confidentially. It is the same with our access card. We only have one card type and all employees can go everywhere, also in our research and development center. When one is employed at Grundfos, one has access to Grundfos. We have also access to the data we need.” (Peter Schmidt Mikkelsen, Grundfos Electronics).

Grundfos' decision to provide everyone access to the evaluations helps share knowledge, learn from best practices and develop social competencies and leadership. It provides an opportunity for internal benchmarking.

The process continues in August-September by the strategy process that is based on Grundfos' mission, vision and existing key competencies. The EFQM model is used to define the objectives, strategies and activity plans. The strategy process ends up in action plans and budgets in October. They are approved in November when the improvement projects will be started.

³⁰ Grundfos has implemented ISO 9000 Standards as a separate activity and requires them from some suppliers as well.

The questionnaire that is used in the strategy process is very extensive. Because the objective is that the production groups will create the strategies for themselves, the purpose is to simplify the strategy process and focus on key questions.

4.11 MEASURING WORLD CLASS IN PRODUCTION

Grundfos has also decided to implement a system for measuring World Class in production in Denmark. As a consequence, some new positions have been established, such as ‘Manufacturing Change Manager’ who is responsible for the change process and measuring the production across the factories. One project manager is responsible for implementing ‘Continuous Flow Manufacturing’ across the factories. Moreover, the project ‘Total Productive Maintenance’ facilitates the exchange of best practices. While the objective is to unify the measurement in the firm, the factories may themselves choose whether they want to use the system or not.

4.12 COMPETENCE DEVELOPMENT VS. COMPETENCE MANAGEMENT

Grundfos is an example of systematic development of organizational and individual competencies. However, the concept ‘competence management’ is often used in widely different ways. Therefore it is understandable that the consulting firm and the client have different angles to whether Grundfos has implemented a ‘competence management system’ or not.

“Yes, they have a very permanent system for that. So, in addition to the personal development and all those things they have a row of professional courses the employees go through. They also have a salary system, and the bonus depends on your education. So, the more education you receive the more money you make. So, there are several levels. And they continuously develop their educational system. It is Kurt (Mikkelsen) who is responsible for that, he has a whole system for that.” (Vagn Strandgaard, Strandgaard Gruppen).

“No, we do not have one. – But it³¹ could be something that we could start implementing next year.” (Ole Rudkilde, Grundfos Electronics).

4.13 BOTTOM-UP PROCESS AND THE CRITICAL MASS

Grundfos obtained its objectives because some people acted as pioneers in the organization. A group of top managers at Grundfos took the key position and created the guidelines.

“You need not start from the top management but you have to end up there, I mean that you always have to reach the top. Today every manager on all levels in Grundfos are involved. But in the beginning it was not because people were opposing it, there was just not any support. Grundfos is a typical production company and stays as such, as Steen Ejlersen says. It is always necessary to convince people.” (Vagn Strandgaard, Strandgaard Gruppen).

³¹ Here Ole Rudkilde refers to Axapta-system that was being implemented at Strandgaard Gruppen during the interviews. The system includes knowledge (and competence) management characteristics.

The transformation has been basically a 'bottom-up' process. Creating critical mass was important for the implementation.

“It is our strategy to reach the critical mass. I mean our strategy is to describe the vision so that it makes sense to people. And then we create a group of passionate key persons who can strongly influence the system. And then we extend it to the extended leader group. (...) And it is also what we did when we went through the TQ project. There were 40 function leaders who signed the contract: “This is what we want”. And then the ‘cascade’ management is running, the leaders take responsibility for the next level and get the support that is needed to run their people through the changes. – And every year 100 shop stewards, leaders and employees met and discussed “Whether we are on the correct road”. – It is such a massive movement one gets started.” (Vagn Strandgaard, Strandgaard Gruppen).

5. CONCEPTS, METHODS AND SOLUTIONS THAT FACILITATE LEARNING ORGANISATION

This chapter will at first present shortly the four abilities that are regarded as necessary for Grundfos' leaders and employees. They acted as the basis for developing and selecting the concepts, methods and solutions that were used during the transformation process. The methods have been classified into two groups: (1) Methods for developing personal competencies, and (2) Leadership methods.

5.1 FOUR ABILITIES

The 'high touch' part of Grundfos' transformation process aims to develop the following *four abilities* among the leaders and employees:

1. Self-awareness, self-esteem
2. Self-regulation, self-management.
3. Creativity and innovation
4. Social competence, the capability to relate to other people, to get contact with people, to solve problems, and to contribute to the environment.

5.2 METHODS FOR DEVELOPING PERSONAL COMPETENCIES

The methods for developing personal competencies include:

- Belbin's teamroles
- NLP (Neuro Linguistic Programming)
- The identification and development of 'shadow competencies'
- Intelligence types
- APM profiles.

5.2.1 Belbin's teamroles

'Belbin's teamroles' refers to a method that helps identifying different functions or roles in a team. The model has been used, for example, to select different personalities for teams and groups, to create diversity and to supplement each others' competencies.³²

5.2.2 Neuro Linguistic Programming (NLP)

Neuro Linguistic Programming (NLP) is a method that investigates the structure of how humans think and experience the world. NLP claims that once a person understands how he/she creates his/her internal world, he/she can more easily change it. Many of the models in NLP were created by studying people who did things at an excellent level. Examples of them are the Meta-model, Meta-programmes, sensory acuity, Milton-model, representational systems and submodalities, and they provide a set of tools for facilitating changes in people.³³

NLP was one of the most important methods at Grundfos. It helped managers and employees recognize, analyze, present and improve personal communication profiles, recognize the variation among the peoples' communication profiles, and take them into account in the daily communication. However, it was not easy to 'sell' the idea of NLP at Grundfos.

³² Belbin's eight teamroles are based on four dimensions: progress vs. refining and introvert vs. extrovert. They are characterized by:

- Influencing
- Attracting
- Creating atmosphere
- Acquiring resources
- Creativity, ideas
- Analysis
- Seeing details
- Making the things happen, finalizing.

³³ *Meta-model* is set of questions designed to find the explicit meaning in a person's communication. It consists of the following elements (adapted from: www.nlpinfo.com 7.7.2000):

- *Metaprograms* are filters through which we perceive the world. Some examples are: "Is the glass half full or half empty?" and "Is a person moving away from a strategy (to avoid a conflict) or toward a strategy (to reach a specific goal)?" Changing these filters can change a person's way to approach situations and perceive the world.
- *Sensory acuity*. Persons' thought processes are closely tied with their physiology. We pick up clues from the body: slumped shoulders, eyes downcast, head down, lack of animation, and so on. Sensory acuity takes these observations beyond the more obviously recognizable clues and uses the physical feedback in addition to the words to gain from communication as much as possible.
- *Milton model*: A set of linguistic patterns derived from Milton Erickson, the father of modern hypnotherapy. The language patterns are used to help guide persons without interfering with how they are experiencing it in their minds. For example, "Think of time you were laughing." doesn't define when or how hard a person was laughing, and applies therefore to everyone. The Milton-model helps with maintaining rapport and is often used in hypnotic or trance state sessions.
- *The representational systems* in NLP refer to our five senses. We represent the world using the visual (images), auditory (sounds), kinesthetic (touch and internal feelings), gustatory (tastes) and olfactory (smells) senses. Our thinking consists of images, sounds and feelings, and usually to a lesser extent of tastes and smells. The entirety of our experiences has been recreated through these senses in our memories, and it governs our capabilities and beliefs.
- *Submodalities* refer to the qualities or attributes of the representations people make by using their five senses. Examples of them are: the intensity of colors, and the size and movement of pictures. Submodalities are the fine-tuning to the representations and can be used to facilitate changes.

“It is OK to talk about teambuilding because it is something people can relate to, but NLP up there in Northern Jutland – it wasn’t something that you could easily sell. But it was sold, wasn’t it? --- And it is a practical tool with common sense that helps us to communicate better and to model excellence. That’s what it is.” (Vagn Strandgaard, Strandgaard Gruppen).

“It was a lot of money we talked about at that point of time. If I remember correct it was more than three million Danish crowns that we should use only to equip our leaders to the task. We did get a nice sum of money (funding) for that, it was not so bad after all. But it was very clear that the content was somewhat strange. And it is not difficult to sell to the colleague directors the idea that they have to learn teambuilding. But that they had to learn NLP was simply impossible. No one in the business world could make himself say that he had to learn NLP – Neuro Linguistic Programming. “Are you in your senses?” they asked me. And I said “Yes” - because if I did not believe in it myself I did not want to show it. And I actually ended up attracting him (another director) to the NLP course.” (Steen Ejlersen, Grundfos A/S).

The production leaders who went through the education were satisfied with the results and suggested that all leaders at Grundfos Electronics ought to have the same experience so that they could use the same language and talk about NLP. Also it was necessary to strengthen the cross-functional cooperation. Thus in 1996-1997 all leaders attended NLP and team building training.

As a part of the NLP method, personal preferences in the communication styles were identified and made visible by personal ‘badges’. They facilitated interpersonal communication by showing what kind of communication style each person preferred.³⁴

“It was Ole Rudkilde 3-4 years ago. He tested his whole personnel. And it includes preferred senses and thinking style and how we express ourselves - if we are visual, auditory or kinesthetic. And then everyone wore a badge showing his or her profile. And they only had a 4-hour course. They were not very deep into it, but they suddenly talked about: “How are you? Would you like to get it in pictures or would you prefer to hear...?” -- And the same applied for Belbin’s roles, the teamroles. – And a new language in the organization began to emerge.” (Vagn Strandgaard, Strandgaard Gruppen).

“And we learned to discuss it a lot when everyone had them (the badges). And we still use them every now and then at our courses to be aware of the differences among us.” (Ole Rudkilde, Grundfos Electronics).

“Because communication is the most critical process in everything we do. If we cannot communicate we cannot cooperate. – So, it is clear: the better we are at it, the better is our life.” (Peter Schmidt Mikkelsen, Grundfos Electronics).

³⁴ The personal communication profile includes:

- The preferred sense modality (visual, auditory, kinesthetic)
- The preferred thinking style (serial, parallel)
- The preferred way to express oneself (visual, auditory, kinesthetic).

“Yes, because many of the conflicts among people are caused by shortcomings in communication, not by malevolence but because we misunderstand each other.” (Ole Rudkilde, Grundfos Electronics).

5.2.3 Identifying own strengths and ‘shadow competencies’

Educating the production workers aimed at increasing their presentation skills and improving consciousness about their strengths and ‘shadow competencies’. The latter refers to unknown skills that can be very useful for the person and the business. The employees had to present themselves in front of the audience, which was a big challenge for many of them. Later they made together a fictive video film about ‘selling themselves’ on the job market.

5.2.4 Intelligence types

The ‘intelligence types’ refers to nine different orientations in thinking, such as logical-mathematical, visual-spatial, verbal-speech or musical intelligence. Some persons measured their own orientation, but no general measurement among the employees was made at Grundfos.

5.2.5 APM profiles

‘APM³⁵ profiles’ is a method to identify personal objectives and to understand him/herself better. They are related to dependency (such as the need to help others), achievement, and power. It is assumed that these elements exist in people in varying proportions.

5.3 LEADERSHIP METHODS AND SOLUTIONS

The concepts, methods and solutions for developing leadership include:³⁶

- Key competencies that link vision to handling
- 8 disciplines in coaching
- Changing the factories among the managers
- Inspiration room for the managers.

5.3.1 Key competencies that link vision to handling

In a transformation process it is necessary to link the vision to the practical implementation. At Grundfos Electronics the competencies have been related to the firm’s mission. The current competence, the capability to produce highly integrated and/or intelligent hybrid modules to electronic motor steering systems, will be supplemented in the future by two new competencies: product development and leadership.

On a team level, five competency areas have been defined:

1. The members’ professional job competence.
2. The team’s task competence.

³⁵ The abbreviation APM stands for the Danish words ‘afhængighed’ (dependence), ‘præstation’ (achievement), and ‘magt’ (power).

³⁶ Grundfos also uses other methods, such as ‘Moderationsmethod’ (Metaplan moderator method), developed by a German consulting firm. It is a new meeting technique that prevents dominating behavior and ensures that every participant has the opportunity to express his or her opinion, prioritize various aspects of a complex issue and participate the decision making process without conflicts. The method helps create ideas through interaction and mutual influencing.

3. Organizational integration and influencing.
4. Ownership and responsibility.
5. The team's social competencies.

5.3.2 8 disciplines in coaching

Moving from control to coaching requires a practical training program. Strandgaard Gruppen crystallized the principles in '8 competences in coaching' that act as a basis for systematic competence building. The eight steps are: (1) Meaning, (2) Direction, (3) Mental Flexibility, (4) Emotional Intelligence, (5) Influence, (6) Empowerment, (7) Collaboration, and (8) Systemic thinking.³⁷ Grundfos has gone through all the steps and uses the model in education and development.

5.3.3 Factory managers changed factories

One of the changes that indicated a real change in the leaders' attitudes was the decision that the five factory managers changed factories. In addition, two new factory managers participated the process. They all did it on the same day, on the 1st of May 1998. In practice the decision meant that some of the managers moved permanently to another town with their families.

"They all changed factories. One director who had had 750 employees moved to another town and now has 350 employees. This happened to show and demonstrate

³⁷ The '8 disciplines of coaching' is a service of Strandgaard Gruppen. The disciplines follow each other in the following sequence:

1. '*Meaning*' means that a person has to coach him/herself before he/she is capable to coach an organization, a team or another person. The first issue is therefore to clarify: "Who am I. What is the purpose of my life? What are my mission, values and beliefs? What qualifications and skills I have to have?" There has to be congruence and alignment among environment, behavior and conviction.
2. '*Direction*' is about visions, goals and strategies. It means deciding why and how we do things.
3. '*Mental flexibility*' means that our actions are steered by our feelings. We cannot control the world, but we can control the way we interpret the world and deal with our feelings. Feelings, body languages, internal dialogues and convictions depend systemically on each other causing positive or negative cycles. For example, saying "No, I cannot" is related to different body language than saying "Yes, I can. No problem". A person who has positive images in his mind will experience the world positively, and vice versa. People use about 30-50,000 words every day in internal dialogue. The words they use program their brains. The purpose is therefore to influence peoples' ways to talk to themselves. People may influence themselves by consciously changing their body language or by using visualizing techniques.
4. '*Emotional intelligence*' deals with self-awareness, self-confidence, self-management and self-regulation. It is also about imagination, social skills, and ability to influence.
5. '*Influence*'. Several exercises help to find out how to use 'self' and consciousness in own work. Acting has also much in common with creativity. The purpose is to teach people to read body language, to influence other people and to define different strategies to define an outcome. Identifying one's own objectives in relation to others improves communication and brings it onto a higher level.
6. '*Empowerment*' is about competencies. It is about empowerment, job skills, and professional competencies.
7. '*Collaboration*' concerns resources, rules, roles and results. It also refers to the goals and relations to other people.
8. '*System*' is about the traditional holistic understanding about organisations, such as delivering a specific output to the customer. Therefore the process has to be optimised, and input and suppliers have to meet specified requirements. Holistic approach is necessary for understanding the complexity of acting as a human being in a system where other people are influencing and influenced. It could be called 'systemic thinking'.

that if we are going to increase the flexibility of our employees, the managers also have to show that flexibility themselves. So, people were moving around. It must have been a fantastic experience for the managers, to be able to use and get feedback on their leadership style with new employees.” (Vagn Strandgaard, Strandgaard Gruppen).

5.3.4 Inspiration room for managers

At the moment of the interviews (in spring of year 2000) Grundfos Electronics was building a dedicated ‘inspiration room for managers’, a place where one can work creatively. The objective was to support leadership as a key competence by building a good milieu, furnished with warm colors. The room will provide all possible tools and facilities, including multimedia, and it may also act as a meeting place.

“Yes, (...) we decorate it with very warm colors, library and soft chairs and so on, where one can sit and discuss. Or the leaders can think for half an hour without being disturbed. – We will use the room only for positive things so that the room has an image. When one goes there one has to think in a positive and future-oriented way.” (Ole Rudkilde, Grundfos Electronics).

“Yes, it is not a room where we sack people. So, we will not do certain things in that room.” (Peter Schmidt Mikkelsen, Grundfos Electronics).

5.4 THE ABUNDANCE OF EDUCATION AND ANALYSIS METHODS

Grundfos and Strandgaard Gruppen have used several methods to educate leaders and production workers. The education has been carefully designed, systematic and extensive. While the selection of methods and concepts is pragmatically oriented, many of them are based on internationally accepted models and relatively solid theoretical background. The methodological expertise is strengthened by annual visits to international conferences. On the other hand, the experience of the consulting firm, and the involvement of the leaders and managers in the education and experiments link the education to the practical every-day life.

Grundfos and Strandgaard Gruppen have also used an abundance of methods to identify, measure and influence the leaders’ and production workers’ personal characteristics and qualifications. The methods have also influenced their personal lives. The collective use of such methods may raise ethical questions.

“One has to watch that one does not become prisoner by his or her own analyses and say: “I am such a personality and that’s it”. ” (Peter Schmidt Mikkelsen, Grundfos Electronics).

“These analyses only provide guidelines. They are not eternal truths. They are only tools to increase one’s consciousness. One cannot say: “Now I will be like that forever.” – But something that we did especially in the beginning was that people defined their own value base, and many people sat down and thought: “What is the value base in my life? What am I going to get out of my life?” – And everyone can do this without a professional education and still make a difference. But it is essential to

clarify his or her thoughts, to be conscious that one has a free choice as a human being.” (Ole Rudkilde, Grundfos Electronics).

The applied education methods and the ways to use them differ from the ones used traditionally in education institutions (such as schools and universities). A comparison between the approaches of the education institutions and consulting firms could be a relevant topic for further research.

6. THE ROLE OF THE LEADERS: GRUNDFOS AND STRANDGAARD GRUPPEN

This chapter investigates the characteristics of Grundfos’ leaders and Strandgaard Gruppen’s consultants, and their role in the transformation process. It also analyzes their relationship and the ways to interact, create and share knowledge. Moreover, the chapter describes their functioning in the larger context of other organizations and society.

6.1 FORESIGHT AND FUTURE-ORIENTATION INSTEAD OF A CRISIS

At Grundfos the change started from the top-managers’ proactive investigation of future challenges and their decision to improve the conditions for industrial production. According to Vagn Strandgaard, Grundfos has a proactive culture. The leaders are capable of making decisions, and they have a mission and vision.

“They have resources for that. And they also are willing to use the resources. It is characteristic of Grundfos that if something is important it will be supported by providing resources for it. But it is also an obligation. Therefore people feel that it is their responsibility to make sure that it becomes a success. And therefore the employees are so interested in learning. It is a culture where you don’t meet negative attitudes but get constructive critical feedback. Of course you can meet a critical attitude towards things, but not the killing sour attitude.” (Vagn Strandgaard, Strandgaard Gruppen).

6.2 SHARED VALUES AND LOYALTY IN THE CONSULTANT – CLIENT RELATIONSHIP

The founder of Grundfos, Poul Due Jensen, emphasized certain key values for the company, such as environmental protection and social responsibility. The current CEO, Niels Due Jensen, has continued the approach by implementing the transformation process that is an example of values-based management.

Strandgaard Gruppen’s values were sufficiently similar to the ones of Grundfos, and the ‘chemistry’ among people worked well. Shared values and personal relationships were important also for Vagn Strandgaard for whom consulting is a business, but behind that it is also a personal mission to create a safe world for children. Grundfos’ commitment to the transformation has enabled a long-term relationship with Strandgaard Gruppen.

“It is exiting to be a consultant, isn’t it? When you work with organizations that match to your mission and own value-base, you become very loyal. I would like to say that I

am almost more ‘Grundfos’ than they are. When I am standing there teaching, I not only belong to my own group... yes, one becomes a little bit ‘Grundfos’. One becomes almost sad also – or angry – when somebody doesn’t understand that this is important. It is important that this becomes a success. One makes a big investment, uses a lot of time on talking with people. -- For me it was never just a course, it was a need to ensure that they had success. -- I represent the attitudes of the leaders, but I also represent a vision of humanity where I can identify myself and that is beautiful. -- And therefore it has been much more than only education. I have been proud of being in that culture, because we identify ourselves very much through the firm’s value base.” (Vagn Strandgaard, Strandgaard Gruppen).

“From Grundfos’ side the mission has been that people have to be responsible for themselves. And one has the attitude that one trusts people. It is very basic.” (Vagn Strandgaard, Strandgaard Gruppen).

6.3 ESTIMATING THE MAGNITUDE OF THE CHANGE AND THE INVESTMENT

When starting a large-scale transformation it is necessary to estimate timing, duration and size of the investment. Strandgaard Gruppen provided information about these aspects, and convinced the top management of Grundfos that the transformation would take a long time. The choice situation was illustrated by a 1-page picture about the implications of high competence versus quick results.³⁸ The selection of the ‘high competence’ alternative helped creating a shared vision and commitment among Grundfos’ managers and employees.

“It was his message. – It originates from Vagn. He said to us: “Forget the idea of getting results tomorrow. You will see them in 2-3-4 years. We do not know when. But you have to spend 20-30 million crowns to start it. -- But it was also Vagn’s credibility when he said: “This is what the picture will look like if you select high competence”. ” (Ole Rudkilde, Grundfos Electronics).

“I can see when an organization is mature and when it is not. If you are going to work on values people have to have a certain level of communication, otherwise it all will end up in feelings only. And then you simply cannot deal with it you cannot talk about it. But when you have a higher level of consciousness, then you can talk about values and vision statement and visions.” (Vagn Strandgaard, Strandgaard Gruppen).

The commitment to the long-term vision was necessary to maintain direction and credibility also in difficult situations. Grundfos was investing millions in developing competencies. It was not possible to see any results until the employees were competent enough, but it was believed that the company would achieve results later.

“And when things really start to become unpleasant and something unexpected happens ... it is very easy to turn back and say – to say in the ‘mechanical culture’: “You just do. We do not discuss this. I have made my decision. You only do what I tell you.” – There are dangerous situations in this process where one has to have the

³⁸ The picture shows that pursuing quick results leads later to stagnation. On the long term, pursuing high competence necessitates top performance.

courage to say: “Now we just stay cool, the results will come”, because if one begins to show the old attitudes, nothing has really happened. Things are as they have always been.” (Peter Schmidt Mikkelsen, Grundfos Electronics).

“And the employees will find out, and they will no more believe in you.” (Ole Rudkilde, Grundfos Electronics).

“No, you have lost your credibility.” (Peter Schmidt Mikkelsen, Grundfos Electronics).

6.4 THE CONSULTANT'S LIFE EXPERIENCE

While the big international consulting firms often employ relatively young persons and provide them with internal education and global databases, the smaller consulting firms may be more dependent also on the individual consultants' personal characteristics. In Grundfos' case the consulting firm was rather small and specialized. The consultant had to achieve the commitment from the top management. The project concerned the change of culture and personal qualifications that required experience and vision and not only technical expertise. Also, it was necessary for the consultant to communicate at all levels of the organization, including the top managers and production workers. According to Grundfos, Vagn Strandgaard brought the necessary energy, creativity and expertise into the process.

“It was his (Vagn's) capability to create new ideas that fascinated us, and therefore we said: “It has to be he himself who comes to Grundfos.” (---) I think that it is important that he was a person who had experience as a person. He also had some of his younger consultants with him, and with all respect, they were also good. But anyway it was Vagn's experience that carried it through. -- And I think that younger consultants have too weak a foundation for their knowledge and experience... they have just a mass of theories. And when one comes to the core, they did not know anything else than what they had read, they had not tested it themselves. And I think that when a company starts a process like this, it is essential to have some consultants who really have experience as persons.” (Ole Rudkilde, Grundfos Electronics).

“They may well have some gray hairs and some furrows on the forehead, ...” (Peter Schmidt Mikkelsen, Grundfos Electronics).

“Because it is something that gives weight behind their words. When one is perhaps a little bit young and knows the things in theory, he naturally has a lot of enthusiasm, but he doesn't have the weight that is really necessary sometimes...” (Ole Rudkilde, Grundfos Electronics).

6.5 THE COOPERATION DURING THE CONSULTING PROCESS

Strandgaard Gruppen helped Grundfos start the process and educate the leaders. Grundfos did many things itself. The consulting company had an important role as a source of ideas, and as a supporter and coach.

“It is important to monitor the situation all the time. And that is why I think that consultants continually have a function. One is that you come around as a consultant

and gain an enormous insight that no one else has. At a point in time you may probably be the one who knows most of what is going on in the organization because you move at all levels. And you go to many different places in the organization, you get to know the culture in depth.” (Vagn Strandgaard, Strandgaard Gruppen).

Grundfos is satisfied with the services of Strandgaard Gruppen. The client received the agreed services after specifying the requirements. There were no conflicts between Grundfos and the consulting company, but there have been some discussions about how to conduct the process.

“Strandgaard Gruppen was pouring education on us all the time, although we were saying: “Wait a little, because it has also to settle down.” That one cannot just go from one course to the next; there has to be a break in between so that one is at home and can test things in praxis. This is where we have had the biggest discussions about the structure of the whole education program. Otherwise I don’t think we have had any...” (Steen Ejlersen, Grundfos A/S)

Grundfos also has had very concrete deadlines. According to Kurt Mikkelsen, Grundfos A/S, it is good that the client sets requirements for the supplier and says: “This is our agreement and this is the way we will do it”.

Grundfos also suggests that Strandgaard Gruppen could have evaluated the effects 2-3 months after education. Evaluation could also be the task of the client. It could help adjusting the education and defining the needs for new activities.

The process that was based on the leaders’ consensus document had a relatively sound and firm foundation. However, both parties emphasize the need for more clear orientation on results. This opinion may be dependent on high expectations and standards. Also, it is possible that the ‘high touch’ (‘Learning Organization’) part of the process was more innovative and less structured than the relatively standardized ‘high tech’ (EFQM) part of the transformation process. Also, for the consultant who knew how the process could proceed, it could be frustrating to see if someone lost interest, or if a production group did not do the things that are necessary to make it a self-organizing group.

6.6 KNOWLEDGE FLOWS IN THE LARGER CONTEXT

The transformation process provided for Grundfos and Strandgaard Gruppen an arena for mutual learning at the institutional and individual levels. Shared values among the key persons facilitated knowledge sharing. Moreover, knowledge that was gained in the transformation process has been distributed also to other organizations. The consulting firm and the client present results jointly in various events and conferences in Denmark and internationally.

“I know that Vagn and his people go every year to a conference on training and development in the USA. I have been there together with him. I became very interested in listening to the many presentations where one can ‘shop’ around and listen to many interesting things for one week, and also get new ideas home. And I

know that this is Vagn's idea. – Vagn and I consider giving a presentation at this conference in the USA next year.” (Ole Rudkilde, Grundfos Electronics).

“We use each other, Strandgaard Gruppen and us, to teach each other-- consciously. For example two weeks ago I attended a big session here in Bjerringbro organized for other companies. Vagn Strandgaard, I, and Ulrik Vilbæk who is a famous handball coach gave presentations. We gave our own presentations but supported each other. And I have also given presentations in the province of North Jutland because Vagn is now consultant for the hospital there. – And simultaneously Vagn informs me about new things that he finds. We meet sometimes when I am in Copenhagen and we spend an evening only to sit and think and exchange our thoughts.” (Ole Rudkilde, Grundfos Electronics).

“... it happens now that knowledge also flows back from us to Vagn Strandgaard. Because we have made an agreement with him about developing some new management models that we can naturally use here but that he also can use in other places.” (Ole Rudkilde, Grundfos Electronics).

“So you not only get the theory but also the thing that is most interesting for many firms: “How did it work in practice?” Because theory is naturally always one thing, but we like to try and see the results we have. Was it successful and so on.” (Peter Schmidt Mikkelsen, Grundfos Electronics).

Grundfos and Strandgaard Gruppen use each other's ideas and develop them together. The consulting company can use the ideas that have been created together in later assignments. This model of cooperation is based on mutual trust, good chemistry among the key players, and shared interests. However, in some other cases the model could be less feasible. For example the ownership of intellectual property rights (IPR) could be a major problem. Also, the 'symbiotic' relationship could be at risk if there were major changes in the organization. Moreover, the 'symbiotic' relationship itself might become a problem if it prevents either party from suggesting radical changes.

7. THE IMPACT

Business Excellence was implemented at Grundfos in the form of two interconnected philosophies and management models, Total Quality and Learning Organization. This chapter investigates various results of the transformation process, and the impact on individuals, groups, the firm and the society.

7.1 CHANGE IN THE CULTURE

The solutions supported the original objectives of the transformation. The new ideas influenced the organization, individual employees, and the Danish society.

“The culture has changed tremendously at Grundfos during the last four years. (...) – As an organization Grundfos was an old, mechanistic company with walls between every possible part of the organization. People did not talk to each other across the

boundaries. They did not visit each other. Function managers did not know each other. People did not have the same vision and goal. People did not have the same leader style. They were running the business quite randomly.” (Ole Rudkilde, Grundfos Electronics).

“And I dare to claim that we have become essentially better at cooperating together. Earlier people isolated themselves and served only their own function, they innovated the wheel over and over again in their own units. Now we work by using ‘world class’ techniques across the functions.” (Peter Schmidt Mikkelsen, Grundfos Electronics).

“Clearly the ‘social competence’ is the key knowledge that we have gained from the process. Today we have a dimension that I wish one could learn already in primary school.” (Steen Ejlersen, Grundfos A/S)

7.2 QUALITY AWARD AND OTHER RESULTS

Grundfos won the Danish Quality Award in 1999. The next objective, included in the goal consensus document, is to reach the ‘world class’ level and to win the European quality Prize (EFQM) in 2002. The competition is hard. In 1999 there were more than 500 applications for the prize from big European companies, in some cases several applications from the different units of the same company. Grundfos has written the application and expects that it is able to get a ‘site visit’ and a formal evaluation (audit).

“And we believe that next year (2001) we are ready to be among the nominated. And in 2002 then ... then it has to be us who are standing on top of the victor’s stand. That is our plan.” (Peter Schmidt Mikkelsen, Grundfos Electronics).

The development of the competencies has contributed to several measurable results. The productivity has improved more than 5 % per year, reaching 8,4 % in 1999. The number of middle managers was reduced by more than 30 % because the production workers now control their own work. For example, there are no leaders anymore on the evening shifts. The company has also improved its effectiveness continually. In 1998 the costs were reduced by 20-25 million Danish crowns, and in 1999 by 40 million crowns.

The annual employee satisfaction surveys have been positive. The last one was conducted in February 2000. 85 % of the employees returned the questionnaire. For example, the employees were increasingly satisfied with their leaders and their annual evaluation discussions with them.

7.3 GOOD RECRUITING AND TIMING

According to Vagn Strandgaard, one of the foundations for Grundfos’ success is the firm’s capability to recruit skilled people – employees and leaders - who are intelligent, solve the problems and are honest and direct.

Also the timing of a transformation was correct. Grundfos had a good economic situation and resources were available. As a contrast, it would not be a good idea for a firm to start such a big process when a company faces a financial drop. In such a situation it would be better to wait until the firm is profitable and has enough resources available. For Grundfos the time

after starting the process, and especially the year 1998 was not good. Because of the crisis in the Far East, Grundfos' sales collapsed and the firm had to dismiss 10% of the employees, altogether 450 employees.

“But on the other hand, perhaps we had not survived so well during that period had we not had ...” (Peter Schmidt Mikkelsen, Grundfos Electronics).

“Yes, and everyone stayed cool and said: “We continue.” There was no wavering.” (Ole Rudkilde, Grundfos Electronics).

“We have to be aware that enormous resources have been invested in TQ. We talk about a period where practically everyone in the organization was making status descriptions about individual areas, cross-organizational evaluations where virtually every leader made an evaluation about another area. “Does this create value?” one could ask. “Do you think that the shareowners would like to pay this?” It requires commitment and a firm belief that this is the correct way.” (Peter Schmidt Mikkelsen, Grundfos Electronics).

7.4 IMPROVED REPUTATION AND CAPABILITY TO ATTRACT PEOPLE

The development of competencies has helped Grundfos answer one of the major problems, to attract skilled people to industrial work. Grundfos has improved its reputation as an interesting employer.

“We have been very conscious that if the company is not capable of attracting young people - there will be 20 % fewer young people in 2006 - it has to do something extraordinary to make the workplace attractive. This reputation that they (Grundfos) have, the profile that they create for themselves is extremely important to convince people that it is exiting to come to Grundfos. --- When we started our work there I did not know very many who knew a lot about Grundfos. And the profile was also such that there was no reason to hear about the company. But now it seems to be one of the most referred-to companies when talking about education and training. Because many of the leaders have been to conferences and given presentations and participated actively, and Niels Due Jensen has also been an active person and told about his attitudes and mission. One can learn a lot from his value base that he (and Grundfos) does something for the society and respects the human rights.” (Vagn Strandgaard, Strandgaard Gruppen)

7.5 SELF-ORGANIZING GROUPS: EMPOWERMENT IN PRACTICE

Grundfos Electronics' production groups act as an independent department. They have access to PC's, Lotus Notes files, phone and electronic mail. Empowerment is defined at Grundfos as the employees' opportunity to influence their work life, their decisions, and what happens around them. The employees set their objectives, and visualize and compare the results to the objectives. They also have access to all information concerning the evaluation of the leaders. The leaders have recognized the employees' increasing ambition level.

“Just answering the requirement of our employees to create the measurement board and to provide them with correct data has been quite a task. (---) It is the employees that set up requirements for us now.” (Ole Rudkilde, Grundfos Electronics).

“Yes, it becomes clearer that their expectations are growing.” (Peter Schmidt Mikkelsen, Grundfos Electronics).

“We have now taken the TQ through nine production groups that want to measure themselves and to make an action plan. Now they come and ask for some tools so that they can measure themselves: “It is not necessary that you come and measure and tell us where we are. We know in principle ourselves where we are. We want to know ourselves if our qualities are good enough and if our clients are content with us.” We had to develop tools so that they can ...” (Ole Rudkilde, Grundfos Electronics).

As a result, Grundfos has prepared a simple and visually clear measurement system. Every group can measure the satisfaction of their clients, the next link in the chain, if they want to. The employees also control themselves and take responsibility for the results and time expenditure. Self-control means, for example, that only the production workers' time expenditure is controlled because of the productivity statistics. All others control themselves, and they also can work at home if they want to. There are no leaders to control them.

The groups have also become more flexible. It is more common now for people to cross the boundaries. People help each other because they see the whole picture. According to Vagn Strandgaard it is not a question of developing a specific group but it is an organizational maturing process, which means that people want to make themselves available to each other.

7.6 THE NEW ROLE OF LEADERS IN A LESS HIERARCHIC ORGANIZATION

According to Vagn Strandgaard there is much more interaction among the leaders, and better group spirit and commitment to shared objectives. There are still differences in the attitudes and some people are more committed than others, but in general the picture is totally different from what it was 4-5 years ago. The members of the board arrange their meetings in the factories instead of the boardroom. The purpose is to discuss and get feedback from the production workers before making decisions.

Removing 1-2 leader levels made the organization much more flat. Also the empowerment of the employees, the implementation of self-organizing groups, and the open evaluation of their own work changed the leaders' roles. The leaders suggest that in the future they have to have more time to coach and teach their employees. Their task will be to predict, to think in a future-oriented way, to create opportunities for the employees, and to remove barriers.

“There is still a need for coaching and training. The leaders conduct evaluation discussions and participate cross-functional leader meetings in order to find issues that could be improved in the organization. They also carry the ideas to the groups. And then there is the whole process of helping the groups. Grundfos has one leader per 40 employees, and some of the leaders have 120. In some other companies there would be 15 leaders for 120 employees.” (Vagn Strandgaard, Strandgaard Gruppen)

“Compared to earlier I am only half my time in the factory because the rest of my time I teach my employees or train them in ways that differ from earlier. – So, it is a totally different way to be present and to be a leader.” (Per Lauridsen, Grundfos Electronics)

“I believe that we have 400 people who can think, and that I’m not the only one who is able to think. The idea is that we want those 400 to set the goals, think and make decisions based on their knowledge and experiences. – And then we must create the opportunities. It means education. It also means strategic thinking, ensuring that we get all the relevant information needed to optimize the production.” (Ole Rudkilde, Grundfos Electronics).

The leaders agree that the employee and leader roles have changed a lot. Also the job satisfaction has increased among the leaders at Grundfos Electronics.

“I also believe that there has been an enormous development... Yes, when we sit together with one of the production workers he has no difficulty in starting a discussion with us. The attitude... the respect has completely disappeared.” (Peter Schmidt Mikkelsen, Grundfos Electronics).

“The misunderstood respect... it has really totally disappeared. Now we are here as equals, as people who each has his or her job. And that is the culture that we want to promote.” (Ole Rudkilde, Grundfos Electronics).

“Earlier we were leaders because of the respect.” (Per Lauridsen, Grundfos Electronics)

“Because of our titles.” (Ole Rudkilde, Grundfos Electronics).

“Yes, because of our titles. And today we are persons.” (Per Lauridsen, Grundfos Electronics)

“And it is something that we ... in any case I have experienced as a human being. – And I have been in the stiff old-fashioned companies. And when the factory manager comes then everyone works together – and is nervous until he is out of the door again. Instead a leader can throw away that image and say: “This is not what I want. I want to be respected as a human being and not because of my title or job, but because of the person that I am and what I do and what my attitudes are”. ” (Ole Rudkilde, Grundfos Electronics).

“This is a totally different way to run a company. But it is also much more exiting. Much more exiting.” (Ole Rudkilde, Grundfos Electronics).

The empowerment of the employees did not reduce the power of the leaders. Instead the leaders believe that both leaders and workers gained more power.

“The goal... for a person it may be to get more satisfaction in life and thus also more power. One also gets power if one is respected as a person instead of being feared as a person. And it is what happens here. One keeps and builds on his personal power and simultaneously shares it with others. Compared to my earlier jobs at the same level I feel that there is much greater respect towards my person that I have experienced earlier. Earlier I felt that I was feared. The current situation is very satisfying. I feel myself much more powerful now.” (Ole Rudkilde, Grundfos Electronics).

7.7 AN ANTHROPOLOGICAL ANALYSIS OF TWO GROUPS

In November 1999 an anthropologist made a comparative analysis of two production groups in Grundfos. The first group (CS100 Group) had started the TQ development one year earlier than the second one (SQ Group). The diagrams show that the first group experienced its working environment, for example, as more flexible. The first group is more empowered than the second one; they feel that they have better opportunities in influencing their work life.

“When one talks with this group (CS100 Group) it is very clear that they are very conscious about themselves. Our engineers say the same. If these people ask a question and the engineers promise to come and bring the answer at two o'clock, you can be sure that one of these group members will be on the phone at five past two asking: “Where are you? You promised to answer, YOU promised.” While these people here (in the SQ Group) do not react.” (Ole Rudkilde, Grundfos Electronics).

“No, they say: “No, he didn't show up”. “ (Peter Schmidt Mikkelsen, Grundfos Electronics).

7.8 IMPACT ON DEMOCRACY

According to Vagn Strandgaard the purpose of the transformation process is to promote democracy. Knowledge, respect, responsibility and caring are related to each other. The more knowledge the employees have, the better they understand synergy, become empowered, can work together, and help each other. The better people understand the whole picture and can describe their own vision, the more they take responsibility and express understanding and tolerance towards each other. Well-educated people are interested in their employer's value-base, and salary is less interesting. In that sense a democratization process is taking place in the work life.

“I have a vision that we end up in a state where it is normal that everyone is equal, is accepted as equal. It is my hope and vision.” (Ole Rudkilde, Grundfos Electronics).

Vagn Strandgaard mentions that Grundfos' employees and production groups have got much responsibility and attention. They themselves define, describe and measure their objectives. They have flexible working hours and they decide themselves when they take a vacation. Also the physical environment has changed and supports the development. It includes café milieus for the production workers, small tables with plants where they can have a 'time out' and discuss, and teaching milieus that did not exist earlier.

Also the attitude of the top management has changed. They go to the employees and discuss with them. They are more future-oriented. Throughout the organization there is more trust in

the individual leaders, including the middle management. Also the evaluation by the peers, and open access to knowledge are examples of increased democracy in the organization.

7.9 PERSONAL RESULTS AND THE QUALITY OF WORK LIFE

According to Ole Rudkilde the young people who enter the company have a bit of the same ideology as Grundfos, but they do not have the same level of consciousness. Therefore, when new employees arrive, they are ‘protected’ for the first period. They have already shown that they know their job and they need not do that education again. Therefore the purpose is at first to get to know each other.

“Only after a certain period we start to send them to sessions and to teach them the principles of ‘learning organization’, TQ groups, production groups, and so on. And it may take 1-2 years for a new employee to reach the same level as many of us have here today. This we have to accept, that’s it.” (Ole Rudkilde, Grundfos Electronics).

Focusing on social competencies improved the leaders’ and other employees’ work life. However, it is still necessary to improve congruence between what you say and what you do. It does take time, and it would be difficult for a person to do it alone.

“Earlier my task was more like a controller. And there were many things that I had to manage. There still are, but then they were much smaller and detailed things I had to control. Now I have much more exiting tasks and a less stressful work life. And I also have more employees. So, the quality of life related to my tasks is often much bigger, and this applies also to my colleagues, all of us.” (Per Lauridsen, Grundfos Electronics)

“It has been the personal satisfaction that has been the most exiting that I have ever experienced. Where I earlier worked really much on technology, I now think that it is much more exiting to work on the organizational development and people. Technology will be part of it, of course, but this is much more exiting. – It is exiting to see if one can make every employee involved and engaged with his or her daily work in such a process.” (Steen Ejlersen, Production Director, Grundfos A/S)

7.10 THE IMPACT ON PRIVATE LIFE

The education, and the methods to specify ones own personal goals and to understand one self better also influenced peoples’ private life. The changes thus had implications beyond the boundaries of the company.

“And it does not only concern organizational development, it concerns developing oneself. It concerns our life here, my life. There has to be a connection, it has to be exiting, and fun also.” (Peter Schmidt Mikkelsen, Grundfos Electronics).

“And we have to develop it so that we are satisfied with our life.” (Ole Rudkilde, Grundfos Electronics).

However, the positive changes at the workplace may also cause difficulties in people’ private life. There is a danger that new and old values collide.

“And one can say that in addition to the better economy and many other things, this solution has improved the peoples’ work life. And it also influences their home life. There is no hesitation that it influences the way to be at home, both in the good and the bad. We have to be aware that when people change in the organizations it also influences their family patterns that operate systemically. And for example, if it is a woman who develops herself, it may be that her husband experiences that she has become much, much wiser, or that she has become very engaged and he only can see the back of her. And this I have experienced for many years that it is necessary also to bring the family into this development, to make some coordination between the job and family, and shared concepts. Otherwise a separation may take place because one is very enthusiastic when she comes home and thinks that it is exiting and starts to use words that the other does not know. So, it is the good and the bad. But simultaneously we also experience that people who go through the education develop themselves dramatically and there are many things that they start to use in other contexts.” (Vagn Strandgaard, Strandgaard Gruppen)

7.11 THE LABOUR UNIONS’ ATTITUDE TOWARDS THE CHANGES AT GRUNDFOS

The purpose of the process was to facilitate democracy and to increase effectiveness at the workplace. The company, leaders and other employees are satisfied. However, the labor unions that regulate work life in Denmark had difficulties to accept the changes. They have accepted the solutions afterwards.

“When you talk about labor unions there is a big difference between what happens in their main organization and what happens locally, because the local shop stewards are also employees. – In the main organization (of the labor union) they are stuck and do not follow what is going on here.” (Vagn Strandgaard, Strandgaard Gruppen)

“And the employees themselves can decide when they want to work. They have flexible working hours and what we have tried to do is to extend the number of hours that one can work on the flex hours. The labor unions put the brake on this development, but Grundfos’ and Ole’s objective is that people should totally decide themselves when they want to work. They should decide if they want to go home at one p.m. and come for two hours in the evening if they want to, and finalize something. – But the unions are blocking this because they cannot manage the salary system or hours etc., because they are used to manage by 37 hours per week. It would be terrible if people started to work more, wouldn’t it?” (Vagn Strandgaard, Strandgaard Gruppen)

Grundfos emphasizes the employees’ own responsibility, and the moving from ‘job functions’ to ‘task functions’. The latter refers to problem solving, and it means that everyone has to take care of his or her time consumption and to solve the problems.

“We have moved to another state, and it is clear that we have a small problem with the labor unions and the agreements that make this difficult.” (Ole Rudkilde, Grundfos Electronics).

At the local level the employees and shop stewards understand each other. At Grundfos Electronics the employees belong to three unions, but one person represents them and takes care of the interests of the different groups. According to Grundfos' leaders, she has same thoughts as the leaders and she experiences problems with her own union.

“And therefore it is our task to support her as much as possible, because she has an almost impossible task.” (Ole Rudkilde, Grundfos Electronics).

“And this is what we try to do in many ways. For example the new agreement on the national level now helps firms and employees to have flexible working hours. And it gives us some new opportunities. But it is up to such a general agreement where the director of the company – as in our case – is a company representative in the Association of the Danish Industry. And there we call out that next time you must agree on these and these questions because it is very important for our development. This the way we must influence society to change to this direction, inspired by the consultants.” (Ole Rudkilde, Grundfos Electronics).

7.12 IMPACT ON OTHER PARTIES (CUSTOMERS, SUPPLIERS)

Moreover, the changes and principles applied at Grundfos also influence other parties (stakeholders) such as customers and suppliers. Grundfos' people systematically inform the suppliers about the changes and the firm's ways to operate. The supplier has to take it into account if it wants to do business with Grundfos. It is also required that the supplier respects certain ethical rules and is certified according to the ISO 9000 standard. Grundfos wants to establish partnerships with accepted suppliers instead of 'shopping among 500 suppliers'. This helps the suppliers develop their logistics and become more effective. Grundfos also has organized courses about Business Excellence for several suppliers. As an exchange, Grundfos wants to get their products at the correct time and in the requested quality.

7.13 DIFFICULT ASPECTS

For the consulting firm, one of the most difficult aspects has been to face the skeptical 'do-you-really-mean-that-this-is-the-correct-way' attitude. While the lack of mental flexibility is related to fear, insecurity, and the unawareness of the mission and vision, flexibility can be facilitated by a good vision. If one has got a new job and thinks that it is exiting, he or she does not have anything against leaving the earlier job to others. Therefore Strandgaard Gruppen provided an overview of the solutions, their reasons and objectives to the employees. Moreover, the development did not start in the traditional way by analyzing the organization from outside. Instead the process was started from within by strengthening the interpersonal relations and leaders' credibility.

8. CONCLUSIONS

This chapter will summarize the results of this paper. It will also investigate the theoretical and pragmatic implications. Moreover, it will critically analyze the question of democratic legitimating of management knowledge. Finally, it will present a short analysis of the future challenges for Grundfos and Strandgaard Gruppen concerning the transformation process.

8.1 THE CRITICAL SUCCESS FACTORS

The research about Grundfos A/S and Strandgaard Gruppen A/S reveals that Grundfos' top managers acquired relevant information about potential future changes in the firm's operating environment. They also made an interpretation that helped setting and justifying the high ambition level for the change and allocating the necessary resources for the extensive and long-term transformation process. The consulting firm, Strandgaard Gruppen, could narrow down the choice to two alternatives: competence development or quick results. It succeeded in convincing Grundfos' leaders of the superior benefits of the competence development. The parties integrated two management models, 'high tech' (EFQM) and 'high touch' ('Learning Organization'), and created the practical solution to implement changes by using the experience of Strandgaard Gruppen. They applied bravely several unconventional methods, such as Neuro Linguistic Programming, that have considerably improved Grundfos' social competencies. By focusing on self-organizing groups and personal skills Grundfos could start solving the most critical problems without waiting until a 'cascade effect' has proceeded from the top to the grass-root level. It also implied that the critical mass was reached fairly quickly. This aspect was important in the organizational transformation process because the quick application of a 'new language' supported the process and helped avoiding tensions among educated and non-educated employees (Maula, 2000a). The precondition was that the concepts and methodologies constituted a systematic, justified and well-organized solution.

8.2 THE ROLE OF THE LEADERS

The case shows that the role of Grundfos' top management was central in the transformation.³⁹ Three groups of leaders can be differentiated. First, a group of key persons took the personal risk and started the process that can be regarded as pioneer work within Grundfos and in business life in general. Second, the CEO of Grundfos created the direction and spirit by defining the mission, vision and values for the company. Third, the other leaders committed themselves and took responsibility for their own change and their employees' continuous education. In spite of the massive education of the leaders, the major changes occurred at the level of the production workers.

As a management consulting firm Strandgaard Gruppen also had a central role in the process. The shared values with Grundfos facilitated seamless cooperation. The visionary capability,

³⁹ For example the following characteristics of the leaders helped conducting the process successfully:

- Foresight about future problems, and finding solutions for them.
- Defining missions, visions and values concerning the firm.
- As a company, leadership in the society (e.g., the Quality Awards)
- Taking responsibility in the larger social context (e.g., democracy, environment and social responsibility).
- Showing commitment (e.g., the signing of Goal Consensus Document).
- Acting as examples (e.g., changing factories).
- Capability to invest.
- Setting objectives, goals and guidelines.
- Co-operation skills.
- Finding external consulting support, and creating seamless cooperation with the consulting firm.
- Capability to create critical mass.
- Taking responsibility for own change. Educating the leaders and further scrolling to employees.
- Innovating and experimenting.
- Good recruiting skills.

commitment and life experience of Vagn Strandgaard helped crossing the organizational boundaries and levels, and solving the problems at the various levels in the organization.

8.3 IMPACT

The changes had a positive impact on the Grundfos' quality and profitability. As a consequence, and as a result of conscious advertising of the new ideas, Grundfos became a well-known company with a positive image. The methods provided a solid foundation for the change process that in a few years brought Grundfos from anonymity to being an applicant for the European Quality Prize.

According to the interviewed leaders, 'respect' could be a proper word to describe the democratization process and new relations. The solutions radically changed the power relationship between leaders and employees. The leaders are satisfied and they feel that they are respected more than they used to be. Especially, they are respected as persons, not because of their titles.

The development of social competencies improved the employees' and leaders' consciousness and job satisfaction, which has been measured regularly. The empowerment helped the employees know themselves better, which had further positive implications for their families. Sometimes the implications caused troubles because of increasing consciousness. The case demonstrates that competence development that goes beyond the traditional professional competencies has also an ethical dimension that the leaders and consultants have to consider and take into account.

The transformation also had implications in the larger context of the Danish society. The leaders of Grundfos and Strandgaard Gruppen aimed at facilitating democracy at Grundfos and in the firms in general. While the employees are happy with the new flexibility and empowerment, these aspects faced some resistance from the side of labor unions. In spite of the positive results it is difficult to estimate the consequences on the working conditions and democracy in the long run. In general, self-regulation may be increasingly accepted as a norm in the democratic society.

8.4 COMPETENCE MANAGEMENT

The case indicates that 'social competence' that concerns personal and interpersonal skills is a relevant competence. It shows that 'competence management' can be understood in various ways at the organizational and individual levels. Grundfos focused especially on developing the competencies, not that much on managing them formally. Several methods, such as Belbin's teamroles and NLP focus on the individual competencies. For example they help finding different kinds of people to various tasks at the local (workgroup and factory) level. However, it is possible that the growing focus on product development increases the need to manage organizational competencies also at the European or global level, and to implement a more formal IT-enabled 'Competence Management System'. The case of Grundfos and Strandgaard Gruppen demonstrates the need to develop and specify the 'competence management' concept further. It is important to differentiate between:

- *Different kinds of competencies*, such as social competencies and professional competencies. This case description focused on developing social competencies and not, for example, professional competencies.
- *Competence development and competence control*. Grundfos focused on *developing* competencies. In comparison, some (IT-based) ‘competence management systems’ focus on *controlling* the professional skills and education.
- *The competencies of various employee groups*. Grundfos focused mainly on leaders and production workers.
- *Explicit and formal development of competencies in comparison to ‘tacit’ and informal development*. Grundfos developed social competencies in a systematic and structured way.
- *The level of competence development/management*. Grundfos used methods to develop social competencies *at the local level*. In the future, it may be necessary to develop and manage the (professional) competencies *at the global level*.

8.5 THE CREATION AND LEGITIMATING OF MANAGEMENT KNOWLEDE

Management knowledge refers here to the new knowledge, skills and experiences. New methods and the content of the educational program constitute a central part of this new knowledge. The case of Grundfos and Strandgaard Gruppen illustrates the creation of new management knowledge in close mutual interaction between two firms. The case demonstrates the importance of open and proactive interaction for ‘living’, self-producing organizations (Maula 1999).

As to the ‘democratic control’ and legitimating of management knowledge the case provides new information about the increasingly complex role of universities and other organizations as the providers of new management knowledge (Gibbons, 1994). Consulting knowledge, skills and competencies are largely tacit (‘hidden’) and cannot be controlled as such by the universities and other academic institutions. Therefore this case demonstrates another kind of democratic control, the direct participation of the consultants and employees in creating, testing and applying new knowledge and competencies in their own activities.

The case identifies several levels of control and legitimating. It demonstrates that new knowledge was created largely in an experimental way. However, the transformation process was tied to the academic knowledge-creation. For example, the client firm used research knowledge as a basis for clarifying the objectives for the transformation and for decision-making. The consulting firm used academic knowledge (such as annual conferences) partially as an inspiration and as a source of ideas. New knowledge was tested and modified in direct contact with the final ‘users’ who could apply it in their local context and give their feedback. In this sense, the method of knowledge creation was democratic in relation to the user population.

Pursuing academic research does not belong to the activities of Strandgaard Gruppen. Instead Vagn Strandgaard has published several managerially oriented books about the applied methods together his colleagues, which means that the ideas have been subordinated to peer evaluation and public critique. Also Grundfos’ managers give frequently presentations in

business schools and conferences. Moreover, their ideas are evaluated in the larger context of other firms and society, such as industrial and labour unions.

It is possible to debate the neutrality of academic knowledge and its contribution to democracy (Kuhn, 1962). It may be important for a creative and democratic society that there are several sources and channels for new knowledge, and that knowledge is legitimated and distributed in several supplementary ways that are accessible also for the practitioners.

The question of publicity and legitimating management knowledge is important because it may deal – as this case shows – with the personal characteristics of human beings and the conditions of their work and private life. The case of Grundfos and Strandgaard Gruppen demonstrates the open, empowering and democratic values of the leaders and consultants. Their ways to use the methods supported the firm's objectives, and the employees obviously experienced the process very positively. However, the dividing line to a totally different picture could be very thin. A holistic and value-based culture that emphasizes Total Quality could also lead to a totalitarian, controlled culture. Modern (IT) technology enables an in-depth investigation, control and mobilization of personal skills and competencies. Moreover, the increasing competition, group spirit and the almost unlimited opportunities to learn may increase the employees' own ambitions and pressures to exploit their skills beyond their resources. Therefore the firms may face new challenges, such as defining ethical codes and preventing the people from working too much. In this field, it may be necessary to find viable solutions together with the industrial and labor unions.

8.6 OTHER CHALLENGES

While Grundfos succeeded to remove 1-2 organizational levels, to reduce the number of middle managers, and to create some sense of equality among the employees, there are still remains of the old thinking. According to Vagn Strandgaard the company is still somewhat hierarchical, structured and managed by some attitudes that differ from the current main line.

“The organizational structure among the leaders is about the same as it has been earlier. But the place where the biggest change has happened is paradoxically among the employees. This means that the flexibility is mainly among them. The leaders have another kind of flexibility, but structurally they still constitute the same hierarchy. They have not implemented a dynamic organization for themselves and removed something, but they demonstrate flexibility in some other ways. They demonstrate it by being open towards each other and by meeting the employees. And they also demonstrate it by training the employees themselves. Even the managing director gives presentations and tells about the process. You see a huge engagement and commitment.” (Vagn Strandgaard, Strandgaard Gruppen)

According to Vagn Strandgaard, there still are many people who could be more engaged. Moreover, the process could benefit from some follow-up and new spark. However, taking into account the big size of the company, the implementation of total quality and 'learning organization' principles has been successful.

The next step in improving organizational maturity is to let the groups conduct their evaluation discussions themselves. They could be parallel to the existing ones but the content could differ slightly because people may need to discuss their personal things and career expectations in a different way with their peers than with their managers.

One of the risks of values-based management is that the value system may become too 'hermetic' and therefore intolerant. While a strong organizational culture may support changes, it may also prevent them (Pfeffer and Sutton, 2000). The society is becoming increasingly diversified and multicultural. Therefore diversity, surprises and revolutionary ideas should be continually present in a learning organization. The health of a learning organization is measured by its openness and capability to enrich itself by deviating knowledge.

Another challenge is the firm's capability and capacity to 'distribute' and apply the ideas at the global level and in multicultural contexts. As was often mentioned by both parties, Grundfos' success has been based on the commitment and cooperation of some key managers and consultants. It was possible because Grundfos A/S and especially Grundfos Electronics is relatively homogenous and can be easily accessed geographically. However, implementing the ideas globally may require more than just applying existing ideas. It may require a new kind of pioneer project and the creation of 'spirit', yet at a more complex level and in a vast geographic area. Therefore it may be necessary to find new ways to crystallize the ideas, and to efficiently distribute, use and develop the acquired expertise in the international context. Because the necessary knowledge is largely (but not entirely) embedded in the key persons, the availability of the resources may become a bottleneck. For this purpose some alternatives are drafted in the following:

1. An efficient internal communication network that facilitates innovation could provide at least a partial solution (Maula, 2000b).
2. Grundfos could distribute knowledge by using a 'directive' consulting mode and the vast resources of large international consulting firms. However, it was mentioned in the interviews that the life-experience of the consultant (Vagn Strandgaard) and the shared value-base among Grundfos and Strandgaard Gruppen were critical for changing the culture, and that young theoretically-oriented consultants could not manage the demanding task. Therefore the utilization of large international consulting firms may include some risks.
3. A network of consulting firms could be identified that have similar value-base and methodologies. It could conduct at least the relatively 'standardized' and internationally well-known parts of the education (such as EFQM and NLP). However, in this case the organizing of such network and ensuring the necessary 'standardization' and quality of the services could be a problem.
4. The Danish solution is used only as an example, and something totally new will be developed for the global purposes.

Also Strandgaard Gruppen faces some challenges. A long-term consulting relationship provides opportunities to invest in learning about each other, and to create 'world-class' solutions. However, too 'symbiotic' a relationship may also create dependencies and prevent

knowledge flows (Maula, 2000a). Therefore the continual renewal of the relationship is a challenge.

Also the future development of business in general may be a challenge for Strandgaard Gruppen. One alternative is to capitalize on the current expertise and the structured and tested 'package' of knowledge internationally at Grundfos and other companies. Another alternative is to develop completely new ideas and competencies for Grundfos and other clients. Because the consulting firm's resources are limited, a strategic choice will be needed.

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- Sevón, Guje (1999a) Konsulter och företagsförändring. *Ledmotiv*. Vol 1, 2/99.
- Sevón, Guje (1999b) From Consultant to Client. Change agents and strategies in transfer of management knowledge. Paper for the 15th Nordic Conference on Business Studies, august 19-21, 1999. Helsinki, Finland.
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APPENDIX 1

INFORMATION ABOUT THE RESEARCH PROJECT

The research project:

PRODUCTION AND CONSUMPTION OF MANAGEMENT KNOWLEDGE.

The Interaction Between Danish Consultants and Private and Public Organizations and its Significance on Power.

- The project includes several case studies.

Investigated organizations in this case study:

Grundfos A/S, Bjerringbro, Denmark.

Grundfos Electronics, Bjerringbro, Denmark.

Strandgaard Gruppen A/S (Consulting firm), Copenhagen, Denmark

Interviewees:

Steen Ejlersen, Production Director, Grundfos A/S

- Date of the interview: 8.5.2000
- Place of the interview: Grundfos Main Building

Per Lauridsen, Production Manager, Grundfos Electronics

- Date of the interview: 17.2.2000
- Place of the interview: Grundfos Electronics

Kurt Mikkelsen, HRD Manager, Grundfos A/S

- Date of the interview: 8.5.2000
- Place of the interview: Grundfos Main Building

Peter Schmidt Mikkelsen, Quality Manager, Grundfos Electronics

- Date of the interview: 17.2.2000
- Place of the interview: Grundfos Electronics

Ole Rudkilde, Vice President, Grundfos Electronics

- Date of the interview: 17.2.2000
- Place of the interview: Grundfos Electronics

Vagn Strandgaard, Managing Director

- Dates of the interview: 2.2.2000 and 9.2.2000
- Place of the interview: Strandgaard Gruppen A/S, Copenhagen, Denmark.

Interviewer:

Dr. Marjatta Maula

Associate research professor

Department of Management, Politics and Philosophy

Copenhagen Business School.

APPENDIX 2**REFERENCES (PRINTED MATERIAL) CONCERNING GRUNDFOS' ORGANIZATION, PROJECT, AND MODELS. Received from Grundfos:**

- 8 punktsplanen. Grundfos and Strandgaard Gruppen (1 p)
- Arbejdet i produktionsgrupper (Høj kompetence eller hurtige resultater (1 p)
- Arbejdstidsbegrebet. Grundfos and Strandgaard Gruppen (1 p)
- Belbins roller. (1 p)
- Cirkel organisation Electronics. Grundfos (1 p)
- Facts about Grundfos 5.4.2000 (2 p)
- Fakta om Grundfos, 1.1.2000 (2 p)
- Fakta om Grundfos 5.4.2000 (2 p)
- Formål med produktionsgrupper (1 p)
- Formål med produktionsgrupper i Grundfos A/S (1 p)
- Group Annual Report 1999. Grundfos Group and Poul Due Jensen Foundation. (48 p)
- Grundfos and the environment (14 p)
- Grundfos and the environment - in brief (12 p)
- Grundfos, Annual Report 1998 (48 p)
- Grundfos Electronics' målsætninger, 27.12.2000 (1 p)
- Grundfos Electronics' Strategi & Strategiformulering (1 p)
- Grundfos kulturelle værdier 1996 (16 p)
- Grundfos mission, vision and company values. Niels Due Jensen, Group President (24 p)
- Grundfos' Mission, Visio and Kernekompetencer 17.2.2000 (2 p)
- Helhedsregnskab 1999. Grundfos A/S. (24 p)
- Historien (TQ processen from 1984 to 2000). Grundfos and Strandgaard Gruppen, (1 p)
- Historien bag implementering af produktionsgrupper (1 p)
- Hvorlangt er vi nået? (1 p)
- Høj kompetence eller hurtige resultater? Strandgaard Gruppen (1 p)
- Indre gruppestrukturer i en produktionsvirksomhed. Grundfos and Strandgaard Gruppen (1 p)
- Information for visitors to Grundfos A/S (6 p)
- Interview med medarbejdere på Grundfos (30 p)
- Kernekompetencer. Lederskab. Strandgaard Gruppen (1 p)
- Ledelsesorganisationen i Grundfos Electronics (1 p)
- Material about production costs and other characteristics in industrial production in Japan and European countries (5 pages)
- NLP kommunikationsprofil / Ole Rudkilde (1 p)
- Organisationsplan for 1. Sal (1 p)
- Organisatoriske læringsniveauer (1 p)
- Projektgruppen, "Indre og ydre rammer for grupperne" (1 p)
- Projektgruppen. Grundfos and Strandgaard Gruppen (1 p)
- Projektgruppens succeskriterier. Grundfos and Strandgaard Gruppen (1 p)
- Redegørelse for Målkonsensusdokument II. Grundfos, underskrevet af ledelsen af Grundfos A/S d. 17.11.1999 (28 p)
- Rudkilde, Ole: Den Lærende Organisation. A summary. 2000 (2 p)
- SQ Gruppen vs. CS100 Gruppen. Venn-diagram about anthropological analysis (1 p)
- Strategi-team (1 p)
- Third generation of Grundfos A/S' annual TQ-cycle (1 p)
- TQ-processens organisationsdiagram. Grundfos (1 p)

- Uddannelse af grupperne. Grundfos and Strandgaard.
- Årsberetning 1999. Grundfos Koncernen og Poul Due Jensen's Fond. Grundfos. (48 p)

REFERENCES (PRINTED MATERIAL) CONCERNING STRANDGAARD GRUPPEN, GRUNDFOS, AND THE PROJECT. Received from Strandgaard Gruppen

- Dagsorden. (concerns the introduction of the '8-pkt planen'. Grundfos. (3 p)
- Den Europæiske Model. Grundfos A/S' fokusområder. Grundfos (15 p)
- Den Europæiske Model for TQ. Grundfos A/S' tilpasning af kriterier. (6 p)
- Den Lærende Organisation. A description about High Tech and High Touch. 1997. (1 p)
- Forslag til indlæg på GMM 3. Juni 1998. (1 p)
- GBJ DIR's oplæg: Kulturelle værdier 1996/2002. (1 p)
- Grundfos' implementering af TQ processen. A letter from Knud Madsen, TQ-Process-Leader to department managers and seniors. June 1996. (7 p)
- Implementering af produktionsgrupper. "8-punkts planen". 1997. (4 p)
- Interview med medarbejdere på Grundfos about production groups. Strandgaard Gruppen. (30 p)
- Introducing the Grundfos Core beliefs and values of the Future. Grundfos. (3 p)
- Kommentarer til TQ-processens kvalitative mål. Poul Vesterbak 5.7.1996. (2 p)
- Kulturelle værdier 1996/2002. Vedtaget af funktionschefer 27.6.1996. (8 p)
- LIPOK-modellen. Scandinavian Training Design. (2 p)
- Målkonsensus-fasen. Grundfos (1 p)
- Månedens leder. Ledernyt no. 7, April 1997. A letter by Poul Vesterbæk, 1997 (1 p)
- NLP og den lærende organisation. A comparison of traditional and learning organisations. (1 p)
- Nøglefaktorer I forhold til budget 1996/97. 16.4.1996 (2 p)
- Oversigt – opgaveansvarlige / deltagere ALLE TEAMS. (1 p)
- Rammer for selvfungerende grupper. Scandinavian Training Design. Presentation material. (3 p)
- Sammenhæng mellem prod.grupper og TQ-processen. Grundfos. 1997. (4 p)
- Sammenhæng mellem TQ fokusområder og stigende konkurrenceevne. (1 p)
- Self-organizing teams. Presentation material. Strandgaard Gruppen. (7 p)
- "Speed up the Grundfos wheel". The objectives and content for the SPEED-UP program. (10 p)
- The Models of TQM. (1 p)
- Total Quality. A definition and description. Grundfos. (5 p)
- TQ kulturelle værdier 1996/2002. Forklaring til statements i målkonsensusdokument. (8 p)
- TQ kursusoversigt 1996/97. 14.5.1997. (1 p)
- TQ-Proces. Tidsplan – implementering.
 - 2.7.1996. Grundfos (14 p)
 - 28.8.1997. Grundfos. (1 p)
- TQ-proces-status sep. '97. (1 p)
- TQ-Processen 1997/98. 1.9.1997. A letter from Knud Madsen, TQ-Process-Leader to the department chiefs and seniors. Grundfos. (1 p)
- TQ-Processen: En funktionschef-dreven process. (1 p)
- TQ-processens mål. Grundfos. (2 p)
- TQ-procesplan 97/98. (1 p)
- Udviklingsforløb. Handlingsplan. 2.10.1996. (2 p)
- World Class. Intern Meddelelse 23.8.1997. Grundfos. (3 p)
- Årlig Cyklus i TQ-processen. Grundfos. (1 p)
- Årlige temaer. 1997. (1 p)