

Enterprise development in networks

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Scope: This paper describes a research project that deals with the challenges facing local traditions of working life confronted with the demands from international management concepts, such as Total Quality Management (TQM) and Business Process Reengineering (BPR). Enterprises collaborating in three industrial networks participate in an action research project that tries to illuminate some of the basic topics inherent in these challenges. The paper describes how enterprises collaborating in networks can acquire knowledge and competence through the participation in joint enterprise development activities. Collaborating in network activities enhances the companies awareness of new challenges and possibilities. Examples illustrating this important aspects of enterprise development in networks will be given and analysed.

Key-words: international management concepts, TQM, networks, enterprise development, flexibility, working life, participation, union

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Contents

1 Enterprise development in networks	2
2 ED 2000 in the South West part of Norway.....	4
2.1 Project focus	4
2.2 Network collaborations	5
2.3 Doing research in networks	9
2.4 Summing up the ED 2000 projects at RF	12
3 Challenges facing enterprises and networks, two examples	13
4 Concluding remarks.....	21
5 References.....	24

Preface

This report is a contribution to a research project at Rogaland Research, which is part of a research program called Enterprise development - ED 2000. The research program ED 2000 is a joint national effort where several enterprises, the Confederation of Norwegian Businesses and Industry (NHO), the Norwegian Federation of trade Unions (LO), The Research Council of Norway and several research foundations co-operate.

The main objective of the program is to "contribute to the formation of value and help ensure employment by developing knowledge about strategies, methods, ways of work and infrastructure which are necessary to create organisational and inter-organisational development processes that will enable an increasing number of Norwegian businesses to participate in the front lines of international competition".

In a joint effort an English publication from the program activities has been worked out. This report contain a full version of the original contribution forwarded to the publishing committee.

1 Enterprise development in networks¹

Networks, embeddedness and flexible specialisation are some of the buss words associated with new trends in the development of the business environment. Enterprises establish network relations and different forms of co-operative efforts in order to strengthen their market positions (Granovetter 1985, Piore and Sabel 1984). At the same time, enterprise development are influenced by international management concepts, such as Total Quality Management (TQM) and Business Process Reengineering (BPR), that imply universal strategies for improving company performance independent of national identity and cultural specificity (Hammer and Champy 1993, Willoch 1994, Taylor 1995, Juran 1964/1995 and 1988, Demming 1986).

To what extent can these trends and concepts be applicable in local enterprise development in a Scandinavian context? There are two possible hypothesis:

- Network organisations and TQM/BPR can be viewed as conflicting to local traditions of working life in the Scandinavian context, as they may undermine the authority and influence of the participative and coo-determination system that is typical for Scandinavian enterprises, - e.g. work environment committees.
- TQM/BPR and network organisations can be viewed as *supplementary*, and maybe even *necessary*, if Scandinavian participative traditions shall be able to adapt itself to new patterns and forms of competitive markets.

This paper will demonstrate that results supporting either of these hypotheses depends on how TQM and network organisations are implemented, and that it is possible to implement it in ways that are consistent with local traditions and established coo-determination systems.

First part of this paper describes a research project that deals with the challenges facing local traditions of working life confronted with the demands from international trends. Enterprises collaborating in three industrial networks participate in an action research project that tries to illuminate some of the basic topics inherent in these challenges.

¹ This paper is the sole responsibility of the author. A number of the ED 2000 researcher at RF have commented this paper. From the ED 2000 *program* Bjørn Gustavsen and Tom Colbjørnsen have contributed with useful comments.

Improvement projects are implemented in the enterprises and networks as part of the action research approach. Systematic reflections upon actions research activities and results is an important part of the research activities. These reflections illuminate some of the basic topic inherent in the questions related to the new standards of enterprise development working life parties locally are faced with. A short summary of this part of the paper will be given before the second part is presented.

Network collaboration can be utilised to achieve competitive advantage (Porter 1990, Williamson 1987, Granovetter 1985). It can also be a way of establishing a learning organisation (Senge 1991). In the *second part* of this paper we describe how enterprises collaborating in networks can acquire knowledge and competence through the participation in joint enterprise development activities. Collaborating in network activities enhances the companies awareness of new challenges and possibilities. Examples illustrating this important aspects of *enterprise development in networks* will be given and analysed in the last section of this paper. Emphasised will be on the contribution that action research can make to build trust from a more neutral point of departure to enterprise development². Some concluding remarks will try to relate the different presentations to the introductory questions.

2 ED 2000 in the South West part of Norway

The research Council of Norway has implemented a 5-year program on enterprise development (ED 2000). Rogaland Research (RF) formed a research module based on the principles outlined by the research council. The research council and the Confederation of Norwegian Businesses and Industry³ are equal collaborators in the ED 2000 project at RF, presently involving more than 30 enterprises with almost a 100 000 employees and 14 researchers.

2.1 Project focus

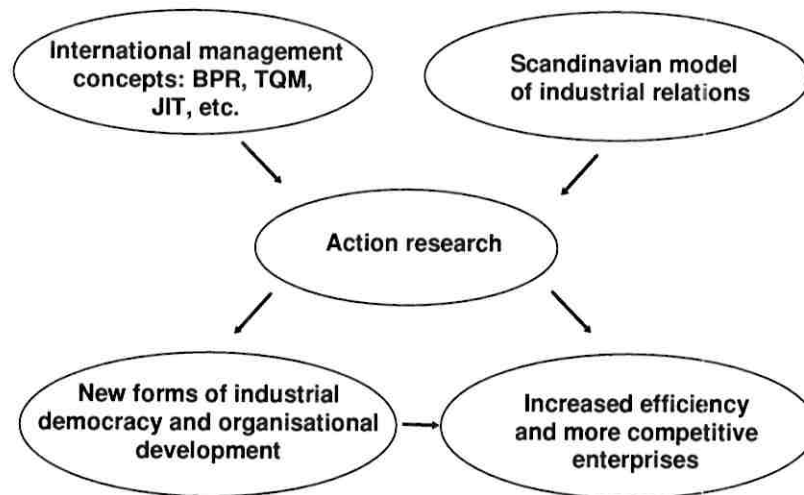
ED 2000 at RF focuses on the challenges facing enterprises and networks when international management concepts (TQM/BPR) are implemented in enterprises dominated by a Scandinavian model of enterprise

² Action research may have some advantages as more trustworthy and neutral than e.g. consultants eager to manufacture their specific products.

³ "NHOs arbeidsmiljøfond".

development. By a Scandinavian model we understand a business environment where unions participate as an active part in enterprise development (Schiller, et. 1993, Gudmundsson 1993. See also Quale and Øverland 1996, Øverland 1995 for a similar definition of a Nordic model). Working parties joint collaboration in enterprise development is in the Scandinavian model supported through agreements, laws and regulations (Venneslan og Ågotnes 1993).

These challenges can be illustrated as follows:



In ED 2000 at RF enterprise development influenced by international management concepts (TQM) are modified by the Scandinavian model of co-operation between working life parties. One of the main challenges in the research project is to utilise advantages from international management concepts and the Scandinavian model of workers participation in a way that encourages *new forms of industrial democracy enhancing the competitive advantage* of the participating companies.

Organisational and inter-organisational development processes are initiated that will enable an increasing number of Norwegian businesses to participate in the front line of international competition. The project is aimed both at internal enterprise development and towards network relations.

2.2 Network collaborations

There are three networks in the ED 2000 at RF:

- The TfS-network
- The TESA-network

- The SYNERGI-network

Each of these will be described in more detail in the following sections.

The TfS-network

Considerable parts of Norway's western coastline have steep mountains, narrow fjords and a conglomerations of islands. Fishing and farming have historically been the most important trades. Early industrial development was closely linked to primary production. Transportation along the tremendous coastline encouraged the establishment of shipyards. Shipbuilding is still important in the area along with other industrial trades.

High mountains with rivers running down represents cost efficient resources for the production of electricity. This has encouraged the development of manufacturing industries specialising in melting metal using available cheap electric power. Today the offshore oil activity dominating the Norwegian economic development has had a tremendous impact on the development of this area. The three mentioned industrial activities are the most important in the TfS-network.

The Norwegian Offshore market is dominated by a few huge national super suppliers. They are called super suppliers because they have received increased responsibility for offshore projects through new forms of contracts. One of the network members is a major super supplier to the oil companies. The super supplier in the TfS network plays an exclusive role in the industrial and economical development of the region.

In the region a manufacturing cluster of suppliers to metal industries can be identified. Some of these companies are members of the TfS network. A third group of enterprises in the region do not form any specific cluster of companies but diversify to a greater extent in their products and customer-supplier relations.

Altogether there are 12 companies in the TfS network. 7 of these are core enterprises in the ED 2000 project at RF. They are identified as core enterprises because they have committed themselves to establish TQM-processes in close co-operation with the network organisation and RF, as part of the research program. The rest are participating in less committed ways.

The TfS network represent around 10 000 employees and a total sales of several billion NOK.

The TESA-network

The TESA-network is the oldest known formal enterprise network in Norway dating back to 1957. It is located along the west coast of Norway south of the TfS network. A plateau along this coastline has given birth to one of the most productive agricultural areas in Norway. Stavanger, Norway's "oil capital", is the main town in the area. Oil and agriculture dominates today's business environment. The offshore activity does not however, dominate the industrial profile of the TESA members directly, as is the case with TfS.

During the years the content of the network collaboration has changed. Joint purchase and supplier contracts, joint innovations projects and information technology co-operation are examples of previous network collaborative activities. Today many of the activities in the network is related to enterprise development promoted through ED 2000.

TESA members are involved in other activities not directly promoted by ED 2000. The TESA-school educates low and middle managers in logistics, economy and other vital functions in enterprise development. TESA has started a forum where managers meet to discuss strategic challenges that the different member companies are confronted with. Both of these activities are closely related to ED 2000.

TESA members are enterprises within engineering/mechanical industry. They don't however form specific clusters inside the network. Some of the members have on the other hand developed close customer-supplier relations. Customer-supplier relations among TESA enterprises was quite rare and unimportant until recently.

There are 13 members in the network. 12 of these members have joined the ED 2000. Members of the network spans from producers of relatively conventional mechanical products to high tech products, including, producers of communications technology as well as flexible automation systems.

The main task of the enterprise development projects is to support the further development within the following areas:

- Customer relations
- Process improvements and organisational change
- Competence development
- Further development of production processes and production philosophies appropriate to these enterprises

- Health, safety and environment (HSE)

TESA is about *half* the size of TfS both in sales and number of employees.

The SYNERGI-network

SYNERGI consists of 5 of the largest enterprises in Norway. They are mainly related to the offshore market. One of the members is among Norway's largest industrial group within engineering. Another member is one of the biggest industrial groups in the country. Some of the other members are the biggest oil companies in Norway. They employ a total of almost 90 000 employees and have a total sales of more than 100 billion NOK.

These enterprises have no specific regional location but have scattered their activities all over Norway as well as globally.

In SYNERGI safety management is the main focus. Safety information and other HSE-data are collected in company specific databases. These data are then made anonymous and transferred to a central database where they are processed so that company specific data's and analyses can be compared with data from all participating companies.

A basic assumption in safety management is that accidents are preventable through effective feedback control; i. e. through mechanisms by which information about accidents and near misses is utilised as a basis for actions to increase the level of safety. The prevalent use of accident and near miss databases in high risk industries, and the resources spent on registering and analysing information on such incidents, are two manifestations of the importance attached to historical data in modern safety management. The later years rapid advances in information technology have further strengthened the role played by accident and near miss data. User friendly software and fast working computers have brought safety managers a vast amount of easily accessible data, and have made it possible to perform extensive statistical analyses in a matter of minutes. Monthly safety reports, causal analyses and development of risk reducing measures, are some well known examples of how experience data are utilised in the industry's day-to-day safety work. Enterprises utilising this computerised information in network relations and central databases, achieve the possibility of comparing company specific safety management with safety management in network co-operating companies. These comparisons and data analyses contribute to increased awareness of company specific safety management.

The purpose of the SYNERGI-network is to support development of safety considerations, safety management, safety control and accident prevention. Specifically the last mentioned topic is of significant importance related to ED 2000.

The emphasis on the safety part of HSE is due to the very high priority given to these issues in the offshore industry. Safety has been given as much attention as more traditional production related issues in other parts of industry. This is one of the reasons why safety is the core issue in the SYNERGI network collaboration⁴.

2.3 Doing research in networks

Action research in networks

Action research is the main approach in two of the networks, Tfs and TESA. A specific approach has been designed based on action research traditions dating back to Levin (Levin 1951, see also, Gustavsen 1985 and 1990, Pålshaugen 1992a and b). The main features in this design can be outlined as follows:

- *Initial stage* of promoting the project to possible participants. In Tfs preliminary meetings were held with the network administration. A start-up conference was executed to motivate the potential participants.

In TESA meetings were held with the network administration and each of the different companies separately. Participatory links to the project were developed with each company.

- After the initial stage each participating company was carefully *mapped*. Mapping each company served as a way of benchmarking the different companies in the network as well as a preliminary stage in the identification of improvement projects. This survey was designed to cover both traditional areas for benchmarking like economy, market, production, strategy, customer-supplier relations, innovation, etc. In addition the survey was conducted to cover health, safety and environment, employees participation, union relations, family-work relations, and so on. These “softer” aspects of the survey were more

⁴ For a more detailed outline of safety management research done in SYNERGI, see Ringstand & Grundt (1994).

related to the Scandinavian model of enterprise development mentioned above.

Designing a survey based on a traditional benchmarking as well as a Scandinavian model characterised the entire approach. It also gave birth to the label “benchmarking the Scandinavian way” to direct the attention to the main approach in the project, illustrated above.

- After the preliminary survey representatives of each company in the networks were presented with the major challenges identified by the researchers. This presentation was the starting point of a *participatory process*. All, or in the bigger companies a selection of representative employees, participated on an equal level in the strategic selection of improvement areas and projects. A specific consensus oriented communication method was applied to reach a joint decision on the major improvement projects to be implemented.

A final selection and ranging of areas and projects were outlined jointly by union representatives and management, and presented on a network conference. On the network conference each company made a presentation of the choices it had made.

- On this *network conference* overlapping improvement areas were identified between the companies in the network. These areas were grouped as network specific improvement areas. Those areas that were common between networks, were grouped by the researchers and identified as issues to be developed further by dedicated researchers.
- *Improvement projects* and the administration of the *TQM-process* on company level were identified as the companies responsibility. The participation companies were responsible for the identification, organisation and execution of improvement projects. For each company an internal employee was given the responsibility to handle the companies improvement projects as well as the overall TQM-process.
- In the TfS network each improvement project is identified as part of a *TQM-process*. The person in charge of the company specific improvement projects is also responsible for the companies general improvement process (TQM-process).

In the TESA network no specific management concept or enterprise development philosophy is identified that cover all of the different improvement projects. Company specific improvement projects may or may not be identified with the different enterprise development concepts mentioned earlier.

The networks divert in the way enterprise development has been implemented. While the above description covers the TfS network, the implementation in TESA is different in many respects. In the SYNERGI network only the mapping of the companies has some similarities with the overall description of the action research approach given above. These differences can be viewed as variations in an overall design philosophy outlined by the researchers in advance. This overall design philosophy was based on the main approach in the ED 2000 project at RF illustrated earlier. It was adjusted according to network and enterprise specific developmental tasks.

Process emphasise and enterprise development

The TfS and TESA networks resemble a company structure in many ways. Both networks have an ownership structure, an administration and specific work groups. The work groups are organised around sales, purchase, personal, production, economy, etc. reflecting the functional divisions in many companies. The SYNERGI-network on the other hand is a less structured collaboration.

In many instances these different forms of co-operation are all named networks without paying attention to the specific differences in the way they utilise the network relations and organise their collaboration.

One important point to be made here is the possibility of organising development in network relations. In ED 2000 at RF specific concepts are utilised to encourage significant changes both inside enterprises and in network relations. TQM, and to some extent BPR, are among the most important concepts utilised for this purpose. A brief look at how this is done will be given below. The way this is done in ED 2000 at RF is specially designed to challenge the traditional functional divisions. The changes encourages a greater focus on more process oriented way of working with development.

Internal improvement project in the enterprises have a *process orientation*. In the context of ED 2000 at RF process orientation is thought of as ways to organise tasks horizontally resembling a project organisation (see for instance Hammer and Champy 1993, Willoch 1994). The difference to project organisation is that process don't have a fixed starting point and a specified finishing date. The business aspects also plays a major role in the way process orientation is outlined in ED 2000 at RF.

A preliminary mapping of the different enterprises in the networks have identified business processes and their potentials for improvement. In the

TfS network every improvement project is aimed at establishing and maintaining a TQM process in 7 of the participating enterprises. TQM is *the* unifying label for all the business processes identifiable in participating companies.

Improvement projects with a process focus have been the mainstream philosophy in enterprise development for some time (Hammer and Champy 1993, Willoch 1994). Process based developmental *among* enterprises in a network or crosscutting networks is something quite unique in the ED 2000 at RF. Researchers in the project are trying to initiate process oriented improvement projects between different enterprises inside the TESA and TfS network. They are also trying to establish projects embedded in a process oriented philosophy across the two networks.

The philosophy behind has its roots both in the TQM and the BPR tradition. Process focus in TfS and TESA challenges the traditional functional division. It means focusing on the draw back of functional division *of the network* organisation just like BPR was designed to challenge the same kind of functionally divided structures *inside an enterprise*.

Competence building, organisational development and work environment are important aspects in the improvement projects in TfS and TESA. These social aspects overshadow more technological aspects. The same is true in the SYNERGI network. These social aspects form the core of the different improvement projects and are key elements in the process focus in the research design. They are the key elements in the process focus challenging the functional division of both hierarchical structures in enterprises and the functional divisions of network organisations like TfS and TESA.

2.4 Summing up the ED 2000 projects at RF

This description sketches a picture of the way research on networks are done in ED 2000 at Rogaland Research. The three networks demonstrates different approaches utilising network co-operation.

There are some common aspects in the three networks. In each of the networks enterprises compare themselves with other enterprises and are faced with new challenges. Some of the enterprises in the networks are customers, some are competitors, many are neither. Knowledge transfer from customers, suppliers and competitors are important in clusters (Porter 1990, Reve etc. 1992). In networks companies have an additional

opportunity to learn from enterprises where market relations have minor importance in their interactions.

3 Challenges facing enterprises and networks, two examples

Enterprise development through network co-operation can be a way for companies to enhance their knowledge of how efforts to improve are fulfilled among competitors, customers and other enterprises. Knowledge and comparisons with other companies can contribute to a better understanding of how things are done and the possibilities for change. Enterprise development in networks increases the demand on viewing and comparing one self by taking the “others point of view”. In this way enterprise development can make contributions to company awareness.

There are many advantages of network co-operation. Network co-operation can:

- contribute to efficient utilisation of common resources (sharing of consultancy resources, experience, knowledge, production, purchase, etc.).
- create common arenas where companies can learn from each other
- enhance awareness in the company and the network as a whole

Activities organised in improvement projects in a networks contribute to enterprise development. Some of these projects are related to specific enterprise development concepts and philosophies like TQM, BPR, etc. Enterprises co-operating in networks are faced with specific requirements from these philosophies. Ability to change and continuously improve are examples of such requirements. Satisfying market demands are examples of others.

On the other hand companies are faced with less business focused requirements. Some are initiated by governments, others are linked to international standardisation's and regulations. Governments, local unions and working life parties initiate laws, regulations and demands more specifically related to the so called Scandinavian model mentioned earlier.

Network co-operation can help companies learn from each others how to handle the requirements mentioned above. Seeing the way other handle these requirements and the way they conceptualise these challenges, can enhance different companies own awareness of how to fulfil different

requirements. It can change the picture or philosophy of the different companies involved. In this way learning through network participation can form new awareness in companies. Empirical examples to illustrate this point will be given below.

ED 2000 at RF has based its action research on network co-operation. Forming contexts were developmental processes and improvements are the main focus, calls for co-operation among enterprises where improvement tasks are the main focus. It means creating context that encourage a view of the participating companies as companies improving and developing systematically.

The following two examples will illustrate these aspects of network co-operation:

- *Contracting*⁵ is associated with numeric flexibility (Atkinson 1984). Negative aspects of contracting are emphasised among governments and unions. Can international management concepts contribute to change this view of contracting? What are government and union demands that has to be fulfilled in order to gain a favourable attitude and competitive advantage in contracting business in a Scandinavian context? Will international concepts like TQM be contra-productive or favourable to efforts aimed at satisfying government requirements and union demands? Can network co-operation contribute to company awareness of how to deal systematically with challenges from market, unions and governments?
- *Flexibility* is a concept that can cover a number of aspects in enterprise development (Atkinson 1984, Piore and Sabel 1984, Pollert 1991, Kvadsheim 1996, etc.). Enterprises associate flexibility with more *spontaneous* ways of organising their business. What is involved in different forms of flexibility? Can TQM contribute to a more *systematic flexibility* that enhance the utilisation of available resources and improve the working environment? Can these improvements also encourage new employment opportunities in the local region? Can network co-operation contribute to increased awareness of different forms of flexibility?

⁵ *Contracting* in the context of ED 2000, is specifically related to certain enterprises specialising in the distribution of competent personnel to different supplier in the oil business. Huge projects are time and resource sensitive and require a highly competent work force when activity is at a peak. This flexible competent work force is needed by different supplier at different intervals. They build their competence through their experience from different projects run by competing companies, as will be outlined below.

Contracting business, challenges and possibilities

Contracting demands high qualifications and good working conditions for employees. Good working conditions and high qualifications are important competitive advantages. Market image is important for enterprises striving to gain competitive advantage through improvement projects.

The competitive advantage of good working conditions are related to the following:

- *Stable workforce* achieved by establishing secure working relations. Competitors characterised by a bad reputation in the market operate without established contracts with their employees and have unstable working relations.
- Developing *good relations to labour unions*. This is specifically advantageous when hiring out to huge super suppliers⁶ in the offshore market. Super suppliers have strong unions constantly alert towards the hiring of personal from contractors with a bad reputation and irregular labour relations.
- *Obeying law and regulations* thoroughly has a positive value in relation to local and national officials. Positive relations to local government can have several advantages. In one example a supplier experienced a number of economic crises. The local government together with the union “saved” the company through direct intervention on several occasions. This would be out of the question if the company had a bad reputation in the local government.
- Good working conditions gives a *good reputation in the market*. Keeping the “home castle clean enough to be comfortable” and “safe enough to be healthy” characterises an enterprise striving to satisfy the demands by the big oil companies and super suppliers.

In the oil business contracting and subcontracting personnel can represent a threat both to unions and to the internal workforce meant to cover the tasks in question. Contracted personnel are associated with lower wages, inferior working conditions, less competence, etc. This is one of the reasons why the government encourages permanent working relations and tries to limit the hiring of people. In the Scandinavian

⁶ In the Norwegian context there are 3-4 major national offshore suppliers. Recently they have taken on total enterprise responsibility in the development of specific fields. They subcontract different parts of the projects to a network of suppliers. This specific position of the 3-4 major suppliers characterises a “*super supplier*”.

tradition these challenges are These challenges are of great importance and involve some of the core aspects of the Scandinavian model of working life.

Contracting enterprises constantly face the possibility of not fulfilling some of the working conditions mentioned above. Some of these enterprises therefore put great efforts into improvements promoting a good reputation related to these aspects. They try to avoid the negative reputation associated with numeric flexibility (Atkinson 1984). On the other hand contracting is precisely a segment of the labour market associated with numeric flexibility.

Contracting enterprises in the ED 2000 at RF have engaged themselves in efforts to establish TQM-processes as a key factor to encourage a favourable reputation in the market. They utilised improvement projects in TQM-processes to gain competitive advantage both related to favourable working conditions and QA systems. They thereby increase their market image and their awareness of themselves as a contracting business with a good market reputation.

Contracting enterprises are also faced with other challenges. One of the main competitive advantages in contracting is hourly cost paid by the customer. Market demands on competitive hourly cost brings contracting enterprises in a dilemma.

On the one hand they are competing with contracting enterprises keeping less favourable working conditions and market reputation. These are companies meeting the demand in the market with working conditions characterised by numeric flexibility.

On the other hand contracting enterprises have to compete with the labour force of their customers. In most cases the customers have their own people capable of doing the job or they can train people to cover their needs. For the customers the expenses of appointing new people have to be considered against contracting.

For contracting enterprises paying low wages to their own employees increases the possibility that they may accept an offer from the customers. Therefore, hourly costs have to be low enough to be competitive with other contracting companies and high enough to cover competitive salaries against customers. Handling these conditions is a significant strategic challenge.

For the contracting enterprises collaborating in ED 2000 at RF, these challenges are met by a strong emphasis to improve working conditions, specifically the soft aspects. Involving employees through direct and

indirect participation on all levels in improvement projects, develops an identity, social commitment and loyalty that function as a buffer towards external challenges.

Super suppliers have been faced with similar challenges, specifically when supply of qualified labour is scarce and competition fierce. Government have on these occasions directed their policies to try to prevent accelerating wage demands. Accelerating wages could be damaging other parts of the national economy basically located in onshore industry. Working conditions has been one of the areas open to improvement in the offshore industry. Offshore industry can in turn be a model for small and medium sized onshore industry on of to gain competitive advantage utilising opportunities in improved working conditions. Companies in TfS have managed to utilise the collaborative efforts in the network relation specifically to improve favourable working conditions. The super supplier in the network have been the prototype of such improvements.

Contracting have some important positive aspects hidden behind the less favourable aspects of these kind of business. These positive aspects can be summarised as follows:

- Contracting *increases competence* in the workforce. Experience from different projects, work places and companies is highly evaluated. Competence building through contracting to competing companies is a very important way of transferring knowledge between companies where strategic market relations block this possibility. It represents an important possibility for braking barriers formed by the self interest of the market (Piore and Sabel 1984, Porter 1990, Reve 1992).
- Contracting represents a time and cost efficient way of distributing knowledge and information in a highly competitive market. People carry information and knowledge around as they do their jobs. Learning and experiencing *by doing* represents no wasted time in training. First hand knowledge is distributed through practical problem solving and on the job training. Contracting can be a “man based information highway” in a competitive market.
- People hired are often specialists in a certain field. Experience form different project, work places and companies represents possibilities of increasing this specialisation and at the same time expanding experience and knowledge from a variety of contexts. It can represent specialisation *and* flexibilisation at the same time.

These are examples of some important network aspects fulfilled by contracting. Contracting can be a cost efficient way of distributing

information, knowledge and competence in a competitive market where self interest creates barriers to this distribution.

Contracting can represent one important way of distributing competence, knowledge and information. An important precondition is a good reputation. A favourable market image and reputation is a prerequisite when hiring out people to the super suppliers.

In short this image has two important components:

- Highly competent people who have acquired their knowledge and experience through many years in different context in the offshore business.
- Good working conditions, working relations and systems for Quality Assurance (QA).

Contracting enterprises in the networks in ED 2000 has made a strategic choice to develop TQM management as part of their image. Co-operating inside the networks involves a close relationship to the most important customers. Developing TQM-activities is an important issue in the network relations. At the same time network relation makes it possible for contracting enterprises to keep a necessary independence of their customers. They can strengthen their image through enterprise development initiating intimate relations in the networks, where their main customers are important actors.

Close relation with the main customers inside the networks makes it possible to establish enterprise development in a way that encourages support from those customers. At the same time contracting enterprises keep their independence and the possibility of acquiring knowledge and experience from the competitors of their main customers. Knowledge and experience from business and network relations with customer, suppliers and different groups of competitors is in the long run an important competitive advantage in the contracting business. This, together with an image developed among other things through TQM-practices taking place in network relations, are among the important strategy advantages acquired to position one self in a demanding national and international market.

In addition utilising the network and TQM processes to improve working conditions increases a favourable image in the market. Improved working conditions also enhance the competitiveness for scarce resources like highly qualified employees. Scandinavian traditions for improved working condition encourage by government and union is thereby utilised to increase competitiveness and market positions.

Improvements to encourage market positions and competitiveness is usually associated with international management concepts. Improvement working conditions is in this example developed through the establishment of TQM-process thereby utilising important aspect of both the Scandinavian model and international management concepts. Another example supporting these remarks will be given below.

Paradoxes of flexibility

The regions where the networks are embedded have certain characteristics. Primary production (fishery and agriculture) are still important in the regions. On the other hand these regions have the highest density of industrialisation in Norway, with more than 30 % of the population employed in manufacturing industry. This fact also accounts for the possibility of combining employment in industry with farming and fishing activities.

Offshore industry dominates the region. This industry is highly fluctuating. Giant projects requires great expansion in the work force. These projects also have time sensitive schedules. Such giant and tense projects are succeeded by more relaxed intervals.

A competent workforce is both a competitive advantages and a necessity. In times of immense activity much of the burden is loaded to the competent workforce and hired specialists. Hiring low qualified workers is last choice. They don't know the companies workplace, tools, customs and habits. Often they represent more of a burden.

Men have traditionally occupied work outside the family sphere. This is probably one of the reasons why most of this type of industry is dominated by male employees.

Many of the companies in the region are typical supplier in the offshore market. Some of them promote an image of *flexibility*. They emphasise the ability to mobilise resources to handle time and resource sensitive activities as their most important competitive advantages.

One of the main disadvantages of this flexibility is the lack of systematic planning and organisation of work. These enterprises act *spontaneously* in order to finish time and resource sensitive projects to satisfy customers demands. For these enterprises one important question has been whether to formalise planning and systematise handling of project to satisfy customers demands, or if these improvements will develop less of the *spontaneous forms of flexibility* that constitutes today's enterprise profile and company image.

The workforce family is an important buffer in the spontaneous way of meeting customers demands. They take responsibility when the male industrial workers extra effort is greatly needed. The whole structure of the business environment and the local traditions reproduce this gender specific division of labour aimed at fulfilling these spontaneous forms of flexibility⁷.

Enterprise development in some of these enterprises has been linked to TQM. One improvement projects in the TQM-processes focuses on greater control with the critical allocation of resources. Spontaneous responses to fluctuations in the market will be met with greater internal capability of *structuring* production. It focuses on the reduction of *old spontaneous flexibilities* and replaces them with greater *new flexibility* acquired through more *slack* in the organisation. This increased slack will be reached through greater overview of resources available, systematic priorities among different project, improved production provision, IT-based systems, improved working conditions, etc.

In turn this new flexibility can open up the possibility of:

- More flexible working conditions within more predictable working hours. When tasks are more clearly defined in advance, the employees themselves can determine their working hours with greater flexibility.
- The structural business environment can change from a stressing to a more relaxed state.

These are some important preconditions that can contribute to a business environment with an increased responsiveness to market fluctuations and market demands. At the same time it represents some preconditions for more openness towards changes in gender specific recruitment in the workforce. More slack in the organisation through increased planning requires less of the gender specific workforce and a family buffer than is the case today.

The TQM process can contribute to new forms of flexibility that can contribute to:

- Less spontaneous flexibility and improved working conditions (HSE). Increased predictability and control with important (TQM-)processes can give more choice, more stability and more slack in the work environment.

⁷ This gender specific characteristics of the work force can of course also be due to gender specific qualifications needed in this kind of industry.

- Remove some of the strains put on the family as a buffer to the old spontaneous flexibility.

TQM can be a way to “tighten flexibility” in order to bring an order-based “unorderly production in order”. A new TQM culture may increase the possibility for flexible forms of work organisation and a more suitable cultural-structural business environment with less strain on family relations. Images compatible with these new forms of flexibility are created and spread through network collaboration. This image and awareness building of new forms of flexibility is specifically encourage when different participants in the network and local working parties already have developed such an awareness of new forms of flexibility and its advantages. This is the case specifically when there are network members in the front line of enterprise development, as for instance the super suppliers and huge oil companies.

4 Concluding remarks

The two examples of how to utilise TQM-improvements in enterprise development have tried to illuminate that:

- Implementing TQM-processes is a way to create a favourable image in the market, towards employees/unions and the government, as was the case in the contracting example.
- Implementing TQM-processes can transform enterprises characterised by *spontaneous flexibility* towards more *systematic* forms of *flexibility*.

In the first example an important aspects of the favourable image in the market are the relations towards employees. A favourable image is essential both towards the customers management as contracting partners and towards the customers unions. It is equally essential to keep a stable competent workforce in the company itself.

Network co-operation can contribute to the awareness of the importance of labour relations and participation. Through network co-operation enterprises learn to improve these relations and create awareness of their importance. ED 2000 at RF is designed especially to encourage this awareness in the collaborating enterprises. Employees participation and union involvement is the cornerstone of the project. It indicates a way to utilise both a Scandinavian model of working life and opportunities inherent in international management concepts. This is also an example of how TQM can be supplementary to local traditions and the

Scandinavian model of working life, *supporting the second hypothesis* presented in the introduction.

Modern enterprises, specifically big international companies, have utilised IT, systems for planning, work organisation, etc. to create well structured enterprises. Smaller enterprises and suppliers have positioned themselves as “flexible specialists” able to handle unpredictable and less structured tasks (Piore & Sabel 1984, Kvadsheim 1996). They have created an image of themselves characterised by *spontaneous* flexibility.

Super suppliers and international oil companies also have to adjust quickly to changing demands in the market. Many of their projects require flexibility. These companies have utilised TQM as a way of creating more *structured forms* of flexibility.

One of the main advantages of network co-operation is the possibility for enterprises to utilise the experiences of bigger companies in their TQM-practices. At the same time an image is encourage were older spontaneous forms of flexibility is replaced by new forms of more systematic flexibility. The self image of participating companies change towards an image of themselves as more modern flexible firms. Through the comparison with other enterprises in the network they create an awareness of themselves as companies constantly improving to positions themselves in the front line of international competition. In this image systems and tools to *structure* their business is adjusted to their specific needs as small and medium size manufacturers.

This change of doing business from spontaneous flexibility to new more structured forms of flexibility, is also an example of how international management concepts can be *supplementary* and even a precondition to change local practices. In this perspective the example of flexibility also *supports the second hypothesis* outlined in the introduction.

Both of these examples indicate ways of utilising network co-operation in enterprise development. Network co-operation can form a learning environment were enterprises enhance their ability to face challenges from international management concepts that encourages *supplementary* aspects in the development of local traditions and the Scandinavian model of working life.

TQM is an important concept in the ED 2000 research at RF specifically in enterprises with close network collaboration. This paper have tried to exemplify ways that TQM can contribute to improve enterprise development.

Taylor (1911/1967) emphasised scientific management as an alternative to management by “rule of the thumb”. In the example of spontaneous flexibility enterprises have many of the characteristics resembling “rule of the thumb” management.

The TQM tradition bases many of its presuppositions on scientific management (Juran 1964/1995). Making standards, organising work, building competence, etc. have roots in the traditions of the American Associations of Mechanical Engineers (ASME), where Taylor was a dominating actor⁸. TQM can be seen as a concept encouraging development of systematic management as an alternative to “unorderly” production. Replacing causality and spontaneity with systematic and continuous improvements, can reduce time and resource consuming flexibility, - and develop more competitive flexibility based on greater planning ability and increased slack.

New forms of flexibility acquired through these improvements can enhance overall working conditions. In a more general perspective improvements through new forms of flexibility can contribute to a more healthy organisational environment.

Network co-operation can be a way of organising learning processes among enterprises outside the market arena. Barriers against learning process in market competition is avoided. Focus can be directed towards mutual exchange of experience apart from competitive relations.

There are important challenges facing any network collaboration. Enterprises collaborating in networks are still governed by market oriented self interest. Collaborative efforts can be caught in much the same ambiguity between competition and co-operation, as market relations.

One way of overcoming these market strategic obstacles is through the building of *trust*. Trust is by many network scholars emphasised as an important aspect in the development of network and cluster relations (Granovetter 1985).

Trust is also an important aspect in market relation dating back to times of “silent barter” (Mandel 1968). Market relations can be viewed as more than just formal actors governed by self interest. Information distribution based on trust and institutionalised social relation form an integrated aspect of market relations (Hodgson 1988). The contracting business can

⁸ TQM is also closely associated with Japan, where Juran first managed to introduce the concept on a wider scale.

be viewed as an example of information distribution and social relations (“embeddedness”) integrated in market relations. Is networks then separate social settings embedded between market and hierarchy (Granovetter 1985, Willamsen 1987), - or just an aspect of the normal market relations? This question will be left here as we conclude how research can contribute to initiate enterprise and network developmental processes.

Participating in the research projects in ED 2000 at RF can be a way to *build trust*. Research is done through the shaping of new meeting places for different actors. Important arenas are created through the enterprise development projects. These are arenas specific to participating companies. Improvement projects are also implemented that encourage network specific arenas.

As indicated earlier, the building of trust can be one of the most important contributions of *action research*, specifically in a network context where company and market driven self interest can be a threat to network collaboration. This aspect of doing action research in network can be a major contribution that research give to network collaborations. The more neutral role of research can be the competitive advantage that researchers can acquire in enterprise development in networks and other social contexts where 3. party involvement and trust is greatly needed.

ED 2000 at RF *action research* experiments with concepts of enterprise development in networks. These concepts are based on international management concepts changed according to certain requirements in the Scandinavian model. The ability to utilise these concepts and models to create learning processes among participating companies, that enhance the competitive advantage of the participants, is crucial to these experiments. Some experiences from utilising advantages from both international management concept and the Scandinavian model has been sketched in this paper. The research work to follow will hopefully contribute to increase this experience.

5 References

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