

THE LONG ROAD TO SELF-MANAGING WORK TEAMS

TECHNOLOGICAL, MICRO-, AND MACRO-ORGANIZATIONAL PRECONDITIONS FOR THE INTRODUCTION OF SELF-MANAGING WORK TEAMS

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Self-managing work teams exhibit many advantages in the modern working life, and many workplaces want to introduce this new management method. However, well functioning work groups cannot be implemented without the fulfilment of certain conditions. This paper examines some of the many conditions behind the successful introduction of self-managing work teams. A case study of a production facility in a multinational group reveals the development of such teams through a fifty year time span. Throughout changing management theories including a formulated wish for this method of management a successful implementation has first emerged in the last decade and its success is only partly.

The study was made through a combination of methods from the social anthropology, sociology and history. It is a case study based on an intensive fieldwork at a plant where the relations between the local managerial level could be seen in the historical dimension and in connection to the work situation, the education of the workers, the technology, the market situation both local and worldwide.

The company was originally established in 1935, but was bought by the American company Tenneco in 1978 in its effort to cover the world with plants delivering exhaust systems to the automotive sector. The production at the plants were mass production with a combination of large scale machinery and smaller machines for instance operated by welders working alone. A large part of the plant was covered by storage rooms from where the finished exhaust systems were picked by the employed at the warehouse.

First after many years with shifting managerial campaigns and fine tuning the organisation to new machinery the self-managing work teams began to function. A long row of skills were learned through the campaigns for Just-in Time, TQM, Continuous Improvement, Single Minute Exchange of Die, Poka Yoke and many more. Very important was an extensive campaign to train the workers.

In spite of all the efforts the map over the plant showed not only areas with well functioning work teams but with departments where the idea of work teams not was implemented at all. A common managerial system for the whole plant was therefore difficult to implement.

INTRODUCTION

Around 1984 the plant manager Tim Palmer proudly explained the new management methods he had implemented at the plant since he came there a few years before. The multinational company Tenneco Automotive had bought the Danish factory Lydex some years before and to modernize the plant the young manager was sent to Denmark.

He started to introduce all the ideas he had learned at his education and at his few former workplaces. The ideas from the Japanese kaizen concept were implemented in a modified form. There was developed an own version of group working. In both manufacturing and distribution the plant was divided into groups which were responsible for production, set-up, quality control, material handling and, increasingly, maintenance. As the manager said: "Despite the fact that we have no quality control department and each employee is responsible for the quality of his or her own work, Lydex has one of the lowest claim percentages in the industry".

Another new twist on the group working approach was the practice at Lydex of paying groups according to how much they produced. If a member of a group not was as productive as the others, the plant manager proudly pointed out, the peer pressure forced him or her to speed up or leave the group.

According the plant managers explanation to the journalist the project had been a success although the group working system could still use a little refinement.

He was right. The system was not perfect, and when he was replaced by a new plant manager the high profiled ideological talks were replaced by more pragmatic attempts to improve the production facilities and the management methods.

Through the next 20 years a long row of shifting management campaigns were cascaded through the organisation. Often the initiatives were taken at the headquarter in USA.

At last there were successful self-managing work teams at the plant around year 2000. This paper will deal with the question why there had to be such a long road to this success filled with experiments and were the local managerial process often had connection to technical conditions in the production sphere, to the educational level for the employee and to the macro-organizational situation at the market or in the multinational company.

And in spite of the extensive effort the success of the self-managing work teams were only a partly success.

METHODS

This study is based on intensive field work at the plant in Middelfart, where the company has been situated since the 1960's. The research has been carried out for the local cultural museum, Middelfart Museum, in several months in 2002 just before the closing of the plant, for years called Walker Denmark. I had an office at the plant and stayed here in the working hours for many months with observation, making photographs and video. Besides I collected artefacts for future research for both the local museum and for the Danish Museum for Science and Technology and the archive to the local historical archive and to the Danish National Business Archives.

Besides I made fieldwork visits at a similar plant in Birmingham in UK and at the European head office in Brussels in Belgium. All accessible literature about the company Tenneco and the relevant automotive business was read.

From the actual situation my research went backward in time through interviews with actual and former employees in parallel with a going through the archives.

It is a case study with not only focus on team work but where the working situation is seen in connection with technology, family life, the global situation in the branch and the group, local and national policy and so on. From the fieldwork I knew all the

around 250 employees personally. In a figurative sense I know “the colour of their underpants”, and with the historical sources I knew the development and the interplay of all the components at the working place.

What can a case study be used to? It is a research method that can give the researcher knowledge about a part of the reality. Many different cases are a precondition for the virtuous exercise. As it is stated (Flyvbjerg 1991: 137-158) tangible knowledge is more valuable than fruitlessly efforts to establish general theoretical contextual independent knowledge. The power from the good example is underestimated. It is right that it is difficult to establish a summary based on a case study but it is a characteristic with the reality more than it is with the case study as a method.

In parallel with the case study many studies were read. They were giving a broad over all background over the many different areas. Only the sited studies are mentioned in this paper.

In the studies of human resource there has been a general tendency namely to look mainly at the managerial contribution and not so much on the single employee situation in relation to his or hers working situation and the technology that determine the working situation. For example is the analytic framework in the in many ways eminent book (Cooke 2003: 3) on multinational companies and global human resource strategies only based on market, socio-political issues, IR systems and strategies for multinational companies, host countries, subsidiaries and unions. Reductionism is necessary at all kind of research but elimination of education and technology at studies of human resource issues will only give a partial understanding of the dynamics is my opinion.

THE OVERALL HISTORICAL DEVELOPMENT

To give an understanding of the workplace here will first be a brief overview over the historical development. It is seen in five dimension which interplay later will be discussed.

First the *product* that is the main aim at the local plant. We are lucky in that sense that exhaust systems in general have not changed very much. There have been developed new systems to every new car on the market, but they are still tubes welded together with exhaust silencers.

Next is the *market* and the commercial situation. The market has always had its centre in the northern part of Europe, but the situation has changed a lot.

The *technique* in a narrow sense is the next dimension. Here the development has almost happened in a revolutionary manner.

The next dimension is the *organisation* both on the major level and on the local level. In some studies the technique and the local organisation around the technique would have been seen as a whole under the concept of *technology*, but as explained later this differentiation is made.

At last the *training* is included as a special dimension.

All those five dimensions are seen in the historical perspective that has been divided in 10-years periods that in many aspect represent “real” periods with distinct differences (see figure 1). In reality they form more a pedagogical division for the reader to understand the slowly but steady change.

	Technique	Organisation	Training	Product	Market
-1950	Handicraft	Workshop		Simple	Sellers market
1950-1960	The mechanisation begins (small machines driven by electricity)	Line organisation		Simple	Sellers market (the first catalogue)
1960-1970	Continued mechanisation (coat black welding, form presses, seam welding)	Limited company	few mostly practical courses	+shell mufflers	Sellers market (considerable export)
1970-1980	Modern plant (factory in 1 storey, trucks, cranes, coils, tube works, crimped cold-	Part of a group, the production planned by IT, public directives	mostly practical courses	mechanical assembly	Demand and competition
1980-1990	Automatic productions lines, welding robots, PC's all over.	International concern, just-in-time, test laboratory, department for development, CAD-CAM, outsourcing of tool making and partly the maintenance, education for the workers	salaries workers got courses, key managers had company specific education	mechanical assembly	Competition, day-to-day delivery, the Total program, division of the market within the concern
1990-2000	SAP (total integrated information system), improvements for better quality in production and raw materials	International integration, SAP, certification, common purchase in the concern, production groups, department for control, certification	educational program for all employee; interviews about competences each year as background for a learning plan	Aluminised steel, e-glass, stainless, embossment, air gap, OE production	OES sale, integrated sales- and distribution systems (IT, logistical)

Table 1.

Schematic view of the historical development.

The first period until around 1950 was the pioneering period where the business was established. At this time it was a simple production made in a little workshop where the owner worked with first some unskilled workers and later on there came some smiths too. Rather early the production became specialised in exhaust systems both for the aftermarket (AM) as spare parts and for original equipment (OE) for a little Danish car factory. It could sell almost all its products and only a little warehouse was needed. The mode of production was a workshop where the owner at the same time was the daily manager even though the employee had a degree of freedom around their own specialised work.

The next period was in a time where the use of cars exploded after the war time restrictions were phased out. It was still the seller's market but the sale had to be organised on a new level with a catalogue over the now many exhaust systems for the growing number of different car models. The former hand made products with help of simple tools were supplemented by electrical driven machinery and small special machines. The work was still like in a workshop with its small geographical distance but the owner had to have a foreman to handle the workers and salaried workers to take care of the administration and sale. At this time the trade unions came into the company as a regular player. Among its jobs were to intervene when the negotiations about piece rate were disputed. A division in labour was now evident with few skilled smiths, some semiskilled welders and more unskilled workers at the machinery. The two last groups got their instructions for the work at the workplace.

In the 1960's the boom in motorisation continued. With the many new car models the company was forced to construct and produce several hundreds of different models. It was still the seller's market and with a growing export, but the company had to deliver both in quantities and in quality to be competitive. At the same time came new techniques at the car factories for the construction of mufflers that forced the factory to invest in new and expensive machinery. The mechanisation continued with new welding methods and with new more heavy machinery for pressing. The need for capital forced the family owned company to be a private limited company, and the director became an subordinate in the company.

The 1970's were still positive even though there came some backlash through the energy crises where the use of cars went down. The demand was in general still growing but so was the competition. To handle the competition a lot of new methods were introduced. Mechanical joining of the muffler parts were a new technique for a better product. At the same time there were built a quite new factory to which the production was transferred over a 6 years period. This factory had all new facilities. The buildings were in one storey that made the internal transportation with fork-lift trucks and electrical cranes more efficient. The company adopted a strategy with its own production of tubes and with slitting coils in a backwards vertical integration. As a new technique computers came at the administration and for planning of some of the daily routines. In this period the public requests for products, environment and other issues became an important factor. The company was bought by a large Danish conglomerate within the iron industry in a horizontal integration. The management was still very visible and the organisation very stratified.

In the 1980's the plant became a part of an international company in its effort to make a world wide horizontal integration. From the former multipurpose conglomerate it became a part of the new struggle for core business. It was in a time

with a beginning world wide sharp competition. At the local level the warehouse at the plant should deliver day-to-day in an almost total program that still increased in numbers. Thanks to the international company with now several European plants it could spread the production on several plants. The competition forced the plant to automate more. There came several automatic production lines, and the welding robots came in action. The policy for the core business was established where fore instance there came outsourcing of the production of tools and a large part of the maintenance. At many areas were introduced computers both in the new construction department with CAD/CAM but everywhere for keeping track of different materials in databases. For the first time the rationalisation was not only at the machinery but at the managerial level too. A lot of campaigns were cascaded through the international organisation with names like Just-in-Time, TQM and so on. Quality was an important factor in the competition that had consequences all over the plant. New forms of organisation of work were introduced – among them working groups. New forms of wage systems were introduced. An intense learning of the employees started – first for the salaried workers and mostly around technical matters.

In the 1990'ths the competition was intensified. The systems for sale and distribution were intensified and partly merged. The company had to take a new strategy by OE sale thanks to the decline of the need for spare parts caused by the use of stainless steel. Therefore the quality had to be on an even higher level than before and at the same time is had to be in real just-in-time. Many other product improvements were introduced both in construction and with materials. The outsourcing continued with more components and the whole company started to buy raw materials in common. The internal quality campaigns were supplied with certification by external quality companies. Besides a local control office were introduced. Introduction of a total integrated information system both at the plant level and on international level between companies were introduced. It was one of the most comprehensive reforms at the plant both at the technical level and for the employees. The production was organised through production groups and the employee involvement was intensified. Besides a cell based production system was established but without success. The learning campaigns were now for all employees.

WHY NOT SELF-MANAGING GROUPS BEFORE?

Why didn't the self-managing groups became a success when the young plant manager introduced the ideas around 1980? He was obvious right with his ideas as they were accomplished later – or was he?

No, is my valuation. It was too early for the organisation and the plant was not prepared neither mentally or was technical ready for this dramatic step.

His organisation was not prepared because his middle managers did not like the idea. All were polite to the new plant manager including his coo-managers and the shop stewards but his efforts didn't have success. They followed him far on the road but when the decisions had to be taken in the daily working day the shop foremen had to take the responsibility; the ordinary workers could not take the right decisions. The most heavy opponents among the shop foremen was dismissed but it was not enough to have a positive opinion about the thoughts.

Through a more analytical viewpoint the time for this new kind of organisation has not come yet. Only few of the people around him had ever heard about this Japanese

idea and could not support him, and none of the workers had learned something of this kind from their other workplaces and were rather conservative (as they used to be).

The technique at the plant was not ready for this step, or better expressed: the technical problems of the production facilities didn't have self-managing groups as their solutions as far as the people around them could see. And they were probably right. The challenges at the plant in those days in the beginning of the 1980'ths were introduction of a lot of new technology. The competition forced the company to make rationalisation and a lot of machinery as automatic production lines, computers and welding robots were introduced at that time. All were advanced and kept the rather few engineers occupied full time.

The young plant manager was replaced by a more technical and managerial pragmatic leader that could implement the new technology without that much change at the managerial area.

It was in a way like the total capacity for change had a maximum. The managers had a maximum to which they could use time on new projects besides their daily work and administration. The new technique forced them to use the most of their resources. The capacity could be expanded through economic injections from the mother company but often the budgets were only for the bare necessities and in those days for instance a large warehouse took a lot of the money for investments.

The mentioned conservatism against all kind of change in the organisation was not on the agenda to make reforms to. Production groups were not seen as a target for anything at that time.

THE PRECONDITIONS FOR ORGANISATIONAL CHANGE

The preconditions for the setting up of the productions groups had a long row of managerial campaigns but very few of them had a more group oriented focus. Though they all prepared the workers and the organisation to the later introduction as it will be explained in a later chapter.

Behind all this was the international competition that forced the company to act to be more competitive. Rationalization through new labour saving techniques in the production was one part and a higher quality for the customers was another. Those two parts were often close-knit in the technique and management aspects as it will be mentioned in the two most important areas.

The welding robots (and the other efforts to introduce automatic production) had first only a technical consequence. They were machines like all the other machines the workers had to handle and after a short course the operators could handle them. The first robot came in 1986 and with a promising success: the production rate was really high and the company could save a lot of money by introducing many more.

But the robots (at least at that time) had a consequence: they were not flexible like the human welders. If the semi-finished goods were not entire accurate the human welders could justify their welding and cover potential gaps. The robot welders were accurate and demanded accuracy. Therefore the rationalisation could only be carried through if all the semi-finished goods became accurate! Therefore the internal quality had to be high.

The external quality had to be high too. The competition was tough. In the late 1970'ths and beginning of the 1980'ths the market for exhaust system came in hands

of few companies that grew internationally. Those global actors had the power to deliver the whole range of exhaust systems and that in quantities. The competition was moved on to quality. All the now few players on the international market had to deliver not only exhaust systems in a high technical quality. The delivery had to be of the highest quality too. If a car repair shop couldn't deliver a spare part to its customer it would shift to the competitor. This gave the focus on the Just-in-Time delivery that had both a lot of technical and managerial consequences. One of these were the effort to produce in cell production as later explained.

THE MANY MANAGERIAL CAMPAIGNS

At plants and in companies there have always been a steady discussion about better ways to handle the management. It has been the case at the mentioned Danish factory.

After the American owned company Tenneco took over the factory came there efforts to change the way to handle the management. While the former Danish owner had introduced a lot of technical matters the American owner attached importance to the managerial side too. Besides the Danish company became a member of an international network of plants from where it could get experiences on both the human and the more hardware side of production.

The Danish plant started from around 1986 to be a partner in the international group. All the few key officers came to courses arranged by the owner about how to manage a plant, and most of the salaried workers started at language schools so they could communicate within the international organisation.

From 1988 came a lot of campaigns. Almost every year had its new campaign that could last a year or could be a continuously campaign.

The first was Just-in-Time that had its Japanese origin from the automotive business as many of the other campaigns. It started with control of the production different places around the plant but in the following years followed a lot of sub-campaigns with focus on both technical and planning aspects.

Soon came quality in the centre. First with a larger certification to FQ101 in 1989 and from 1991 with genuine campaign. This was the first of several campaigns "cascaded through the organisation", with preparing pep-talk meetings for the key managers and with company-made educational material for the ordinary employee.

From the focus on technical and planning matters came in the beginning of 1990's an effort to raise the competences for the employee at the shopfloor. The concern gave in 1993 order to all its plants to start education for all as it later will be explained.

The campaign next year started the campaign for Continuous Improvement (CI). Again the focus was on the human resource side but for having the employee to improve the production.

Next year had an external focus through the campaign Operation Customers Delight where the opinion from the customers should give rise to internal revisions.

In 1996 there were no regular campaign but the very important installation of a new common software, SAP, to handle all information in and around the plant. The aim from the owner was to have all the plants connected in a common information system. Besides all the employee should running the databases for instance should they update it with the start and end with every job they carried out.

This campaign meant that not even 1996 but 1997 too were devoted to a smooth introduction of the new computer system. Many things went wrong where the human side mostly was the reason.

1988	Just-in-time
1989	Certification FQ101
1991	TQM
1992	TQM-training, employee interviews
1993	all had to have education
1994	CI (Continuous Improvement), WELCOM (cell-based prod.)
1995	OCD (Operation Customers Delight)
1996	SAP (integrated computernetwork)
1997	maintenance outsourced
1999	10 point program
2000	BOS, ABS, new wage system, production groups
2001	benchmark between the plants

Table 2. Some of the more important campaigns.

A smaller campaign could still be made namely one more of the Japanese inspired campaigns, Total Productive Maintenance (TPM) for a better efficiency of the machines including less waste. Much of the maintenance were outsourced during this campaign. Besides the unskilled workers got responsibility over their machines instead of the smiths.

In 1999 came a program where the plant managers should inform the employee how 10 specific points were developed.

After this little reform came the year with the most important reforms. Production groups should be formed. In a tight connection to this came a new wage system. Without connection came to other campaigns. Business Operating System (BOS) were started and a program for environmental issues ABS.

The last program became the introduction of systems of measurement for everything in the production for instance the productivity. All those many measured issues should be benchmarked between the different plants.

This was the end of the many campaigns. In the winter 2001/2002 it was announced to the local managers that Tenneco had decided to close the plant during the year 2002 in an international restructure plan. Then all reforms stopped and a gentle program were made to dismiss the people and have the production until the last day.

ON-THE-JOB TRAINING BECAME A MUST

There have always been some training. All new employee at this plant (and others) had to learn the new work. Learning by the neighbour and instructions have always been practiced. Besides there have been some specific courses that some employees had to have. Fork-lift truck drivers had to have their licenses, safety stewards had to have knowledge from official training to handle their jobs and time study was a must for the workers representatives in time study groups.

Most companies – and among them the Danish Walker department – sends some of their employees to courses about technical matters. For instance when a new form of welding were introduced the involved welders could go some weeks on a courses on a public labour market school, or when a new robot or machine were introduced the supplier could make some days training. In the 1980'ths came the computers at the desks at the offices and drawing department and the clerks had to learn how to handle this new creature and its many new programs.

Except the highest officers the employees didn't get more education than this. This was the rule until 1986 were the owner ordered the local plants to start educational campaigns.

At the Danish plant first the salaried workers started with an intensive course activity. There were started schools for learning language that was naturally for people that had to act in an international business. The language was foremost English but some of the employees learned German and French as well – the Danish plant had sister companies in both Germany and France.

There came a whole new range of courses in those years. Some of them were very oriented to the person as how to make a presentation or “the life and the job”. However most of the courses were related to the daily workday as how is quality and how the products actual were (many clerks had never been around at the factory floor).

This was foremost for the salaried workers but in 1992 the Tenneco group gave order to an educational campaign for every worker at their plants. For the Danish plant it was the correct time. There were a local need for education as mentioned about the campaign for TQM. At the same time there were an enormous growth in the labour market education in those days. Thanks to the high unemployment rate at that time there were made arrangements where the unemployed could have paid courses. Besides – as it was used at the plant – the system was that flexible that there could be made a local project Vestfynsnetværket (the Network for the Western Funen) where employed workers could leave the workplace for months for an education in many different topics both practical for the iron business and for more personal development. Their place at the plant were then occupied by former unemployed (but educated) workers. Many of them stayed at the workplace and became stable employees.

The educational effort was based on personal development reviews. The coach (or the superior for the salaried workers) made interviews to make a description of the actual level of competences. From this interview was made a plan for the future development including courses. The company wanted to have a broad range of skills so the workers could fit into many different jobs at the plant. Around 102 different jobs were defined through the project.

The competences was raised enormously for the most employees. Some of the poorest readers caused by word-blindness got courses to eliminate their handicap. Only a few didn't join one or several courses. In 2001, the year with the most courses, around 1.500 days were spend away from the workplace. It was a large investment that the company made in their employees including to spare the experienced workforce in courses in a length in average one week.

It was though not all courses the employees had to travel away from the town. The company had a building close by where some of the education were made and

arranged by the company. Besides there were practical courses at the shop floor were for instance the welders learned new skills.

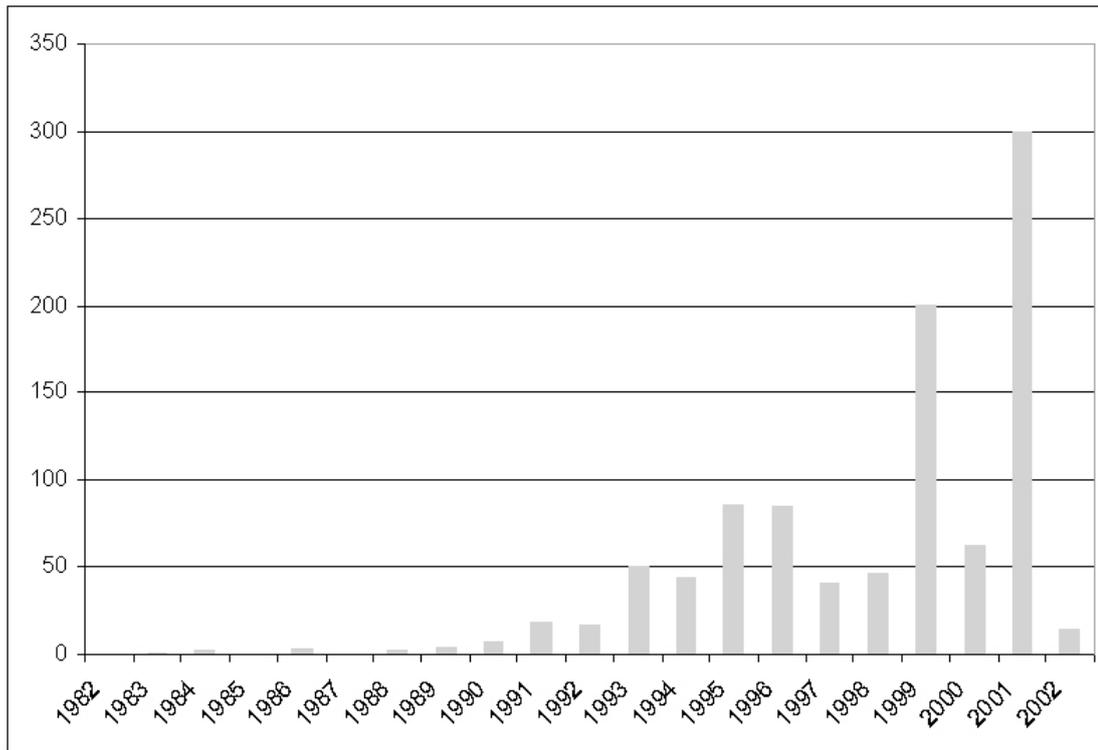


Fig. 1. Courses for unskilled workers.

Many of the courses followed the mentioned campaigns. When the TQM-campaign started the first employees got education in quality. Through the 1990'ths almost all the employees got a such course about quality in general. Besides there were a lot of supplementing courses about how to do a visual judgement of quality and quality in the customer relation.

Continuous Improvement had its own dynamic with first education of CI-assistants and CI-facilitators before the running campaign could go on at the workplace.

After the large introduction of the new computer system almost all the employees had a training and theoretical courses in this for many new field.

At the last end some very important courses were held that were a necessity for the introduction of work groups. In 2001 a large part of the employees joined both a four days course on communication in production groups and a one week course on how to plan production and how to cooperate. The ground was made for well functioning production groups.

WELCOM – AN CELL BASED PRODUCTION EXPERIMENT

In 1994 started a project called WELCOM which aim was to develop a cell based production system tailored to the mode of production that were in the Tenneco concern. This project will be mentioned here because the workers at these two production lines had to work in very advanced self-managing work groups.

The Tenneco group wanted in the beginning of the 1990'ths to make total revolution of the production and planned to introduce 40 new concepts for the production. Each

of the production plants should take one or two of the projects to make experiments so they other factories could learn from this development.

The plant in Denmark should make WELCOM that is an shortening of Walker Europe Low Cost Manufacturing. It was a new form to organise the production where this new department should have almost al the machinery to make a finished exhaust system. All the different bending machines and welding robots should be at the production lines. The new thing were that the workers should go from one machine to the next until the exhaust system was finished and the worker started on a new tour.

The theory behind was based on the most of the Japanese management theories. It should be a lean production, Just-in-Time, with Single Minute Exchange of Die (SMED), Nagara System (where the operator could work with two task at the same time), Kanban, Kaizen, Poka Yoke, consequential self control, zero-error-methode, process ability and preventive maintenance. A state of the art project.

It was a very interesting project where all the local engineers working in the production joined. It was interesting in that sense too that a German based group, the Gillet Group, was merged into the Tenneco group. In this project the experiences from the German companies should be included in group through the Danish project.

There were developed two production lines after the WELCOM principles. The machinery were placed on an island what fore intermediate storages were not necessary.

I won't tell more about the interesting project. It was in a way finished in 1996. At least the international journal in the Tenneco concern had a positive article about the project, but it were never finished in that kind of sense that it never became optimal. For instance could a stop at an important machine mean a stop for the whole production line.

Most important were all the experiences the managers got through the project. Here were included a lesson on that multi skilled workers were a valuable resource for a flexible production and that self-managing work groups had a long process before both the foremen and the workers themselves could work rather smooth.

THE PROCESS OF INTRODUCE PRODUCTION GROUPS

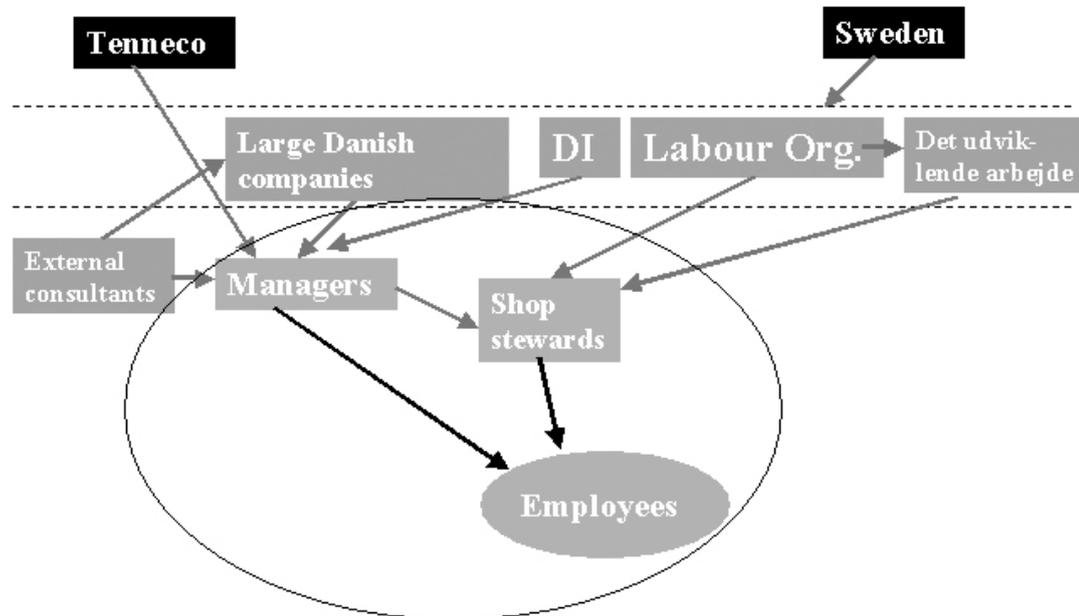
In 2000 the time was prepared for the introduction of production groups. Unlike the introduction almost 20 years before this time all the preconditions were made including a new wage system that will be mentioned in the next chapter.

The process were initiated by many different actors were the most important will be mentioned here. Foremost would the Tenneco group have these production groups. It had been a demand that they should be used to cut down the production costs. They had been used with a large success for instance at Swedish Volvo automotive factories and the "Nordic climate" was probably the reason behind the decision to led the Danish plant introduce the new way of production.

The managers made a lot of preparations. They have off course heard a lot of the experiences from abroad but they preferred to have experiences from Danish companies. On of the managers joined a "experience"-group with managers from other Danish companies, and through those contacts were made contacts to some of the largest companies with this system (and the new wage system too). For instance a

group on 8-10 persons from Walker visited the large Grundfos and Bang & Olufsen plants to have a presentation of their experiences.

Production groups - actors



In this delegation the shop stewards were represented. It was a general consensus between both the workers and the managers side to support this development. This movement had on the workers side its inspiration from Sweden where the large trade unions were very enthusiastic. The Danish Labour Organisation made its own campaign “Det udviklende arbejde” (The Developing Work) that it marketed to the local branches of the unions.

In the same way the Confederation of Danish Industries had its own consultants that helped the plant managers to introduce those new managerial methods.

After some time the suggestion was introduced for the work council and was improved. A consultant firm was hired to make the practical preparations for the reform.

For a long time there were a lot of negotiations and among them talks through the contribution of the shop stewards around the plant. The shop foremen joined the preparation but their roles were reduced to be a “coach” instead of shop foreman what for many were rather conservative in the process. They had long-term training course running from 1998 to the end of 1999. Besides the key persons from the production management, time study, production planning, and training departments participated in a training course about teambuilding, presentation and sale of ideas, assertion training, personal development review and situation based management.

The earlier mentioned job profiles were expanded with special team profiles stating which working tasks were delegated so that which teams and how much authority and responsibility each role involved. At the same time there had been defined how much each role/task added importance to the daily work so that the employees knew which task had the highest priority.

For instance was one of the roles in the team a person with responsibility to be the coordinator of continuous improvement projects.

The main reason was rationalisation. Through a re-engineering process the necessary number of workers should be reduced. Through the analysis of the production the 140 different (single) jobs should now be taken over by 20 production groups.

The rationalisation was visible. For instance were there at the tube production line before were around 15 persons to handle the work now 12 all round operators could handle the jobs.

THE NEW QUALIFICATION WAGE SYSTEM

Workers are thinking on their wage. Off course. That is why they are going to work. There fore the wage system is central for the working situation and so was it for the introduction of production groups.

In a way the new wage system had its precondition in a wage system planned since 1992. At that time it was almost a movement in the industry to have new forms of wages that could give the employees a higher wage and were the company got managerial advantages. The demand for quality and supply security had grown through the 1980'ths, and a keyword became flexibility paired with education. A way to motivate the employee was a wage system where special contributions were awarded. From the central organisations the opinions was rather positive and both the Centralorganisation af Industriantsatte (the Central Organization of Industrial Employees in Denmark) and Dansk Industri (Danish Industry) worked for those new systems – the 1990'ths wage system as it was marketed. The wage systems had to be tailored to each particular plant what fore the negotiations had to be made locally but with the two national organisations as consultants and obstetricians. This wage system was implemented with a basis wage an additional bonus among many thing based on the decline of scrap.

The new wage system had to be tailored to the new production system. It was based on an incitement to the employees to raise their qualifications. The qualification was judged by their coach that gave them points after a yearly talk. One part of the points were given after the level of knowledge to the different jobs around the plant. A long list ranged the different jobs. For people at the warehouse they should could drive a fork-lift truck. To have points on the next level the employee should have a certificate for welding or could read a drawing and so on. Maximum point could be given if the employee mastered all the jobs at the large production lines or could handle the most special machines.

Another part of the wage system was based on the judgment from the coach to the flexibility from the employee to take overtime work and so. A third part was his responsibility. The last parts were very disputable and there was established a complaint system if the employee was discontented.

THE LANDSCAPE OF SUCCESS AND NOT SUCCESS

After the preparations and justifications the new production group system functioned until the closing of the plant. It became a success in that kind of sense that some groups functioned very well. It gave a lift for the motivation when the unskilled workers had got a new kind of responsibility and could make decisions about matters

it earlier had been unbelievable to think on. A kind of democracy at the workplace that is long from the visions in the 1970's.

When we are looking at the total plant there are those fine places with a high degree of well functioning group work. But there are group areas where the collective didn't function what fore the group work was more or less an illusion.

Why were some areas well functioning and others the opposite? Both kinds of areas had their own working style in a large extend determined by the technique and the organisation of the technique. If we look closer at the best functioning areas then they were at the large machinery for several operators working in a work team. It was the case at the tube machine, at the slitting machine and some of the large punchers. Here several operators had to work together in a tight cooperation with coordination of actions within fractions of seconds. The mentality was pretty close the same than at a football team.



The tube mill were a born team-work workplace as here in 1982 as later.

When we se on the areas with a "failure" (if we can call it so, see later) there are not a single explanation. One of the areas were among the welders that stood all the day at almost the same spot. They could not speak with the others around except in the official breaks. There were a lot of smoke from the welding. At the same time the work was for semi-skilled persons with often courses on several months for to handle the special welding seams for instance.

Another area without the success for group work was at the warehouse. It was situated apart from the production area, covered a large area, the employees had the lowest educational level at the plant at all and it had a rather strong foreman (he was the only non-coach at the plant). The employees moved around each other in the large area on their fork-lifts but in reality they didn't worked together very much. It was more jobs for each single person that got the printed instruction with a list over numbers and product codes and after this they moved around picking the exhaust systems from the shelves.

Can we say that it is a failure when a strong group work didn't was introduces all over the plant. Well. My point of view is nearest to say that the use of work groups is a rather optimal way of organize the work under some special technical and managerial situations. At other areas with other situations the more single (and probably independent) way of work is more suited.

From an over all view this situation is not perfect. The managers and the senior shop steward at a plant wants to have rather homogeneous solutions all over the plant.



Welders worked almost all the day alone. The idea of self-managing work groups were not for them.

Different rules and agreements for instance around the very impressionable wage arrangements is difficult to administer.

CONCLUSION

This case study has shown that even when the managers want to introduce work groups, well functioning groups cannot be implemented without the fulfilment of certain conditions. Some of the conclusions from the study are:

- A strong international competition should force the managers to fine tune the management system through the necessary many years costly expenses
- New techniques for rationalisation as for instance the use of robots force the workers to deliver products of a more regular quality
- All the employees had to have a rather high level of competences to handle a rather complicated system that the self-managing work teams are
- Highest quality with the lowest contribution of manpower can be made through self-managing work teams
- Some techniques and work routines are suited to be handled by work teams while others are not

The last conclusion has the consequence that a common managerial system for a whole plant can be difficult to implement.

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