

Quality Management in Europe

(A report from Christian Edler)

Seminar in Linköping

Christian Edler, a student of process engineering and management at the Technological University in Graz, took part in the last of the 5 seminars in Linköping, Sweden. This report should give some information on what was going on there, as well as on the studies in Sweden.

ESTIEM: TQM-vision-project

ESTIEM, the association of European Students of Industrial Engineering and Management, is currently carrying out a project, dealing with Quality Management in Europe and the rest of the industrialised world. During the first step, some 200 students and company representatives attended seminars on quality management in Darmstadt, Hamburg, Berlin, Eindhoven and Linköping.

The following paragraphs give a part of the information presented at the QM-seminar in Linköping.

Winner of the Swedish Quality Award 1992 (IBM Järfälla)

In 1992, IBM Järfälla was awarded the Swedish Quality Price. This award is based on the same principle as the US-Malcolm Baldrige Award and evaluates for example customer focus, efficiency in all company functions, the improvement process, and the management commitment.

IBM has implemented a programme called MDQ, which stands for Market Driven Quality. The four main principles are presented in figure 1.

Fig. 1: IBM's MDQ-Principles

- Customer is the final arbiter
- Understand our markets
- Commit to leadership in markets we choose to serve
- Excellent in execution across all IBM-functions

The programme includes several MDQ-Initiatives, established by the management to successfully face the challenges of their market (see figure 2).

Fig. 2: IBM's MDQ-Initiatives

- define market needs
- eliminate defects
- reduce total cycle time
- make the employees participate
- carry out measurements
- focus on process management

During a visit of the Estiem students in Järfälla near Stockholm, the managers focused especially on their commitment to process management. In order to reach quality improvement as well as cycle time reduction, they divide their whole business in five "main processes" and four "support processes" (see illustration 3). For each process, IBM applies their basic concept of process management, given in illustration 4. Figure 5 gives the base concept applied to reach continuous improvement.

Fig. 3: Main and support processes

MAIN PROCESSES:

- management systems
- product & process introduction
- logistics
- production
- business planning

SUPPORT PROCESSES:

- Finance
- information systems
- personal
- site support

Process management at ABB

The essential organisational point today is the focus on (dynamic) processes rather than on a (static) structure. As Göran Björving of ABB put it: Yes, we still do

have an organigramme, but it is not of big importance in our daily work. There, we rather look at the processes. The structure defined in the organigramme is mainly used when it comes to budgeting, for demands to go on holiday, or for education of the employees.

Doing it better

In the end of the eighties, ABB asked their customers what they thought of their products and their services. The positive part of that answer was that the customers were very satisfied with the ABB-products, "once we have them, they work for years without a problem, but often, we have to wait quite a long time until we get them." An analysis showed that in some cases, more than 30 percent of the goods did not arrive at the time they should.

T50 Program

In order to become better, ABB started the T50 program. T50 meant reducing the total cycle time by 50 percent within about 3 years. The components of the program were, beside cycle time reduction, decentralisation, competence development and customer focus.

ABB's Göran Björving told us they had one process that lasted more than eighty days when the program started. The manager responsible for it made a first analysis which convinced him: "It is impossible to do the process in less than 65 days." The actual result of the first step made was astonishing: The whole process was accomplished in 38 days! Today, it takes 12 days, and the manager (still the same) thinks they could

Fig. 4: Basic concept of process management

- identify the customer
- fix the ownership
- map the process
- establish measurements
- define goals
- perform benchmarking
- exploit feed back

even manage to do it within 6 days.

In most cases, it is due to elimination of non-value-add-time such as safety buffers and waiting time that reductions of that extend are reached.

Defect elimination

Besides problems concerning time, ABB had countless "technical problems". To give an example, at a point more than 30 percent of electric motors assembled had a wrong number of windings, causing expensive rework. For a long time, this was accepted as a fact that cannot be changed. But when the employees dealing with the process started to carry out systematic problem analysis, ABB finally succeeded to produce one hundred percent of motors with the right number of windings. Now they know that they can do it at a zero defect level, so if a problem occurs, they immediately start to look for the causes in order to eliminate them.

TQM at ABB

What ABB today wants to say when they talk about TQM is to engage all employees in a continuous measurable improvement of all processes in order to satisfy – or rather exceed – what the customer expects.

Volvo's experience with improvement work

Thomas Mörk, an engineer of the quality department, presented an impressive case study about the experiences made by Volvo with the continuous improvement process at the car plant at Uddevalla. This was one of the plants where Volvo started to assemble cars in team work, instead of doing it at an assembly line. When this way of building cars was introduced, there was urgent necessity at the new sites to improve both in quality and productivity, in order to become competitive within the company.

The systematic improvement process started when Thomas went down to the shop floor, asking one of the workers if he could watch him doing his job. After having looked at what was going on for some minutes, Thomas asked the man if it was not more convenient to make a little change in the placement of his equipment. The worker agreed and maintained that they had talked about it

a long time ago. "But you (Thomas) and your quality department introduced to much bureaucracy. We would have to fill in forms to get someone of the maintenance department down here. This would take some weeks, so we won't do it." Thomas, ignoring for a minute the regulations established by his department, called a guy from the maintenance department, and they implemented the idea. Several other modifications followed, making the worker quite happy with the improvements accomplished at his place. His colleagues, however, started to be a bit jealous. They saw countless possibilities to do it better on their working place, so why hasn't Thomas started at their place.

The final result of activities like these was remarkable. They had succeeded in Uddevalla to be better in quality and almost as good in productivity, compared to the old assembly-line-plants of Volvo.

What can be learned from this seems quite simple: Go to the place where the work is done, look for possibilities to do it better, and finally, but most important, do it, don't just talk about it.

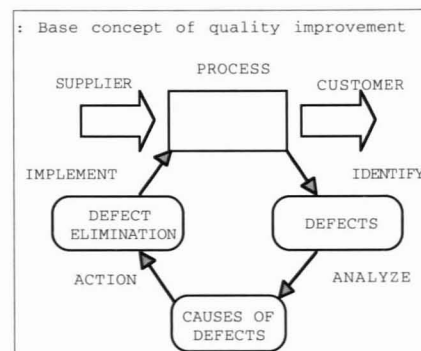
ISO 9000-level

It was a bit striking that at least the companies we saw do not discuss the ISO 9000 norms. Fulfilling them is rather seen as a prerequisite for modern management, but does not at all satisfy the needs of our time. The level reached when fulfilling what is demanded by ISO 9001 was expressed by one of the IBM managers in Järfälla: This corresponds to getting about 300 out of 1000 points which are the maximum for the Malcolm Baldrige Award, and thirty percent of excellence is not really much.

In Austria, we should be aware of the fact that a ISO-9000 certificate is neither a guarantee for customer satisfaction nor for the success of a company. It is rather a confirmation that the companies activities are carried out in an (at least tolerably) organised manner.

Education in QM at the university

Is the education at the University of Technology in Graz an adequate preparation to deal with quality management in industry? Compared to Linköping, where a elective course of 236 hours of quality management and methodology is offered, we hear quite little of the sub-



ject in Graz. But if we take into account that quality management is "normal" management with focus on the customer, on efficiency and on continuous improvement, I would say that the industrial engineers in Graz are well-trained. I could identify, however, some points where we can do better. It would be advantageous to include something about the "management tools" (affinity, diagram, relations diagram, the tree diagram, the arrow diagram, etc.) in our studies, as well as something about process optimisation, design of experiments and data analysis. The usefulness of these tools were shown on the third day of the seminar in Linköping, when the students had to carry out an exercise with the Affinity Diagram. This is a powerful tool, helping to find answers to such questions as "What could prevent a company from achieving stunning results in improvement work?", or "What prevents us from saving time in our meetings?"

Study-tour to the Far East and the US

One purpose of the QM-seminars was to prepare a group of students for the second part of the TQM-vision project: a study tour of one month to East Asia and the United States, where some forty Estiem-students visit world renown companies, such as Sony and Toyota in Nagoya, Nissan in Ohta, Minolta in Osaka, Hewlett-Packard in Cupertino, and IBM in Rochester. The results of the study tour will be presented in an TQM-Report which will be available at the end of this year