

# **IMPLEMENTATION OF QUALITY MANAGEMENT SYSTEM ACCORDING TO ISO 9001 AT VSB – TECHNICAL UNIVERSITY OF OSTRAVA.**

Milan Hutýra, quality manager,  
VSB – Technical University of Ostrava, Czech Republic,  
e-mail: [milan.hutyra@vsb.cz](mailto:milan.hutyra@vsb.cz)

## **ABSTRACT**

*The contribution describes the way of implementation of Quality Management System (QMS) according to ISO 9001 standard at VŠB – Technical University of Ostrava and the first practical experiences with its use. The effect of adopting ISO 9000 approach on quality of final products of university was not fully evaluate till date, but significant improvement of university culture was recognized.*

**KEYWORDS:** quality management system, university, faculty

## **1. INTRODUCTION**

Czech universities passed during last decade the array of important changes connected both with change of political orientation and with convergence to principles and legislation of EU. Many things have changed - the goals, the sources, the requirements and the conditions. The present management systems of universities do not reflect these changes, still utilise the traditional principles and are deficient of any element of modern management.

The management of universities is being based on principles of “common law” that in the most cases don't correlate with actual requirements of dynamically developed society. Many problems and nearly standard situations are solved by ad hoc way. In many cases there are not clearly defined responsibilities and authorities. The management systems are without desired level of transparency and formalization.

Currently the universities are situated at competitive environment. It is the principal reason why they have to identify as the organisations providing the services that satisfy their customers. To lead and operate an organization successfully, it is necessary to manage it in a systematic and visible manner. The implementation of quality management system (QMS), as inherent part of university management, is the way how to reach this aim.

The new management of VSB – Technical University of Ostrava, after their election and appointment in first half of 2003, decided to implement QMS into university management. The existence of the explicit defined guidance, which was successfully multiple verified in the industry, led to the decision to implement QMS according to ISO 9000 series. There are no principal reasons why the benefits of implementation of QMS in the industry would differ in the case of the university. The decision was supported by existence of ISO 9001 registration. The ISO 9001 certificate is outstanding supporting material. It is the evidence that proclaims the university is properly managed, the needs of their customers are identified and the environment to satisfy them is established.

## **2. VSB – TECHNICAL UNIVERSITY OF OSTRAVA.**

More than 150 years history of VSB - Technical University of Ostrava is closely connected with the development of mining and metal extraction, which was the oldest industry in the Austro-Hungarian Empire. That is why the Emperor František Josef I. decreed (1849) that a mining vocational school be set up in Příbram for the northern countries, and another in

Leoben for the southern countries of the Empire. In 1904 the Příbram Academy was given the status of the University - Vysoká škola báňská (VSB). The President of the Czechoslovakia, E. Beneš, issued a decree no. 49, on 8th September 1945 by which the university was transferred from Příbram to Ostrava. This ended the history of Příbram and opened a new era in the history of the university in Ostrava, the centre of a widespread chemistry, heavy engineering and mining region.

The 17th November 1989 was the historic event in the life of Czech universities and the whole society. The significant changes have been made in VSB – Technical University of Ostrava (VSB -TUO). The reorganisation of all the courses and the new provision of modern branches of study transferred VSB –TUO to a modern polytechnic university.

VSB –TUO currently consists of seven faculties:

- Faculty of Economics,
- Faculty of Civil Engineering
- Faculty of Mechanical Engineering
- Faculty of Electrical Engineering and Computer Science
- Faculty of Mining and Geology
- Faculty of Metallurgy and Material Engineering
- Faculty of Safety Engineering.

There are more than 19 000 students in bachelor degree, master degree and doctoral degree programmes in daytime, distance and combined studies.

### **3. IMPLEMENTATION OF QUALITY MANAGEMENT SYSTEM AT VSB – TECHNICAL UNIVERSITY OF OSTRAVA.**

VSB-TUO is a huge institution with lot of various activities. The implementation of QMS in whole organisation simultaneously could be risky. The experiences from implementation of QMS in industry are not fully transmitted into university environment. It was the reason why we split the implementation of QMS into several stages. As the each faculty is relative autonomy part of university, the first stage (2004) was the implementation of QMS at selected faculty as the pilot project. The second stage (2005-2006) was the implementation of QMS at the next faculties with utilisation of the experiences from first stage. Final ongoing third stage (2007) is the implementation of QMS at the rest of faculties and at the administration and executive part of whole university.

The preparation phase (5 steps process):

1. The decision of top management about implementation of QMS as inherent part of management
2. The declaration of mission, vision and strategy (quality policy)
3. The definition of project team for implementation of QMS
4. The definition of terms
5. The reservation of sources (financial, HR, ...)

was followed by the implementation phase (7 steps process):

1. The training the staff about QMS
2. The implementation of process approach. It consist of:
  - a. Identification of processes and definition of the process map
  - b. Definition and documentation of processes
  - c. Definition of criteria for process performance assessment
3. The comparison of existing processes with ISO 9001 requirements

4. The implementation so far missing procedures (control of document, control of records, internal audits, control of nonconforming product, corrective actions, preventive actions)
5. The trial period
6. The improvement of existing processes based on evaluation of trial period
7. The certification of QMS.

Processes at the faculty level were divided into three basic groups:

- Customer related processes (education – bachelor, master and doctoral level, R&D activities, and cooperation with industry)
- Managing processes (strategy management of faculty, operational management of faculty, and source management)
- Supporting processes (support of education process, support of R&D, purchasing, control of information system.)

Facility management, finance management and HR management are ensured at university level.

The descriptions of all existing processes and implementations of ISO 9001 required procedures were followed by trial period. We evaluated the performance of each process through the defined process performance criteria. These process performance measurements were completed by customer satisfaction measurements. We evaluated the satisfaction of:

- students during their study at the university,
- students after some years of their professional career
- employers with graduate's skills
- industry partners

These measurements were, together with internal audits findings, the bases for analysis. The results of analysis defined area for improvement.

At the time when no major issues were identified during this review the certification body was asked for certification audit. The Faculty of Electrical Engineering and Computer Science passed successfully this certification audit and received ISO 9001 registration on November 2004 as the first faculty in Czech Republic - see Fig.1.

From management point of view the all faculties are doing the same work. They provide the university education, R&D and cooperation with industry. Of cause there are some differences caused by different orientation of faculties. The experiences from pilot project were used during implementation of QMS at next faculties.

Till the date (November 2006) all faculties of VSB – TUO received ISO 9001 registration.



Fig.1. The representative of VSB – TU Ostrava takes over the ISO 9001 certificate from deputy of ministry of education during the ceremonial evening hold at Prague Castle, as part of European Quality Week in Czech Republic.

There are different processes at university level. The main difference is that the faculties are looked as the internal customers of university. It means the university supports the faculties. The main, customer orientated processes from the point of view of university, are processes of source management:

- finance management
- facility management
- HR management
- IT management

These source management processes are executed and controlled by force of strategic management and operational management processes.

#### **4. BENEFITS OF IMPLEMENTING QMS IN THE UNIVERSITY**

The time from the beginning of implementation QMS at VSB – TUO is rather short to fully evaluate the effect of adopting ISO 9000 approach on the quality of university products. However we recognize the improvement of university culture in areas:

➤ **Increased level of managing processes in the university**

It is the main asset. In the past the most of standard situation were solved ad-hoc. QMS defines the accurate rules.

➤ **Better set-up of activities inside the university, accurate definition of authority and responsibility**

The process approach enables to define the activities and their relation inside university with corresponded authority and responsibility in the simple way

➤ **Forcing the university to identify and satisfy the actual needs and expectation of their customers**

In some situations in the past the university offers what their staff recognised important. Actual needs and expectation of their customer could be different. QMS forces the university to identify and satisfy the actual needs of their customers.

➤ **Saving of operating expenses**

The proper set-up of activities inside the university together with accurate definition of authority and responsibility leads to elimination of wasted effort and it brings saving of operating expenses

➤ **Improvement of the educational processes**

The identification of actual needs and expectation of university customers, evaluation of customer satisfaction, better set-up of activities inside the university leads to improvement of the educational process.

➤ **Improvement of competitive ability of university**

ISO 9000 registration is a competitive advantage. It is the evidence the university is properly managed, the needs of their customers are identified and the environment to satisfy them is established.

➤ **Increased proactive behaviour of employees**

The existence of defined procedures for problem solving (control of nonconforming product, corrective action, and preventive action) and tools for independent assessment of any designed process or activity (internal audit) leads the employees to proactive behaviour.

The method we would like to use for evaluation of all effects of adopting ISO 9000 in the university is self-assessment according to EFQM Model Excellence. We have started this procedure at one of certified faculties (Faculty of Mechanical Engineering) as the pilot project. After evaluation we suppose the dissemination at all parts of university

## **5. EXPERIENCES FROM IMPLEMENTATION OF QMS**

Firstly, the decision to implement QMS into university management is the strategic decision. It is the change of university management. Such the change **has to be leaded by the top management of the university**. Without his active approach the proper functionality of implemented QMS could not be reached.

Secondly, **the internal audits were found as the very effective tool**. Not only as the tool for identification of issues (nonconformities) and possibilities for improvement, but also as the means which helps to the dissemination of information and awareness about QMS both at faculty and university level. Internal auditors act the role of promoters. They spread the best practices in the informal way from audited area to the departments they come from. It is probably the best way how to involve the abilities of people at all level to be used for organisation's benefit.

## **6. FINAL REMARK**

The implemented QMS brings the benefits both to customers of the university (students, employers, society) and to university itself. It is the reason why we started this process at VSB – Technical University of Ostrava. The implementation of QMS according to ISO 9000 series is looked as the starting point. The further development will be directed to reach the Excellence in the sense of EFQM Model Excellence.