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QUALITY MANAGEMENT IN UNIVERSITY EDUCATION PROCESS

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ABSTRACT

In my contribution possible implementation of quality management trends in education process at the Faculty of Civil Engineering of the Slovak University of Technology (SUT) in Bratislava (Slovakia) is described. Quality of education process depends on many important factors, like high qualification of teachers, good infrastructure concerning the education, library with new books and journals from all over the world, effective university information system etc. In the process of continual increasing the quality of education process we can implement quality management system according to ISO 98001:2008, total quality management, reengineering, Kaizen method and model of excellence CAF (Common assessment framework). Implementation of these quality management philosophies at university education process can lead into increasing quality of teachers and our customers-students and through them to application of new world knowledge and experiences to practice. At contribution are presented some important documents like quality policy, map of quality assurance and monitoring of education process at university.

Keywords: Quality, management, education, process, university.

INTRODUCTION

Quality of education process depends on many important factors. The most serious of them is quality and qualification of university teachers and researches responsible for quality of pedagogical process. Five years ago the rector of Slovak University of Technology in Bratislava decided to develop and implement new quality management trends in university and in all its faculties. Pedagogical process at university is the most important activity, because the students are our main customers and our main objective is to offer them the best information and knowledge, which help them to find fulfillment in practice after finishing university study. To reach this aim it requires to implement many other qualitative factors described at this contribution. I cooperated at this process at university and tried to implement the best features of more quality management approaches and philosophies with aim to find the best solution concerning the increasing of pedagogical process quality at university.

QUALITY VISION AND POLICY

The first important quality document for university students and employees is *Quality vision and policy,* which reflects overall intentions and direction of an organization related to quality expressed by top management of university (ISO 9000: 2005). Top management of university and its faculties shall ensure that the quality vision and policy: is appropriate to the purpose of the organization, include a commitment to comply with requirement and continually improve the effectiveness of the quality management system, provide a framework for establishing and reviewing quality objectives, is communicated and understood within the organization and is reviewed for continuing suitability (ISO 9001:2008). Quality vision and policy of SUT is initiated in figure 1.

QUALITY VISION AND POLICY
(Pedagogical process)

Top management of Slovak University of Technology (SUT) in Bratislava consider the development and implementation of quality management system according to ISO 9001:2008 and other quality management world trends (especially model CA - Common Assessment Framework) in pedagogical process and other related processes at SUT as a key priority connected with increasing requirements of society into quality and professionalism of our graduates.

Top management of SUT has commitment to fulfill expected requirements of society and university students concerning the quality of education process and continually improve the effectiveness of quality management system at university.

Basic principles of our vision and policy:
1. Creating work condition by top management of university, which will lead to university prosperity and significant position in Europe and world.
2. Assurance compatibility of education processes with top universities of Europe and world
3. Active involvement of all internal employees of university (pedagogues, researches) and external partners into increasing the quality of pedagogical process.
4. Continual improvement of university infrastructure with aim to create the best precondition of employee professional progress at all management levels.
5. Increasing of moral and professional potential of pedagogues and other employees of university with aim to deal with world knowledge to our customers in framework of accredited university field of studies and study programs.
6. Careful planning and actualization of study programs and content of study teaching subjects in harmony with new world knowledge and trends in area of science, technology and education.
7. Continual evaluation of feedback in pedagogical process with aims to improvement of university connection with practice and fulfillment the requirements of practice.
8. Effective communication and teamwork of university employees with aim to reach extra effects in area of education and research.
9. Motivation of university employees by top management of SUT and differential reward system according to reached results in education, research and other areas.
10. Increasing of university culture, economical prosperity of SUT and social approach of university top management into employees and students.

This quality vision and policy creates basic framework for each year quality objective determination in all faculties of SUT, which fulfillment is obligatory for all employees of university.

Top management of SUT wishes to all our employees a lot of energy and optimism during the process of quality policy and aims application and has commitment to create work conditions, which will lead to satisfaction of students, employees and to prosperity of our university.

In Bratislava Datum: Name and signature of SUT rector

Figure 1: Quality vision and policy at SUT

FACTORS INFLUENCING QUALITY OF PEDAGOGICAL PROCESS

The process of pedagogical process planning starts by proposal of study programs by guarantors approved by top management of faculties in framework of accredited fields of studies. Study programs are each year approved by scientific committee of SUT faculties and by academic senates of faculties. After this process study programs are publicized for teachers and students through Academic Information System (AIS) of faculties. On the faculty websites of SUT detailed information about all pedagogical system is given. Main responsibility for quality of pedagogical process has top management of faculty (dean of the faculty, vice-dean for education and guarantors of study programs). For quality of education process are responsible guarantor of study subjects, lecturer and heads of seminars. Important role during the pedagogical process planning and realization have pedagogical council, the members of which are guarantors of key subjects of study program. This council is responsible for quality evaluation of pedagogical process and its quality improvement. The council is open for students, teachers and practice and requirements of this people implements into increasing the quality of study programs, teaching plans and revision of study literature.
Communication between students and faculty management is realized by meetings with dean, vice-deans, and guarantors of study programs. Students have representing persons in academic senate and council of dean. Once a year we have meeting of all academic community, where are questions concerning the quality of pedagogical process analyzed. Factors influencing the quality of pedagogical process are illustrated in figure 2, where are described key activities of this process and responsibility of faculty management.

QUALITY EVALUATION SYSTEM OF PEDAGOGICAL PROCES

Basic activities concerning the quality monitoring and evaluation of pedagogical process are illustrated in figure 2. Final responsibility for quality of pedagogical process has dean of the faculty. Dean delegates this responsibility into vice dean for education process and especially into guarantors of study programs. This top management of faculty is responsible for:

- accessibility of all information concerning the pedagogical process for teachers and students of all degrees (bachelors, masters, PhD.)
- timely approval and publication of study programs,
- timely assurance of schedule for students and teachers,
- function and readability of academic information system (AIS) for students and teachers,
- assurance of modern didactic technique for pedagogical process in teaching rooms and laboratories (personal computers, data projectors, video projection, laboratory instruments and equipment etc.),
- accessibility and actualization of software using during pedagogical process,
- yearly evaluation and measurement quality of pedagogical process.

Very important factor of pedagogical process evaluation represent results of teachers quality evaluation by students through academic information system by form of anonym questionnaire, where each lecturer and head of seminar can find after finishing the semester evaluation of his or her pedagogical work. This information has also guarantor of study program and in case of bad teacher evaluation guarantor must prepare corrective and preventive actions for future activity of pedagogue. Guarantors of study programs and study subjects have responsibility for checking the quality of pedagogical process by form of inspection of lectures and seminars. Monitoring of pedagogical process quality involves these activities:

- input quality control of subject syllabus, teaching literature, didactic technique and professionalism of teachers,
- continuous quality control of pedagogical process by inspection of lectures and seminars quality level, quality of documents and necessary records etc.,

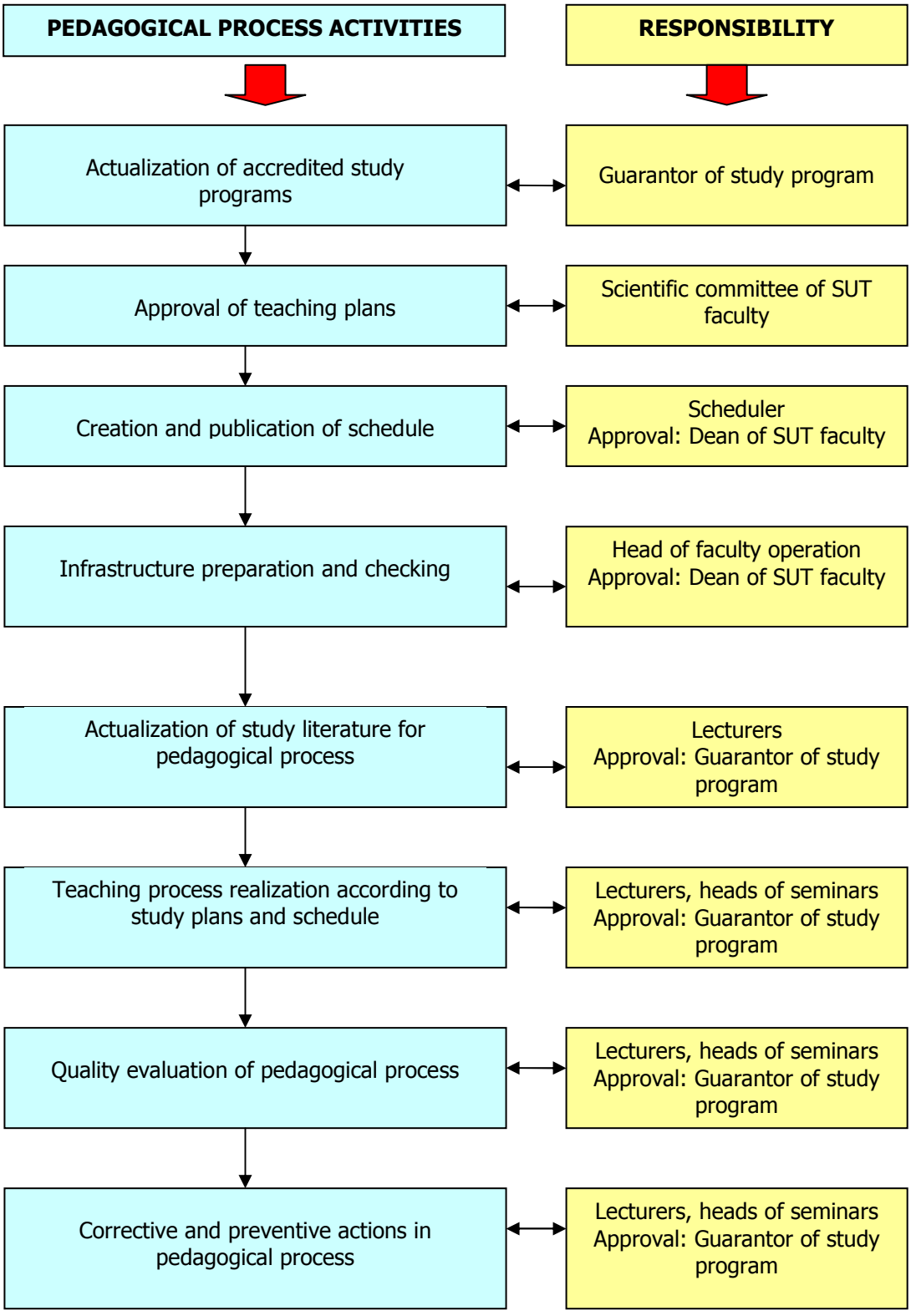

Figure 2: Structure of pedagogical process activities

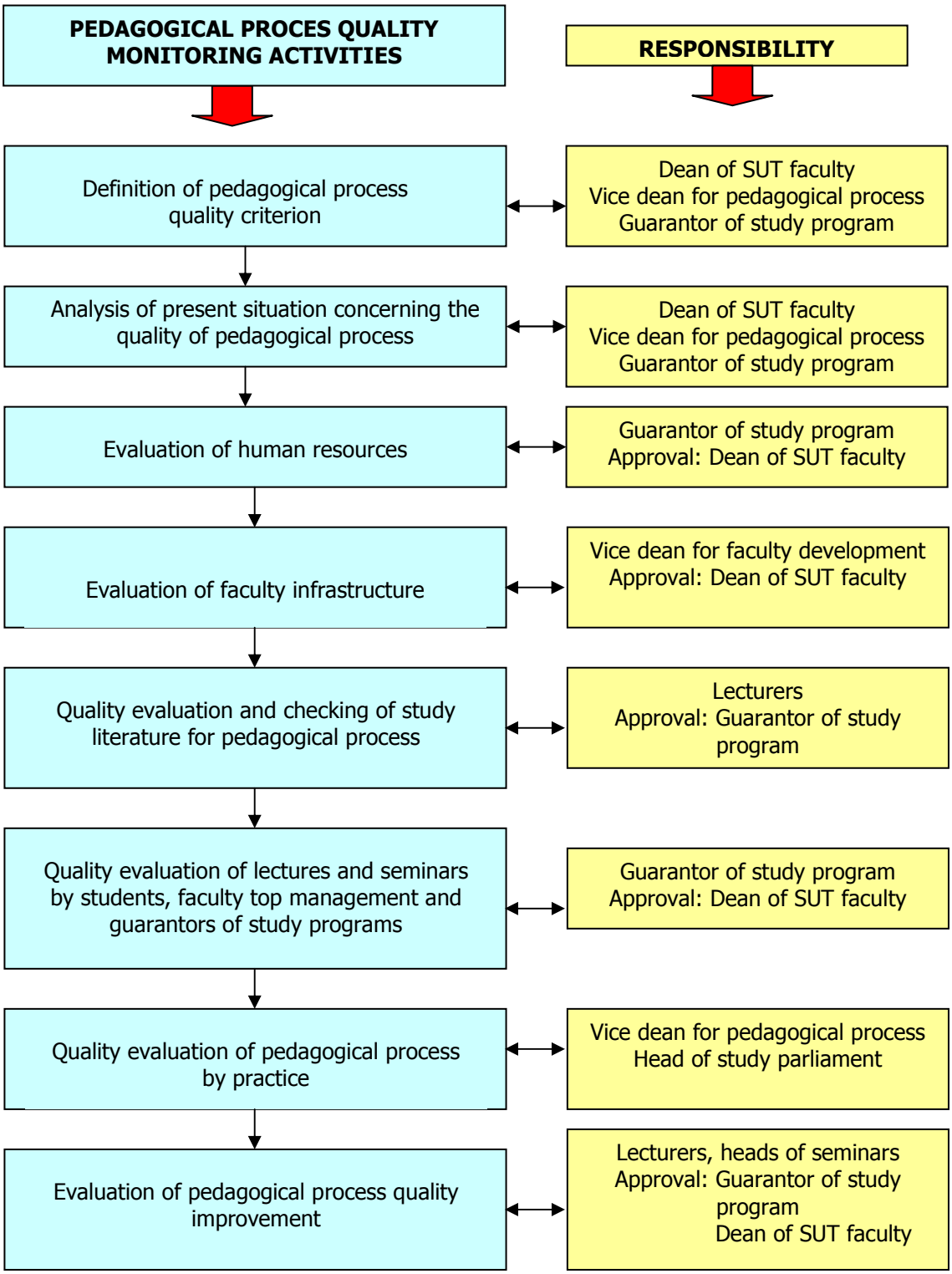

Figure 3: Quality evaluation of pedagogical process at SUT

- output quality control of pedagogical process concerning the knowledge of students (successfully finishing of study, study results), their adaptability in practice, evaluation of our students by external companies etc.

HIGHER LEVELS OF QUALITY MANAGEMENT IN PEDAGOGICAL PROCESS

With aim to continually increase the quality of pedagogical process I can advise several methods of quality management, especially methods of Total Quality management (TQM), KAIZEN, REENGINEERING and model of excellence CAF (Common assessment framework).
Total Quality Management (TQM) is approach of company management focused on quality, which is based on the participation of all its members and aiming at:

- long-term success achieved through satisfied customer,
- prosperity of the organization as a whole,
- benefit of all members of the organization.

TQM demands changes of attitudes and behavior of the employees of the organization in relation to customers (internal and external) and fulfilling of their duties in a controlled and coordinated manner (Paulová, Hekelová, Šatanová and Šalgovičová, 2008).

Effects of TQM implementation can be direct (minimization of pedagogical problems and complaints) and indirect (growth of consumer confidence to university, detection of hidden abilities of teachers, increasing of university culture).

Basic steps for TQM development and applying:

- Understanding the importance and commitment of an organization to apply TQM in practice.
- Create organizational preconditions for TQM.
- Plan and application of effective Quality Management System (QMS) according to ISO 9001:2008 and ISO 9004:2009.
- Education of employees (lecturers, head of seminars, researches).
- Effective communication and teamwork between faculty departments.
- Motivation and reward of employees for achieved results.
- Continuous quality improvement at all departments of organization (Oakland, 2003).

Method of KAIZEN is method of continuous quality improvement based on the creative thinking of employees developed in Japan (KAI – improvement of processes, procedures, services, ZEN – continuous process refers to everyone).

The aim of KAIZEN method at university is continuous improving quality of teaching services for students, improvement of all processes in the value chain of teaching activities, effective using of university costs, mass initiative of all employees (teachers, researches, administrative staff etc.), effective motivation system, orientation on staff and increasing their performance and teaching activities, staff are holders and co-creators of university image.

Principles and methods of KAIZEN are similar to TQM philosophy:

- focusing on customers (students),
- application of TQM philosophy,
- quality circles (teachers, students),
- discipline during pedagogical process (teachers and students),
- continuous quality improvement of education process,

- effective cooperation between departments of faculty.

Method of KAIZEN requires to pay attention to any improvement of teaching services and participation of all university employees in improving processes and services. Any improvement is analyzed and the positive and negative impacts are examined. Basic management tasks are: creating and improving standards, frequent meetings to solve problems, strong support from top management, active work from bottom, motivation for improvement efforts and reward for creativity.

Reengineering is philosophy (developed by Hammer and Champy, 1993) based on fundamental rethinking and radical redesign of organization processes to achieve dramatic improvements in critical measures of performance such as quality level, cost and time. Reengineering was successfully implemented especially in production and service companies, but this philosophy can be implemented also at universities. The aim of this philosophy is finding new ways for maximal effects of offered services. Especially in university teachers must do a lot of administrative works instead of effective time using in pedagogical and research areas. Basic principles of reengineering are:

- effort to make headway,
- creativity of employees, especially teachers during the pedagogical process planning and realization,
- willingness to learn,
- effective communication and teamwork of all employees,
- monitoring and implementing of world trends concerning the education and research catching,
- application of information technology at university in education, research and administrative process.

The Common Assessment Framework (CAF) is total quality management tool inspired by the Excellence Model of the European Foundation for Quality Management (EFQM) and by the Model of the German Speyer Academy. The CAF model is provided to European public sector organizations as a simple tool to amply management techniques aimed at performance improvement. The CAF model is based on the assumption that organizations achieve extraordinary results in performance in relation to citizens/customers, employees and society on the basis of leadership, strategy and planning, employees, partnerships and processes. It provides a view of the organization from different angles and at the same time, it holistically analyses the performance of organization.

The CAF model has the following main aims:

- Introducing the principles of TQM into public administration, lead organizations methodically while understanding and applying self-assessment in the phase of transfer from a planning and performance system to a fully integrated PDCA cycle (PLAN-DO-CHECK-ACT) developed by Deming.
- Support self-assessment of public sector organizations in order to obtain a structured picture of the organization and subsequently, ideas for improvement activities.
- Serve as a bridge between various models used in quality management.
- Support bench learning between public sector organizations (Organization Excellence, 2009).

The structure of nine areas (figure 4) determines the main aspects requiring attention during any analysis of an organization. Criteria 1-5 relate to preconditions characteristics of the organization. These determine what the organization does and how it approaches its tasks in order to achieve the desired results. Within criteria 6-9, results achieved in relation to citizens/customers, employees and society are measured. Key performance results are evaluated using measurement and evaluation of internal indicators. Each criterion is divided into sub-criteria. The 28 sub-criteria define the main areas that must be considered during organizational self-assessment. Organizations with more than 70% points can participate on the competition for the National Quality Award.

Model CAF is useful to implement after development and implementation of Quality Management System (QMS) according to ISO 9001:2008. QMS represents very good basis for application of higher quality

management philosophy, like TQM, KAIZEN, reengineering and model CAF. Faculty of material engineering of SUT were in year 2009 in final step of the National Quality Award concerning the implementation of model CAF in Slovakia. My organization CEMAKS (Quality Management Centre in Construction), which is holder of QMS certificate according to ISO 9001:2008, uses model CAF as a tool for continuous improvement of quality products and services.

It is not important, which quality management philosophy at university will be implemented. The main activities must be focused into our customers-students and society, where our graduates will later work. University must involve all employees into process of quality improvement of all activities, especially education process, because by this process direct influences the quality of our graduates.

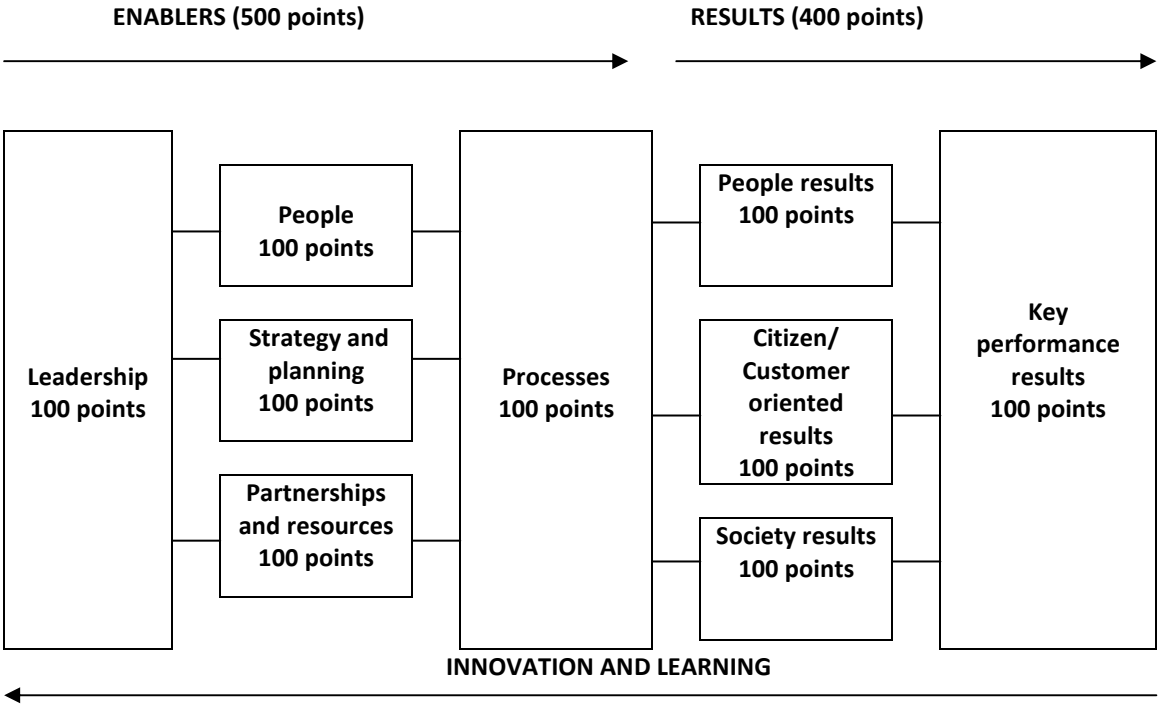

Figure 4: CAF Model Structure

CONCLUSION

In my contribution knowledge concerning the implementation of Quality Management System in education process at the Faculty of Civil Engineering of the Slovak University of Technology in Bratislava has been described. All quality factors analyzed in contribution helped us to increase quality of education. At this time we try implement the best features of higher quality management philosophies, which principles are also described at last chapter. I believe that these experiences and knowledge can help other education institutions to develop and implement quality management approach, which will lead into satisfaction of students, teachers and all society.

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Jozef GAŠPARÍK is professor at the Faculty of Civil Engineering of Slovak University of Technology in Bratislava (Slovakia). At this time he is head of Department of Building Technology and guarantor of three study programmes: Building Technology and Management (bachelor degree), Building Technology (Master and PhD. Degree). He is founder and director of Quality Management Centre in Construction (CEMAKS). CEMAKS is a company with many years of experience in the field of quality management training and consultancy. Since 1996 this organization prepared more than 130 organizations to successfully obtain the certificate of quality management systems according to ISO 9001 and integrated management system (quality, environment, health protection and safety). CEMAKS was the first training centre in Slovakia certified in Quality Management System according to ISO 9001. This certificate was given by Bureau Veritas based in London. In 1991-92 worked at University of Brescia in Italy. In past years he was a responsible solver of three successfully completed scientific domestic research projects focused on quality area and in 1998-2004 was a coordinator of two successfully completed international Leonardo da Vinci projects focused on social aspect of quality management. Research results were presented at conferences and workshops in Italy, Portugal, Belgium, France, Spain, Greece, Turkey, Egypt, Croatia, Cyprus, Czech Republic and Poland.

Author is a member of executive of International Association on Automation and Robotics in Construction (IAARC). He won National Quality Award of the Slovak Republic for journalism in quality management field in 2008 and he was awarded as a professor of a year 2009 at the Faculty of Civil Engineering.

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