

STUDY OF QMS MODELS AND THEIR DEVELOPMENT IN LITHUANIAN UNIVERSITIES

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Abstract: The paper is based on theoretical and practical research of quality management systems (QMS) implementation in higher education institutions (HEI's). Experience of European universities was summarized and possible developments for Lithuanian HEI's are predicted. Comparative analysis of three different QMS models and requirements, including ISO 9001, standards and guidelines for quality assurance in the European higher education area, and EFQM (EQUIS) Excellence model is presented. Main aspects of effective QMS implementation in universities were highlighted.

Key words: quality management systems, higher education, effective QMS implementation in universities.

Introduction

European universities make huge efforts to improve study quality, effectiveness and efficiency, by creating and implementing quality management systems (QMS) and models. Vilnius University (VU) top management prepared a long term strategy, which includes the implementation and improvement of QMS among top three priorities.

The faculty of Economics adopted and rolled – down the targets of VU strategy implementation, started monitoring, that includes analysis of internal indicators and evaluation of interested parties.

Fast growing Lithuanian economy raises high requirements and demands for higher education institutions (HEI). Democratization and citizenship of students helps to push processes and resources (especially academic staff) towards better quality. But not everything goes as it should in order to meet demands of economy and society: the formation of “critical mass” – the number of academic staff who are able to take challenges of new developments; the hesitation to choose right direction and dynamics of changes.

The *purpose* of the paper is to make comparative analysis of QMS standards and models that are prepared by different universities and their associations, to reveal their integration and disparities.

Methodology: The paper is prepared using scientific and methodical literature, logical analysis of organization activities, documentation comparative analysis and case study methodology. The conclusions are based on the research as well as the experience of consultancy activities implementing, auditing and improving more than 130 (including 3 HEI's) in Lithuania.

QMS are based on the concept, that every consequence (effect) has it's own causes. Chances are only those effects that have undisclosed causes yet. Similar attitude and approach is applied in majority scientific research. There are tenth of scientific conferences and hundreds of articles written about quality in universities every year.

That shows exceptional importance of the topic. Standards and guidelines are developed aiming to sustain and continuously improve the quality of studies (Standards and guidelines, 2005). This paper reviews quality assurance Standards for European universities, quality assurance (QA) reports of outstanding universities, ISO 9001 requirements, EFQM model criteria, and other documents.

The Analysis of development of QMS models in European Universities

Quality assurance was one of the important factors of development of societies and culture, having it's history for thousand years. That is proved by remained architecture and arts, wonders of the world. Unfortunately only small bites of information about QMS applied in ancient times remained until now.

It is obvious, that to understand QMS as a set of documentation would be logical mistake (as it is widely spread opinion in Lithuania), because a majority of people were incapable to read by that time. Histories help to imagine, that core QA factors were high level of commitment, responsibility for result and quality culture. Examples are as follows: the quality of the newly erected bridge was tested by marching soldiers, and architects and other responsible people were standing under it; after completion of the ship among the first travelers were their authors and engineering staff (e.g. warship Vaza, cruiser Titanic, etc). The consequences of poor quality were disasters.

By the end of XIX century, and beginning of XXth QA initiatives were implemented in military, and lately - in space industries firstly. QA standards for all participating countries were created. These standards were adopted by other production industries, as a good QA practice. Since that time the paradigm has been that quality assurance (lately QMS) standards are applicable only in production organizations. Recently this paradigm could be easily overcome by practical implementation examples not only in leading EU countries, but in Lithuania as well. The active QMS development (using ISO 9001 QMS model) is obvious not only in private, but in public sector organizations as well, including universities and other HEI's.

There are different approaches to choose, develop and implement QMS models in universities. Some of them had chosen ISO 9001 QMS model. There are many HEI's in US and Europe that adopted and implemented such models: universities of Dortmund, Düsseldorf, Bonn, Münster, Köln, Bochum, Siegen, Bielefeld, Wuppertal, Paderborn Fernuni Hagen, Cambridge university departments, and other.

Italian scientists (Cellesi et al 2007), after investigation on QMS implementation in Italian universities, found, that:

- 64 universities out of 77 (83 % *from total number of Italian universities*), declared about starting of quality improvement programs;
- 49 universities apply a QMS model conforming ISO 9001:2000 requirements and according to TQM principles;
- 24 % of universities established a quality management department;
- those universities that had strong top management commitment to TQM principles, and development of quality culture took place, achieved planned results, and new initiatives were accepted positively;
- other universities, that implemented QMS because of external use, failed to complete the project within the planned time-frame, and did not achieve significant improvements.

The Faculty of Commodity sciences was among the first HEI in Poland that successfully implemented and achieved certification of ISO 9001 standard.

There are no ISO 9001 certified universities in Lithuania, other HEI certified their QMS: Vilnius College of Law and Business, quality systems are under completion in Vilnius College and Vilnius Cooperation College, and other. The tendencies to collaborate more with business organizations are noticed in those HEI'S who already have implemented QMS, as better understanding of demands of stakeholders comes by practicing quality management methods in organizations (Ruzevicius et al, 2007).

Other universities and organizations of people development applied principles and criterions of EFQM model, creating their own models and systems. Particular attention shall be paid to the process of QMS model creation and implementation. The process and sustainability of the result have direct cause and effect relations. Active participation of top decision makers is inevitable when promoting the culture of Total Quality Management (TQM). EFQM model development process, it's strengths and weaknesses are analyzed by one of the model's authors T.A.Conti (2007). The complete value of the model is fully realized only in those cases, when self – assessment, external evaluation and improvement actions are taken. The following human developing organizations could be mentioned:

Akademie der Polizei Baden-Württemberg, Fachbereich Führungstraining, Colegio Concertado Sagrado Corazon Jesuitas, Secondary School of Information Technology, Wheatfield Prison, Volkshochschule Herrenberg, Universitäre Psychiatrische Kliniken, Universidad de Sevilla, State University of Management, Institut für Qualitätsmanagement und Angewandte Betriebswirtschaft IQB-FHS, Yaroslavl State University¹.

Now a common QMS-standard model for European HEI's has been created (EQUIS), which in detail will be described in the next chapter.

EQUIS - the European Quality Improvement System for Universities

EQUIS is the leading international system of quality assessment, improvement, and accreditation of higher education institutions in management and business administration. The fundamental objective of EQUIS, linked to the mission of EFMD, is to raise the standard of management education worldwide. The key modules are shown in the next figure:

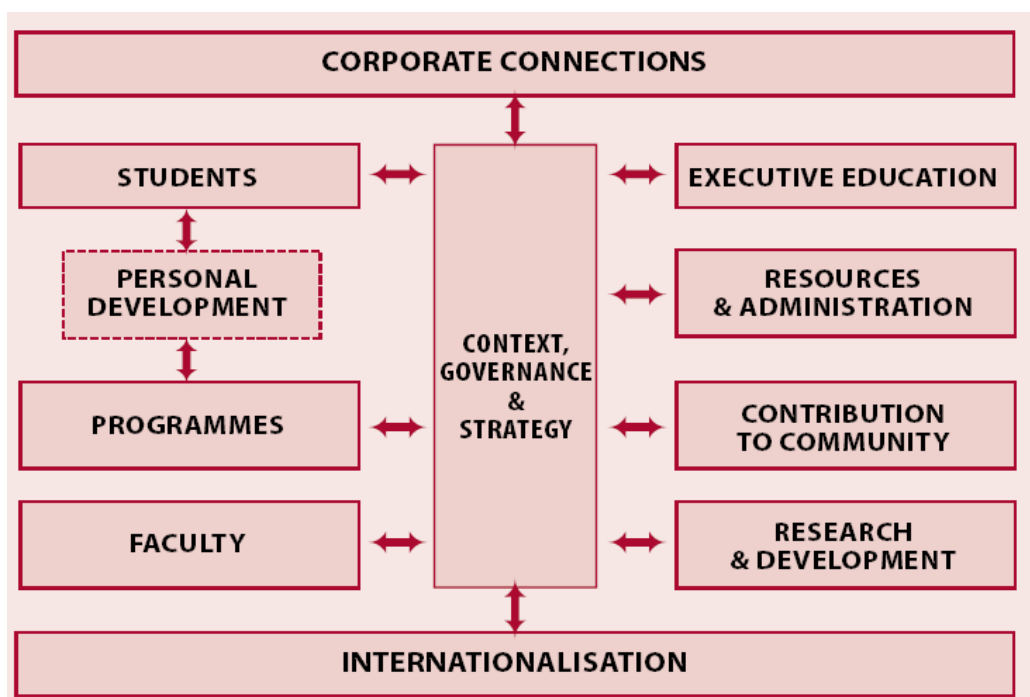


Fig.1: Context and strategy of EQUIS

Source: http://www.efmd.org/attachments//tmpl_1_art_041027xvpa_att_080122usnw.pdf

- EQUIS is not primarily focused on the MBA or any other specific programme. Its scope covers all programmes offered by an institution from the first degree up to the Ph.D.
- EQUIS has established its prestige and recognition worldwide. 108 institutions have been awarded EQUIS, with 32 countries represented among the accredited schools
- Institutions that are accredited by EQUIS must demonstrate not only high general quality in all dimensions of their activities, but also a high degree of internationalisation. With companies recruiting worldwide, with students choosing to get their education outside their home countries, and with schools building alliances across borders and continents, there is a rapidly growing need for them to be able to identify those institutions in other countries that deliver high quality education in international management.

¹ http://web-1.efqm.org/temp_efqm_full/wwwroot/levels/reco/orglist_cat_all.asp, read 2007 10 29

- EQUIS assesses institutions as a whole. It assesses not just degree programmes but all the activities and sub-units of the institution, including research, e-learning units, executive education provision and community outreach. Institutions must be primarily devoted to management education.
- EQUIS looks for a balance between high academic quality and the professional relevance provided by close interaction with the corporate world. A strong interface with the world of business is, therefore, as much a requirement as a strong research potential. EQUIS attaches particular importance to the creation of an effective learning environment that favours the development of students' managerial and entrepreneurial skills, and fosters their sense of global responsibility. It also looks for innovation in all respects, including programme design and pedagogy.
- EQUIS is supported by a broad international body of academics and professionals.

The practical steps for processing EQUIS are shown in Fig. 2:

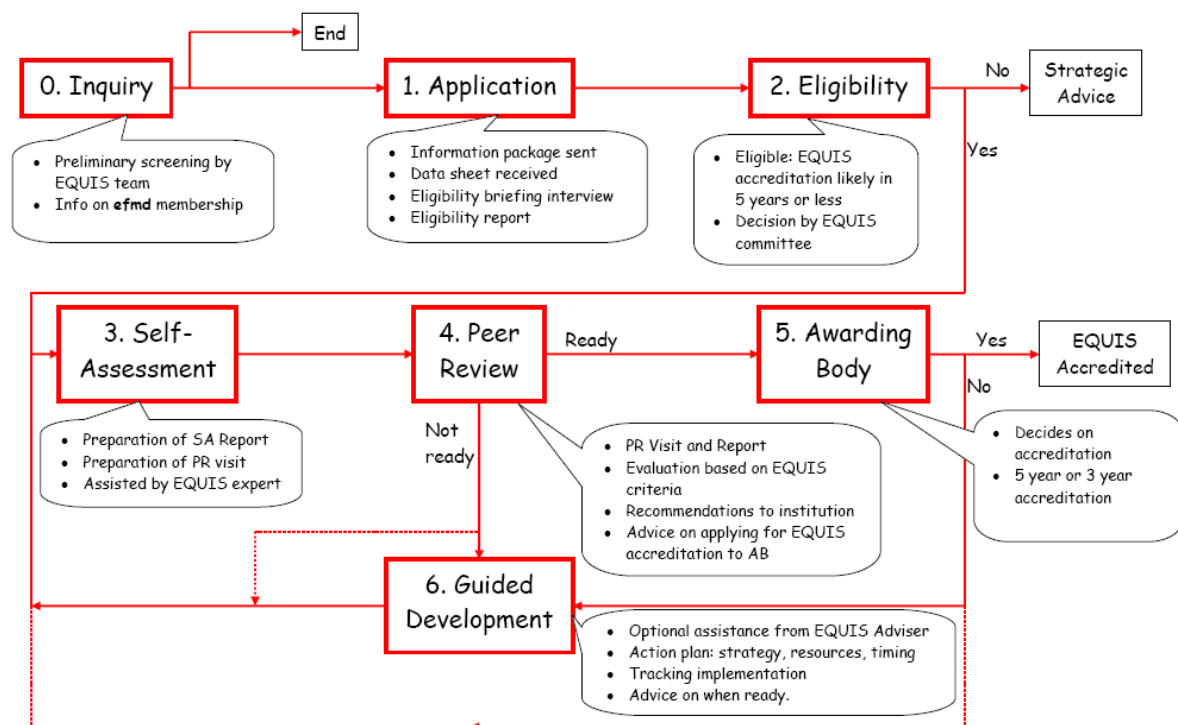


Fig.2: Procedure for the EQUIS Certification

Source: http://www.efmd.org/attachments/tmpl_1_art_041027xvpa_att_070205wupz.pdf

Costs for the Initial Accreditation amount to 7.800 €. Due 30 days after the Self-Assessment Report is sent to the EQUIS office, the final payments are 13.000 Euro, if accreditation is scheduled for 5 years and 7.800 € if accreditation is scheduled for 3 years.

EQUIS is a continuous process combining strategic institutional development, ongoing quality improvement, and progress towards accreditation. Accreditation, in the most favourable circumstances, may be achieved within approximately one year of application if the initial Peer Review reveals that the Institution satisfies all the criteria. The EQUIS accreditation process is composed of several distinct stages:

- preliminary inquiry,
- formal application,

- eligibility,
- self assessment,
- international peer review,
- awarding body decision.

Closely related programs to EQUIS are:

a) EFMD Programme Accreditation System (EPAS)

EPAS is the newly launched EFMD accreditation for international degree programmes in business and management. EPAS provides:

- international programme accreditation to make the global market for programmes more transparent to the benefit of prospective students, employers and national higher education regulation agencies
- an instrument for continuous quality improvement of programmes
- a service to EFMD members as a complement to the existing quality improvement system for whole institutions (EQUIS)
- another credible system designed and operated by EFMD which is recognised globally as having the status and experience for delivering quality improvement and assessment schemes

b) CEL accreditation: Programme accreditation for Technology-Enhanced Learning

The fundamental objective of the CEL programme is to raise the standard of technology-enhanced learning programmes worldwide. CEL is directed towards educational management programmes incorporating ITC-based learning.

EFMD CEL aims to facilitate standard setting, benchmarking, mutual learning, and the dissemination of good practice. It allows for different approaches and diversity in designing and implementing such programmes. EFMD CEL is directed towards educational management programmes incorporating ICT-based learning.

c) CLIP - Corporate Learning Improvement Process

CLIP is a mechanism for quality benchmarking, mutual learning and sharing of good practice. Companies are under growing pressure to manage their learning and people development processes strategically. Critical objectives include:

- Attracting and retaining the best managers,
- Nurturing tomorrow's leaders,
- Aligning strategy, competencies and behaviours,
- Disseminating knowledge and expertise throughout the organisation,
- Integrating the learning function into mainstream HR processes such as management development, talent management, succession planning, etc.,
- Shifting the emphasis from training to learning,
- Performance improvement.

To meet these challenges, the learning and training function in many firms has been re-engineered and hierarchically upgraded to achieve a central strategic role in the form of Corporate Universities, Corporate Business Schools, Academies, Management Institutes, and so on.

Comparative analysis of QMS requirements applicable to HEI's

After analysis of application of different QMS Standards in practice, the authors assume that it is possible to decide on the quality level achieved by an organization. As Lithuanian practice shows, those, who already certified their systems according ISO 9001, seek effectiveness and recognition by implementing other standards, related with their activities and environment. New initiatives rise quality "toll" up and provide organization and it's stakeholders with new challenges.

Two possible ways to improve quality are defined by quality gurus! First – to initiate a radical break through, second – consequently - increase quality (Juran, J.M., 1995). The selection of one of the ways is defined by an existing state of organization – when there is a gap between demands of stakeholders and organization performance within tolerance limits, then quality can be improved consequently.

Otherwise, when disparity of expectations and performance is too big, then radical changes shall be taken immediately. Authors make insight, that Lithuanian Universities and other HEI's can achieve quality improvement in three major steps: a) to achieve basic quality level by implementing ISO 9001 requirements; b) to implement European standards for HEI's; c) to implement TQM principles by making self- assessment, benchmarking and dissemination of best practices, using EFQM model criteria.

The Table below shows the integration between all three models.

Group	ISO 9001, SA 8000 a. o.	CEEMAN requirements	EFQM
Group of criteria	ISO 9001, SA 8000 and other requirements	European standard and guidelines for high education; CEEMAN requ.	European EFQM (EQUIS) excellence model criteria
<i>Leadership and management responsibility.</i>	ISO 9001, Chapter 5.1: Top management shall define its responsibility to: inform organization about customers needs; legal requirements; define and explain quality policy and targets; ensure adequate resources and to monitor effectiveness of QMS.	1.1. Organizations of high education shall demonstrate commitment to promote quality culture and assurance. Continuous improvement process shall be implemented. Policies, strategy and procedures shall be documented and available for society.	EFQM I. Leaders shall demonstrate and actively participate in implementation of TQM principles, to promote initiatives and efforts of people both organizations and other's stakeholders'.
Personnel management and competence requirements	ISO 9001, Chapter 6.2: People, who directly influence quality of processes shall be competent, properly trained in theory and in practice, and shall have proper skills and abilities.	1.4. Organizations shall have procedures that ensure competence of lecturers. If poor teachers are identified, they shall have opportunity to immediate corrective actions. If poor lecturing continues, then clear procedures shall be applied to suspend lecturing duties.	EFQM (EQUIS) III: The development and realization of people's potential: - organizing and control; - increasing of competence; - analysis and aligning individual and organization targets; - involvement of employees by developing dialogue and empowerment;

Group	ISO 9001, SA 8000 a. o.	CEEMAN requirements	EFQM
			<ul style="list-style-type: none"> - effective communication with employees; - caring for people.
Mission, vision, policy, strategy and goals	ISO 9001, p. 5.3: Top management shall ensure, that Quality policy (QP) is in line with organizations strategy; QP shall contain commitment to improve effectiveness and efficiency of QMS; QP shall provide guidance to establish targets; QP shall be explained throughout the organization and regularly reviewed for adequacy.	<p>1.1. chapter requirements are applicable, requiring to declare clear policy and it's implementation initiatives;</p> <p>CEEMAN accreditation requirements ask for clear Mission and Strategy of organization.</p>	EFQM (EQUIS)II: It requires gathering information relating to present and future needs of stakeholders; to develop and implement the strategy.
Resource management	ISO 9001, p. 6.1: Organization shall ensure resources needed to maintain effective and efficient QMS, at the same time to increase satisfaction of stakeholders.	<p>1.5. Resources available for the support of student learning shall be adequate and appropriate for each program level.</p> <p>1.6. Organizations shall ensure that they collect, analyze and use the relevant information for the effective management of their programs of study. CEEMAN establishes requirements for:</p> <ul style="list-style-type: none"> - faculties; - resources and supportive functions / processes; - applications of advanced technologies in learning process.. 	EFQM (EQUIS) IV criterion: Control of financial, informational, material, technological and other resources.
Process management and value added chain	ISO 9001, p. 7: Product realization. This chapter of the standard includes requirements for all main processes. It starts from providing information about study programs for potential students (e.g. giving promises), agreements between HEI's and their stakeholders, development of study programs, organizing of study process, evaluation of knowledge acquired, and	<p>1.2. Approval, monitoring and periodical evaluation of programs;</p> <p>1.3. Evaluations of students' knowledge;</p> <p>CEEMAN :</p> <ul style="list-style-type: none"> - Structure of study program and processes related with participants; - Development of new programs, innovations in transfer of knowledge; 	EFQM (EQUIS) V: <ul style="list-style-type: none"> - identification, design, control and improvement of key processes; - application of systematic approach in process management; - Planning and management of modernization and innovation..

Group	ISO 9001, SA 8000 a. o.	CEEMAN requirements	EFQM
	other processes that create knowledge and increase competences.	- Results of education, processes of the program evaluation;	
Customer satisfaction.	ISO 9001, p. 8.2.1. As a part of process measuring systems systematic surveys of stakeholders' opinions shall be implemented. Clear monitoring methods shall be established.	1.2. Monitoring system shall include regular feedback from potential employers, and other stakeholders; Students shall be involved in quality assurance activities.	Systematic research of clients needs; analysis of internal information to establish success of organization.
Personnel satisfaction	Personnel satisfaction increases when SA 8000 standard requirements are implemented.	There are no such requirements..	Research on satisfaction of personnel needs.
Satisfaction of society and others not directly involved in organization	There are no such requirements.	1.7. Organization shall make results available for public.	Research of satisfaction of society,
Activity results	There are no such requirements.	There are no such requirements.	Key performance indicators (KPI's) on main activities.

Table 1: Interrelations of requirements of QMS models, applicable for universities.

Source: Elaborated by the authors

The table clearly shows integration and disparity of QMS model requirements. ISO and SA requirements are not specified for HEI's, not covering needs of society in wider context. On the other hand some indicators of QMS performance could be related with meeting of society's demands. (Ruzevicius et al. 2006).

The table does not show all ISO 9001 standard requirements (e.g. internal quality auditing, continuous improvement, communication, defining of responsibilities, documentation control, etc.), because other QMS models do not highlight and specify so much. But this does not mean that these requirements can be excluded from university's QMS models. It is worth to mention those principles which are not covered in the table above, these are as follows:

- external parties shall be involved in QA process in order to achieve the transparency of the system;
- processes shall be developed so, that they would enable accountability to society, including the received value VS money spent;
- organizations shall demonstrate their quality not only locally, but internationally as well;
- processes shall not interfere innovations.

Many requirements in European standard and guides for HEI's are stricter and more specific than ISO 9001. Therefore it will be necessary to take more time and make more hard decisions for Lithuanian rectors and managers of HEI's.

The last column of the table defines criteria of the EFQM excellence model. These criteria better reflect TQM principles, and cover more areas of the organization.

General stages and principles of QMS implementation in HEI's

Implementation of any system has a certain sequence of activities. Particular sequence shall reduce barriers and improve effectiveness and efficiency of main university processes. One of the common QMS implementation sequences can be illustrated by Ostrava Technical University (Czech Republic). University's rector approved following stages:

- Starting of QMS implementation in one selected faculty, as a pilot project; lately this faculty was certified against ISO 9001:2000 in 2004;
- Following stage – QMS implementation in other faculties (2005-2006);
- Third stage included all university administrative departments and supportive functions (Hutyra, 2007).

Systematic cause-and-effect analysis shall be made during implementation of QMS. The Fish – bone diagram, as an internationally recognized method, originated by the Japanese scientist and practitioner Ishikawa, could be used. Main attention shall be shifted from effects to causes. Thorough analysis of causes and effects becomes cyclic, but not linear – e.g. in many cases results are as causes for the following results (as chess – play moves).

Such a cycle is illustrated in Fig. 3. The part of the results shall be properly “reinvested” in order to assure continuous “move” towards better results and excellence. Otherwise the systems degrade, if it deteriorates its energy and resources for low value or no value added activities. Implementation of QMS is a part of strategic actions within the majority of modern and successful organizations (Michael et al. 1997). There is big inertia to change, and it is bigger when it touches the culture and settled traditions. The change process in universities shall be institutionalized, and controlled. Necessary condition is to achieve highest efficiency – to keep idealized vision unchanged and unmodified according to existing situation and restrictions in order to approach to desirable result. (Adomaitiene et al. 2002).

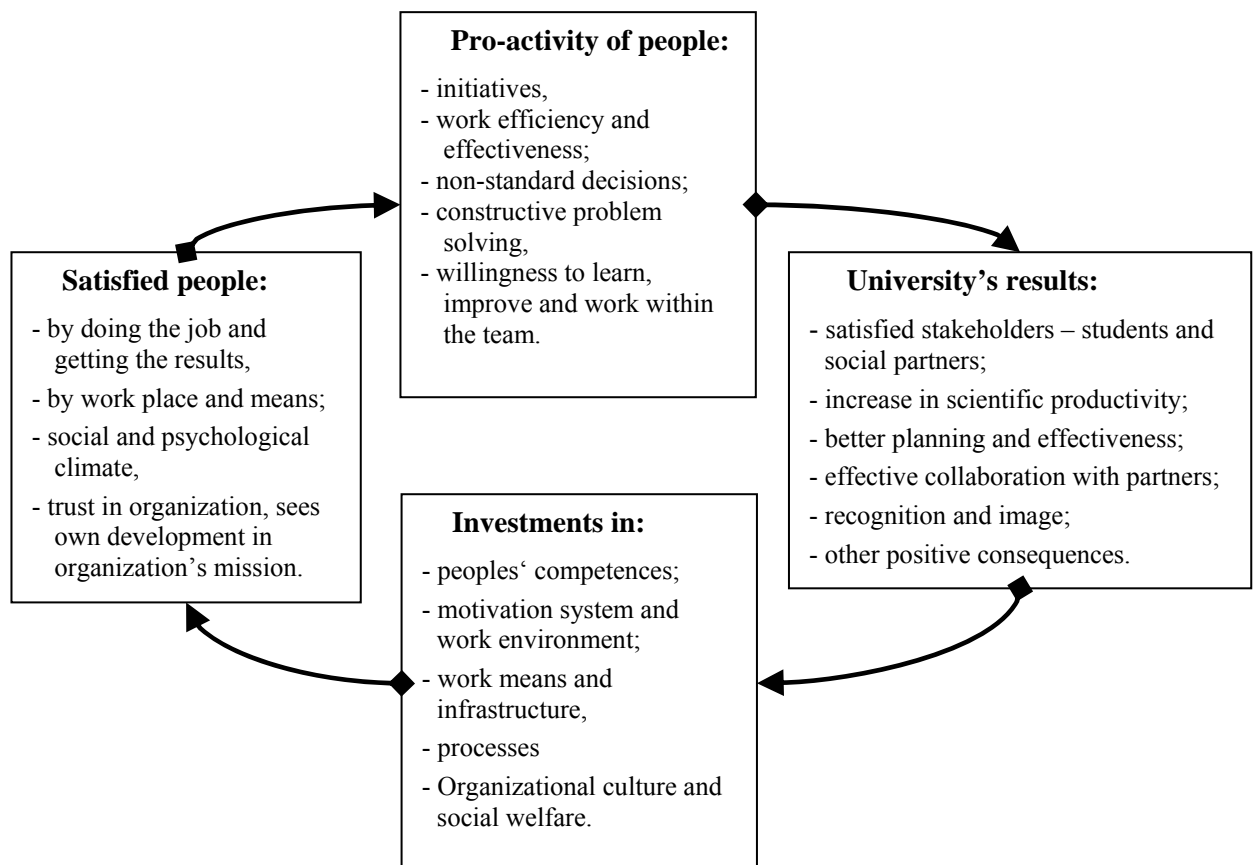


Fig. 3: Cause-and-effect cycle in Vilnius University improvement process

Source: Vilnius University

Conclusions

Despite the fact that there are only several (EQUIS) settled and commonly approved models of quality management systems (QMS) for Higher Education Institutions (HEI's) in Europe, the opinion of stakeholders supports the immediate actions to implement QMS in HEI's. The main quality management principles (implementation and continuous improvement of QMS) in different standards, models and guidelines are and will remain unchanged.

A three-stage process proves most realistic to achieve systematic and continuous improvement of study quality:

- a) To improve the quality of studies by implementing QMS conforming to ISO 9001 standard, and achieve basic quality management level;
- b) To increase quality level by implementing European QMS standards for universities, and expand self-assessment and accreditation in all faculties and programs;
- c) To implement principles of EFQM Excellence model in all activities.

The analysis of different QMS implementation practices in European universities shows that QMS can be effectively implemented only when top management of universities are involved in the process, the professionals from academic and managerial staff are included in joint teams, effective communication with the whole university's society is established, and new culture is formed. When there is unclear, not defined quality policy, when key decision makers are not involved in improvement processes hoping that the QMS will be made by one small group assigned people, when the system is created only for external purposes, the QMS implementation process is very weak, slow and does not generate desirable results; academic society usually refuses such a process.

System implementation is a strategic change first of all. Time and patience is needed until new quality culture will spread throughout the organization and will change settled culture. *Change institutionalization* – is a controlled process that requires special attempts, consistency, preparation and competence.

Necessary condition to achieve highest efficiency of QMS is to have and maintain unchanged idealized vision, preventing from simplification, adjustment and downgrading because of current difficulties and problems.

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