Strategy of Sustainable Development by the example of Department of Business Economics and Marketing: Introduction of Quality Management System
Bagaoutdinova, N.G.¹, Camargo, M.E.² Gumerov, A.V.³, Ibraghimova, A.N.⁴ and Araslanov, A.M.⁵

Abstract
To provide a higher standard of experts training the A.N. Toupolev Kazan State Technical University (former KAI) develops and then puts into practice the so-called “quality management system”. The system evolved from the demand of “a brand new specialist”, possessing fundamental and professional knowledge on the one hand, and a harmonious individuality on the other. The submitted article covers all the general principles of the aforesaid strategy.

Key words: Quality Management; Educational Process; Sustainable Development.

INTRODUCTION
Needless to say, that education for the most part determines significance of a particular state for the present-day world as well as the social status of a human being. Therefore, inevitably raises such problem as the necessity of perpetual improvement of education. “The modernization concept of the Russian education for the period until 2010” and further regulations issued by ministry for education and sciences of the Russian Federation set the quality of education as a priority. “We need to ensure that the European higher education system acquires a world-wide degree of attraction equal to our extraordinary cultural and scientific traditions”; “The importance of education and educational co-operation in the development and strengthening of stable, peaceful and democratic societies is universally acknowledged as paramount” – these two theses of the Bologna Declaration of June, 1999 seem to be determinant. For Russia is a full member of the Bologna Process, its educational establishments should do their best to make the quality of education much more competitive, adaptive and European-compatible. From the standpoint of this process, in terms of intensively developing labour and education market, rigid competition and continually changing customer demands, there arises the barest necessity of the administration of education guarantees. The work had I initiate us Business Economy departments and Marketing, but will be extended for everybody the others departments of the university.

LITERATURE REVIEW
Quality Management System
Quality management, in terms of educational institutes, based on the Total Quality Management principles and ISO 9000 Quality System Management standard allows identification of process problems and their further elimination by means of constant improvement of the educational process. Thus, most problems are prevented, not just fixed. Quality becomes the chief concern of each and every employee - everyone's involved! Certainly, it would be absolutely impossible without an appropriate system of quality management. ISO 9000 QSM standard implementation is aimed at minimizing the very possibility of a mistake. For this reason, the Quality Management System (QMS) is a good means to achieve the excellent quality of modern education.
The TQM principles provide continuous development of a particular educational establishment. They do serve as a basis for:

• high quality of educational activities;

¹ Department of Business Economics and Marketing, Kazan State Technical University, Russian
² University of Caxias do Sul, Brazil. E-mail: kamargo@terra.com.br
³ Department of Business Economics and Marketing, Kazan State Technical University, kazan, Russian
⁴ Department of Business Economics and Marketing, Kazan State Technical University, kazan, Russian
⁵ Department of Foundations of Design, Kazan State Technical University, kazan, Russian
assurance of competitiveness;
• meeting customer requirements;
• increase of teaching personnel’s degree of professional contentment and self-
actualization;
• involving the personnel in the process of quality improvement;
• improving group activity;
• cultivation of the team spirit;
• a higher degree of communication (Montgomery, 2000; Otto, 1990).

General Requirements
The concept, which these standards are based on, gives a great number of advantages. The standards comprise a set of requirements, which every educational institute should adhere to. No doubt, the present-day system of certification does provide some basic guaranties. But the certificate itself can assure neither competitiveness, nor prestige. Most of well-known and prestigious higher education institutes of Russia have very much in common: systematic quality management extension courses for the personnel, advanced innovation, guaranteed graduates employment assistance, etc.

Note, however, that any particular standard (including ISO 9000) tends to continuous improvement. Once created, the QMS should be constantly developed and ameliorated.

Higher education institutes have one of the most intricate and complex system of administration. Their general characteristics are: personnel’s broad inherent potential, complicacy of products & services provided and their long-run lifecycle, extreme social significance, certain academic freedom (a teacher is free to choose the methods & technique), etc..

There are several phenomena, typical of universities, which complicate the QMS development and implementation, such as:
• high persistence of the academic processes;
• pressure for money when developing & implementing the QMS;
• aversion for the latest innovations (academic conservatism);
• deficiency in support & encouragement from the direction of the university administration;

The area of QMS application is the educational process, which comprises not only educational services, but also hardware, software and other intellectual property.

The authors highlight such aspects of the quality of educational products & services as:
1. Quality of the object of education (enrollee, undergraduate, graduate, postgraduate, access & extension courses students);
2. Quality of the subject of education (secondary school, technical school, higher education institute, etc), including:
   • Quality of teaching programs (their structure & content);
   • Quality of the professorial personnel (degree, qualification, professional skill);
   • Quality of teaching technique and upbringing (methods & technology of teaching);
   • Quality of material (premises, labs, equipment, etc) and educational (aids, manuals, models, etc) maintenance;
   • Quality of scientific research;
3. Quality of the educational process, including:
   • The form and the content of educational process, motivation factor;
   • Quality of educational process control;
   • Quality of results (correspondence to the national professional standards);
4. Interested parties’ level of contentment:
   • Meeting customer (including a potential employer) requirements;
   • High degree of teaching personnel’s professional contentment;
Elevated social significance of the A.N. Toupolev Kazan State Technical University (Schvets, 2005).

METHODOLOGY
Optimum Strategy
Interested parties’ contentment deserves special attention. This concerns customers, teaching stuff, support personnel, business partners, employers and society on the whole. Once the value has been created, the A.N. Toupolev Kazan State Technical University gains prestige, which in its turn, results in long-term productive educational work. This work is to base on mutual advantage.

Such aspect is of primary importance when implementing the QMS within the KSTU. The University elaborated the optimum strategy, which is based upon the definition of the two following principles: WHAT should be done for further development (and, finally, success) and WHEN it should be done. All the QM innovations should be preliminarily checked for collisions, like any structural element. Each possible factor should be taken into account, including psychological stereotypes, innate academic conformism, etc.

It is no secret that for some administrative leaders in Institutes of higher education the very QM System is a kind of challenge to the settled methods of regulation. In plain words, this is a challenge to established stereotypes in the sphere of decision-making and management technologies. At first sight, the QMS is a complicated system, abstracted from acute problems of the University. No doubt, it requires a professional approach.

We do believe that the A.N. Toupolev Kazan State Technical University is to develop on the basis of the Sustainable Development Concept, which aims at harmonious development of a human being in concordance with the law of nature. This creates the new philosophy of social development which is based on the following sequence: Man => Globe => Economics. It integrates such problems as: social, ecological and economic ones. Just these priorities will ensure the process of sustainable development within the University. There is only one way to realize this possibility: by means of education and innovation. This way is the most efficient one to provide the University competitiveness.

Quality Planning
To realize QMS we have taken into account the four phases.

Phase I - preliminary stage: diagnostic audit of the University.
It will require training or retraining of specialists. It is quite important to possess a fully professional staff, which is able to:
1) manipulate theory and methodology of Quality Control;
2) head the Organizational Structure.

Phase II - eliciting departments and services which activities fall short of Quality Objective and Quality Policy.

Phase III - making a decision on the subject of the Sustainable Development Concept and on the basis of Phases I-II analysis;
forming a new University mission when its education program and practical activities are correlated with the new philosophy of social development: Man => Globe => Economics.

It demands introducing new courses focusing on the newest achievements in Theoretical physics, Mathematics, Information science, TV communication, Bioenergetics, Psychology. These disciplines contribute to changing the students’ world outlook, understanding the matrix of mass-consciousness and finding their own place in the sequence “Man => Globe => Economics”.

Phase IV - upbringing as a prior process in the University.
Upbringing is considered to be an essential part of EDUCATION on a whole. Auspicious upbringing environment sets conditions under which a person is formed, developed and self-affirmed. As a tradition in Institutes of higher education the practice of upbringing consists of curators and Student Council work, sporting and relaxation activities. We are sure that the upbringing function dominates in the common process of education. As a result, within the bounds of Education Management we plan to introduce:
1) Ethics centers. Their function is to examine and develop personal students’ characteristics (capabilities, talents, gifts);
2) Procedures of students’ adaptation to a changeable environment. They are set for students in their first course and deal with behaviour, motivation, temper, reactions, psychology, etc.
3) Procedures of revision (how lecturers line with their holding posts). The criterion is as follows: their psychological adequateness and ability to work with students and the personnel under their command.

RESULT AND DISCUSSION

There was elaborated a method for QMS introducing into the A.N. Toupolov Kazan State Technical University. It absorbed the accumulated experience of the other Institutes of higher education. For Quality Manual and Quality Plan were approved mainly only at the one leading structural department, it allowed to reduce financial and time resources (especially at the first stage of working). In 2005 the Department of business economics and marketing started working on its own pilot QMS program. The leadership of the department initiates the QMS practice and recognizes the necessity of innovations to improve the quality of education. They do their best to bear their joint responsibility for effectiveness of their activities.

The principal goal set by the department is to bring its QMS in correspondence with State Standards (ISO 9001: 2000). These initiatives set an example to the other departments and services of the University. The experience gives a good opportunity to make all the problems relief. It allows to estimate the total job for every department separately and the University on a whole. It also relieves tension formed out of people’s negative attitude to the QMS introduction. QM System elaborated on the separate department is to become a model for QMS that will be elaborated by all the departments of the University. Thus, by means of this process one of the QMS principles is realized. The University administration and specialists share this principle. For members of the University community it means gradual, soft accustoming to the ideas of Total Quality Management (Katchalov and Seddon, 2005)

Flow diagram shown in Figure 1 illustrates the devised method consisting of the four general stages of work. Solid blocks denote known, usual stages; the blocks framed with dotted line denote new stages which are specific to the QMS in the University. Blocks 2.5, 3.6, 3.7 and partly 3.5, 3.8 demonstrate the necessity of:
1) Defining the advanced department where there is the greatest probability to obtain a convincing example of successful QMS application;
2) Enlisting the head and the staff of this advanced department for working out the QMS documentation and methodology;
3) Promoting (implementation) the QMS documentation and methodology at the advanced department (the Department of business economics and marketing);
4) Working out the QMS documentation and methodology for the University as a whole;
5) QMS introduction within the University.

As for the University administration, they were recommended to employ the three teams responsible for:  
1) strategic control of the project for the QMS elaboration (at the head of the rector);
2) formation and description of the QMS general, controlling and supporting business processes (at the head of the QMS management executive representative of the University administration);
3) guaranteeing the effectiveness of QMS (Roberts and Bernard, 1995; Jablonsk i.and . Joseph.) . Sergesketter functioning (at the guidance of the head of the Quality Management department) accordingly.

There were suggested the two methods of involving the personnel of Department of business economics and marketing (as an advanced structural department) in the process of working out the QMS documentation and methodology. The first method provides for direct participation of the personnel. The second method involves certified QM experts as administrative advisers and quality inspectors. They render practical assistance when implementing:
1) The new terminology and concepts of ISO 9001:2000 standards;
2) Descriptive methods of the process sequence with the assistance of flow diagrams;
3) Hands-on methods of flow-process diagrams composition. These diagrams are used for nested representation of educational institution activities information. Furthermore, the problems of introducing the efficiency indices to the corresponding sections of the documentary procedures are discussed.

*Insert figure 1& 2 here*

**Figure 1** - Flow diagram illustrating the method of developing and further introduction of the QMS

Grounding on the practical experience of the Department of business economics and marketing, such aspects could be highlighted as:

1) The volume of current business documentation increased insignificantly (less than 20%), though the double increase had been foretold by QMS sceptics.

2) In the course of QMS implementation there was optimized the process of distribution of authority and responsibilities, which resulted in well-coordinated work of the department.

3) In concordance with ISO 9001:2000 standard there was actualized the QMS documentation on the basis of the compulsory procedure of Enterprise Document Management (EDM). The QMS documentation was brought into line with the “traditional” accepted standards of documentation.

4) This contributed to the improvement of procedural co-ordination and compatibility.

Using the Deming’s cycle in the processes, procedures and quality inspection records contributed to thorough planning and control of the department staff work. It also helped to methodize the work of the head of the department.

5) The creation of Quality Service allowed opportune conducting the current audits, revelation of nonconformities and carrying out corresponding corrections and corrective actions when needed.

*Insert figure 3 here*

**Figure 2** - Flow diagram which illustrates carrying out the correction and corrective actions

The principal goals of that work are as follows:

1) Obtaining objective evidence of the opportunity to practice the developed QMS documentation and processes;

2) Acquiring the practical experience of administrative reviews by previously trained auditors;

3) Accumulation of records containing the administrative review data, including those of the corrective actions taken.

The authors do realize that QMS introduction affects the corporate culture of an institute of higher education. Special attention is paid to responsibility for the resulting effect, as well as quantitative indices and based on factual data management.

**CONCLUSION**

The sustainable development of an institute of higher education is merely impossible without:

- Assessment of the preparedness of an institute of higher education to the introduction of the most recent QMS methodology.
- Planning the introduction of the QMS methodology.
- Bringing the corporate culture in correspondence with the international standards requirements.
- The analysis of interested parties’ requirements.
- Elaboration of the structure chart of quality assurance. This helps to reveal structural overloads, including redundant links, divisions and hidden operations.
- Elaboration of the appraisal plan, which includes quantitative and qualitative indices and evaluative criteria.
- Carrying out strategical benchmarking according to key quality indices. This will serve as a source for new ideas of further upgrade.
- Conducting self-audit of the departments and evaluation of the effectiveness of university’s activities.
- Propagating the Policy of Quality within the whole institution, resources allocation planning (between successively operating projects).
• Working out the system of encouragement which would correspond to the corporate culture of an institute of higher education.
• Working out the communication plan which includes placing the information (on the operating projects in the field of quality) on the University web-site, conducting experience-sharing video conferences, institution of the University Prize of Quality, etc.
• Creating the productive work environment. This contributes to successful design work, as proved by the practical experience of the Department of business economics and marketing.

QMS represents an integral part of the general management structure. It has become an organic part of the sustainable development of the A.N. Toupolev Kazan State Technical University. Convinced, that the University is obliged not only to turn well-educated specialists and project managers out, but also to foster the so-called “Homo Futurum” (Man of the future) possessing system thinking, the culture of organization behaviour and a unique professional style.

REFERENCES
I - Preparatory stage (spade-work)

1.1 Discussing the necessity of working out and further introduction of the QMS within the University

1.2 Making the decision of working out the QMS by the rector and the leadership of the University

1.3 Rector’s public statement of starting the work and determining the schedule of the QMS structure

II - Preliminary managerial procedure

2.1 Issuing the order of commencement the QMS working out; appointment of QMS management executive representative of the administration

2.2 Making the decision to involve a consulting firm in the process of the QMS development

2.3 Forming the Quality management department and the Quality Council

2.4 Determining the list of departments involved in the process of QMS development

2.5 Determining the advanced department as a testing area for the adjustment and putting into practice of the QMS documentation

2.6 Preparation of the target integrated program of working out and further introduction of the QMS within the University
III - Direct work on the QMS development

3.1 Raising the level of the staff's skill and refresher training

3.2 Forming the teams responsible for:
- general management;
- introduction & description of business processes
- working out the QMS documentation and introducing the QMS itself

3.3 Scheduling the QMS working out and further introduction

3.4 Forming the working teams engaged in working out the QMS documentation

3.5 Working the QMS documentation out (Quality Objective and Quality Policy missions, Quality manual, documentary procedures, etc)

3.6 Putting the worked out documentation into the practice of the advanced department (Dept. of business economics and marketing)

3.7 Working out the QMS documentation for the other departments of the University reckoning with the experience of the advanced department (Dept. of business economics and marketing)

3.8 Introduction of the QMS within the whole University on the basis of accumulated experience

3.9 Conducting the diagnostic audit within the departments to reveal cardinal problems

3.10 Taking the scheduled corrective & preventive actions to improve the QMS

IV QMS inspection certification

4.1 Handing in the application to QMS certification body

4.2 Inspection of the QMS by the commission of experts

4.3 Taking the corrective and preventive actions according to the inspection conclusion

4.4 Evaluation of preparedness for licensing the QMS

4.5 Obtaining the certificate of conformance

4.6 Passing the annual inspection

4.7 Recurring QMS certification (in three years time after the first one)