

## INTEGRATION OF ESG 2015 AND ISO 9001:2015 STANDARDS IN THE HIGHER EDUCATION ORGANIZATION (CASE STUDY)

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This paper is published under project number 001RnUAD-2-3/2016, TnUAD quality assurance system certification pursuant to ESG 2015 and ISO 9001: 2015 standards.

**Abstract:** The article describes our approach to creating quality management system in higher education, integration of ESG 2015 and ISO 9001:2015 requirements and experience with positive synergies of these standards. In 2015, both standards underwent revision that contributed to their mutual compatibility and more efficient improvement in study programme quality. The system is open to further integration of standards in the field of education. Objective of this article is to share experience with systemic development of quality of higher education and contribute to discussion about utilization of ISO 9001 in education and potential approaches to creation of quality systems in compliance with requirements related to quality of education in the European Higher Education Area.

**Keywords:** Internal Quality Assurance System of Higher Education, ESG:5015, ISO 9001:2015, Quality of Education, Integration of Quality Standards in Higher Education.

### 1 Introduction

The year 2015 brought significant changes to the basic standards of quality management, specifically in the form of ISO 9001 standard. The standard was released on 15 September 2015 and published on 23 September 2015. According to the IAF (International Accreditation Forum), the transition period of 3 years ends on 15 September 2018. The standard is a part of managerial ISO standards built on a shared parent structure.

Two thousand and fifteen was also an important year for Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG). Increased demands for skills and competences in Europe require that higher education institutions respond to the situation in new ways. Original text from 2005 was updated to reflect progress in quality assurance, as well as other Bologna action lines, such as qualifications frameworks, recognition of qualification and promotion of the use of learning outcomes with a shift towards student-centered learning and teaching (Ostrovský, 2013). The ESG were adopted by the Ministers responsible for higher education in the European Higher Education Area in May 2015 in Yerevan, who at the same time committed themselves to their implementation into the national education system (Hrnčiar, 2012).

#### 1.1 ISO 9001:2015 and ESG 2015 compatibility

Revisions of ISO 9001:2015 and ESG 2015, part Internal Quality Assurance, brought these standards closer and made them more compatible. Moreover, ISO 9001 provides the ESG standards with adequate support system of effective quality improvement. On the other hand, the ESG provide terminology and requirements that better define the subject of the education system, goals and strategic framework in the area of higher education. (Table 1). At the same time, it is expected that in compliance with Article 87a of the Act on Higher Education, the content and requirements of ESG 2009 become part of accreditation criteria as is the case with the current system of accreditation.

The third and fourth part of ESG 2015 include standards and guidelines for external quality assurance and quality assurance agencies. ISO requirements for external quality assurance process and operations of certification bodies (certification and accreditation) are part of ISO 17021 Conformity assessment -- Requirements for bodies providing audit and certification of

management systems and ISO 17011 Conformity assessment -- Requirements for accreditation bodies accrediting conformity assessment bodies, that accredit conformity assessment bodies (International Accreditation Forum, 2015). Under current regulation, the scope and frequency of external assessment under ISO 9001 scheme is more rigorous and frequent for both school (certified organization) and assessment bodies (Table 1).

Table 1: ESG 2015 and ISO 9001:2015 comparison

INTERNAL QUALITY ASSURANCE	
ESG 2015	ISO 9001
Policy for quality assurance	Policy. Scope and processes of the quality management system. Leadership. Organizational roles, responsibilities and authorities.
	Planning, risks and opportunities actions. Quality objectives and planning to achieve them. Planning of changes.
Learning resources and student support	Support. People. Infrastructure. Environment for the operation of processes. Monitoring and measuring resources. Organizational knowledge.
Teaching staff	Competence. Awareness. Communication. Documented information.
Design and approval of programmes	Operational planning and control. Requirements for Education. Design and development study programs. Control of externally provided processes.
Student-centred learning, teaching and assessment	Education provision.
Student admission, progression, recognition and certification	Release of Education. Control of nonconforming outputs.
Information management Public information	Monitoring, measurement, analysis and evaluation. Internal audit.
On-going monitoring and periodic review of programmes	Management review. Improvement. Nonconformity and corrective action. Continual improvement.

EXTERNAL QUALITY ASSURANCE	
Accreditation of institution / study program once every 5-6 years	Certification and surveillance audit Once a year
Evaluation of the Agency Once every 5 years	Accreditation and surveillance audits Once a year
EA Evaluation European Accreditation	

Among the main benefits of using ISO 9001 is the ability of organizations to steadily provide products and services that meet customer requirements, applicable requirements of regulations and regulatory requirements, increase customer satisfaction, risk management and opportunities to achieve goals (Richnák and

Gubová, 2016). The standard is applicable to each industry and its requirements are always supplementary to requirements for the service or product itself (Jambor, 2013). Its combination with the ESG standards will allow the system to focus more on the sector of higher education in compliance with the requirements of the European Association for Quality Assurance in Higher Education (ENQA), European Students' Union (ESU), European Association of Institutions in Higher Education (EURASHE) and the European University Association (EUA). The main goal of the Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG) is to contribute to the common understanding of quality assurance for learning and teaching across geographical borders among all stakeholders.

The focus of the ESG standards is on quality assurance related to learning and teaching in higher education, including the learning environment and relevant links to research and innovation. Institutions of higher education should implement principles and practices in order to ensure and improve the quality of education (study programmes) and other activities. The term "programme" refers to the provision of higher education in its broadest sense, including education that is not part of a programme leading to a formal degree, i.e. all activities aimed at achieving goals in education that are supported by the institution. The ESG work (similarly to ISO 9001) with stakeholders' requirements, whereby stakeholders represent all players within an institution, including students and staff, as well as external stakeholders such as employers, and external partners of an institution. According to the ESG, quality of education is primarily the result of an interaction between teachers, students and institutional learning environment. Quality assurance should lead to the creation of a learning environment in which the content of study programmes, learning opportunities and learning facilities fit their purpose. Essential to all quality assurance activities are two objectives: accountability, and quality improvement. The term "quality assurance" is used to describe all activities within the continuous improvement cycle (i.e. quality assurance activities and development activities).

From a long-term perspective, the application of ISO 9001 in institutions of education is increasing worldwide. The year 2016 introduced a revision and witnessed a 16% growth in education certificates. Attenuation related to ISO 9001 in 2015 was recorded across all sectors. It was linked to the announced revision published in September 2015.

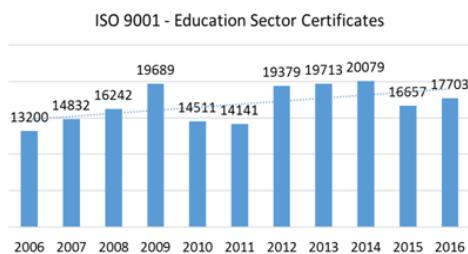


Figure 1. ISO 9001 Certificates in education organizations

## 2. TnUAD Quality Assurance Approach

One year after implementing the integrated system within the Trenčín University environment and successful recertification, a further shift in performance reflected in evaluation results of study programmes can be observed.

At the integration of both standards we relied on our experience with ISO 9001:2008 and ESG 2009 systems (which were part of the accreditation criteria of Internal Quality Assurance System in compliance with Article 87a of the Act 131/2002 Coll. On Higher Education and Accreditation criteria). The reason for choosing this particular concept lied in the experience with maintaining the quality system and improving the quality of higher education in the Slovak Republic. Particular emphasis was placed on the need for regular external system assessment and external feedback. Framework of the system consists of the ISO 9001 structure and high-quality external certification (Myna, Yarka, Peleschyshyn, Bilushchak, 2016). The

system is complex, with rigorous management of the main processes and improvement cycles and is conditioned by regular internal as well as external assessment. It also requires regular feedback from all stakeholders and a demonstrable improvement (Jambor, 2013). All new or revised requirements of ISO 9001:2015 and the majority of ESG 2015 requirements were implemented in 2016. Currently, the focus is on activities related to the redesign of study programmes in compliance with the national qualification framework in force, as well as on research and classification of student-centered learning and teaching processes in compliance with the timetable of project no. 001TnUAD-2/3/2016 (Attard, Iorio, Geven, Santa, 2010).

### 2.1 Review of higher education internal and external aspects

When determining core strategic, objectives of the University, and its individual faculties, we designed regular monitoring and reviewing processes for internal and external aspects that are relevant to the institution's strategic direction and that influence its ability to provide education and related services. Each department reviewed internal and external aspects and the way they influence the unit's future direction. The results were incorporated into regular reviews of internal quality assurance system and served both as the basis for revision of the University's vision and objectives and as an input to the management of internal and external risks of the main processes.

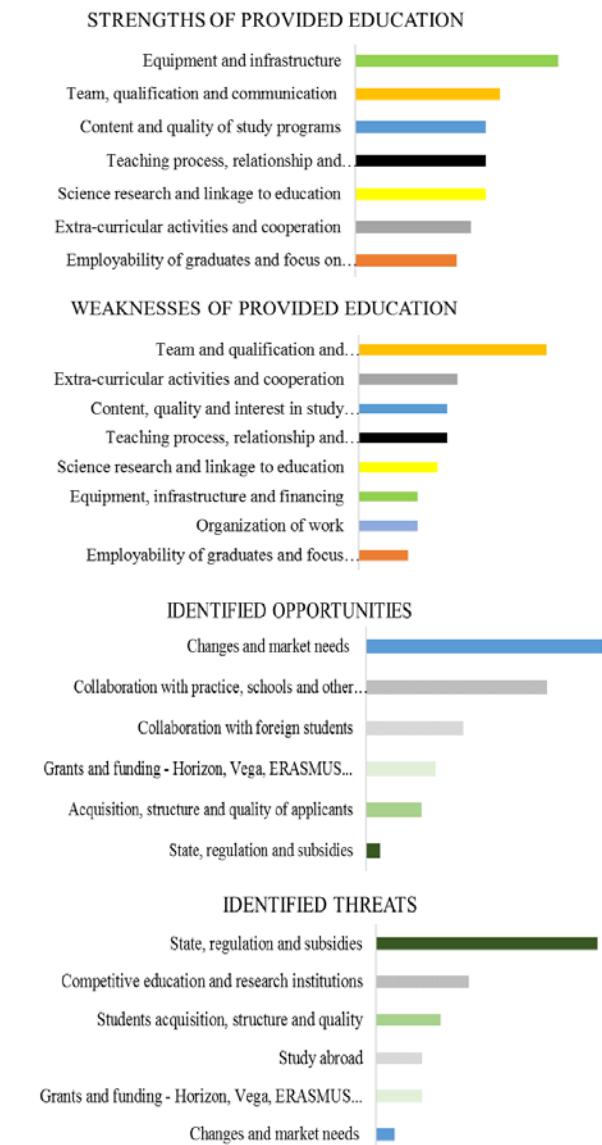


Figure 2. TnUAD SWOT results

The departments identified their strengths and weaknesses. Judging by their multitude, the second best rated aspects, after several infrastructural projects, were related to department equipment and education infrastructure. Additionally, the majority of departments highly rated the team, qualification and employee communication. At the same time, this category also received a multitude of low ratings, predominantly in the context of language skills of teachers and quality of publication output. We started an employee quality development program and accredited doctoral programs at departments interested in offering programs in foreign languages.

The departments identified opportunities and threats related to provided education and scientific-research activities. Given the announced amendments, legislation and accreditation in Slovakia were the most frequently identified threats related to the Government's influence. At the same time, only few departments considered the forthcoming amendments (due to the lack of clarity) an opportunity to further improve the quality of education. Cooperation with businesses and other institutions was identified as the most challenging area, both as a threat and an opportunity. A request to map the existing cooperation and review requirements of partners and potential partners emerged (it was implemented during the detailed review of department's stakeholders). Important partners of the University were offered positions on the University's Board of Quality.

## 2.1 Stakeholders

We have thoroughly examined the needs and expectations of stakeholders that may influence or are influenced by the decisions and actions of the University, with a particular focus on stakeholders influencing the University's ability to provide and develop quality study programs and scientific-research activities. Each department reviews the needs of the following stakeholders:

- Students in accordance with profile of the accredited study programme,
- Employers that employ, provide internship placement or other forms of job training for graduates of the department's study programme.
- Users of scientific-research and publication activity outputs of the faculty - members of cooperating academic and scientific community in the given field of science, businesses and organizations using applied research know-how,
- Partner organizations, schools and unions - specific organizations with close relations with and significant impact on the TnUAD department,
- Local and regional organizations and communities - based on the faculty's area of operation, location and local specifications,
- Employees - specific requirements of teachers, researchers, administrative and technical staff of the department.

The process of analysis identified 104 key partners and their requirements/influence (employers, partners in education process, scientific-research partners and local and regional institutions). The task of rectorate departments is to review key partners of the University:

- Requirements related to study programme accreditation, inaugural proceedings, rules for establishment of public higher education institution and provision of higher education
- grant and scientific-research agencies and programmes - conditions for grant applications and rules of preparation, evaluation and financing of approved projects,
- Requirements of suppliers of products, services and processes in compliance with the provisions of Act on Public Procurement.

Identification of stakeholders' requirements is part of a regular review of internal management system and their fulfillment will be monitored.

## 2.2 Measures of risk and opportunity management

Risk management process for each department involves five steps and is part of regular system review.

Leadership of each department identified and analysed risks related to main processes, i.e. Education (risks in study programmes) and scientific-research processes. They analysed positive and negative impact and likelihood of risk development on a scale of 1 to 9. Each department implemented a register of risks and risk management measures. Assessing the efficiency of these measures is part of regular review of department and university systems.

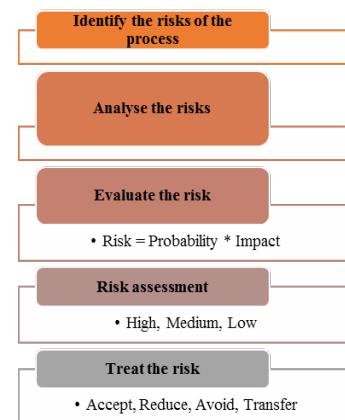


Figure 3. Risk assessment process

The departments identified 84 acceptable risks with negative impact on the outcome of provided education and activities and 8 unacceptable risks, for which they implemented management measures. Mostly, they were related to acquisition of new students and increasing attractiveness of selected study programmes, long-term compliance with accreditation criteria, adequate staffing of study programmes or minimising the risk of losing key scientific-research partners. The Board of Quality integrated measures with systemic impact into processes of University's management system.

## 2.2 Planning of internal system changes

Planning of changes is one of the new requirements of ISO 9001. Basic competences and change implementation procedures were established as not to disturb the stability of education system:

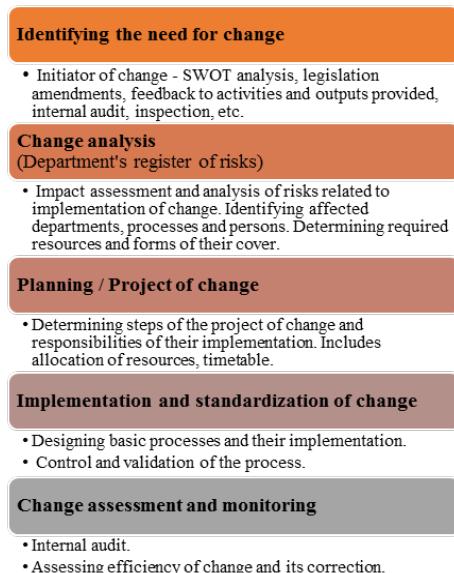


Figure 4. Change management process

### 2.3 Competence and awareness

In accordance with Article 1.5 of ESG 2015, institutions should assure themselves of the competence of their teachers. They should apply fair and transparent processes for the recruitment and development of the staff. Equally, Article 7.2 of ISO 9001:2015 sets out the requirements of competence management. Therefore, management of the University laid down clear rules of "quality" improvement of staff in 4 sub-processes.

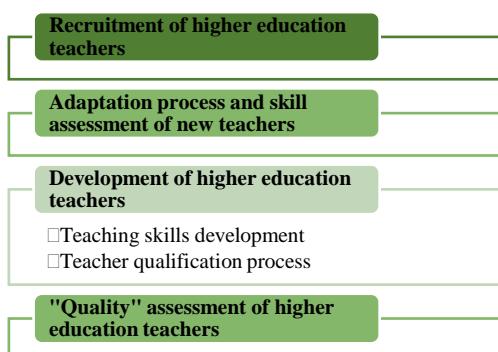


Figure 5. Quality of faculty processes

Quality assessment of higher education teacher consists of assessment of:

#### Teaching activities

- scope of direct and indirect teaching activities,
- student feedback,
- staff feedback (results of class visit).

#### Assessment of scientific-research and publication activities.

#### Development of teaching skills.

The faculties define target criteria for quality assessment of teachers based on individual areas of research and results of previous assessments.

### 2.4 Monitoring, measuring, analysis and assessment of internal quality system

System of information collection, analysis and assessment of provided study programmes and related services with the objective of continuous improvement consists of a set of integrated monitoring and measuring tools of the institution's internal system (Jill, 2016):

- I. Measuring and analysing quality of the study programmes and feedback from students
- II. Measuring and analysing scientific-research activities
- III. Measuring and analysing quality and development of the teaching staff
- IV. Internal audit of the system and processes
- V. Quality assessment of suppliers (in compliance with KP 10 TrUAD Asset Management)
- VI. Assessment of non-conformance and complaints
- VII. Assessment of corrective actions related to quality
- VIII. Assessment of quality objectives and policy

Assessment of a study programme is carried out by guarantor of the respective study programme based on results of assessment of subjects A, assessment by employers B, assessment by graduates C, assessments related to scientific- research activities D (Figure 6). The guarantor evaluates individual areas of quality, identifies strengths, risks and limitations and suggests measures of study programme improvement. Objectives of the study programme are defined and monitored via study programme quality indicators:

- |                            |  |
|----------------------------|--|
| Quality of study programme | → Appeal of study programme - number of applicants, students, graduates. |
|                            | → Placeability of graduates.   |
|                            | → Assessment of employer feedback.                                       |

- |                        |   |
|------------------------|---|
| Assessment of subjects | → Number of filed theses / number of thesis supervisors.  |
|                        | → Results of the study.   |
|                        | → Assessment of student feedback  |
|                        | → Assessment via inspection of classes - syllabus, organization of education, forms of education, staffing, literature, spatial, material, technical and information resources of the study programme |

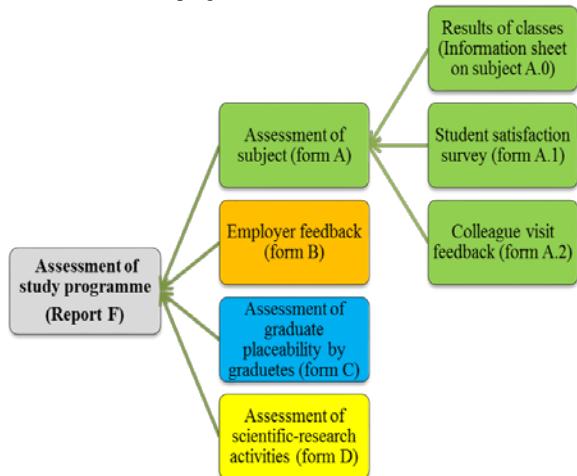


Figure 6. Study programme assessment structure.

Performance indicators for individual areas of science and research were defined on the basis of the following attributes: environment (indicator A, D, E), output (indicator B), acknowledgement (indicator C, G) in the respective field of research via the following indicators:

- Number of academic staff in the given field of research: *Annual IKA index*.
- Assessment of outputs based on categories and academic degrees of full-time staff: *Weighted sum of outputs / number of academic staff*.
- Responses in WOS/SCOPUS/ERIH: *Number of responses / number of teachers*.
- Scope of academic mobility of doctoral students and academic staff: *Average length of stay per teacher*.
- Assessment of grant success rate:
  - *Number of submitted projects / number of academic staff*.
  - *Number of in-progress projects / number of academic staff*.
  - *Amount of financial resources / academic employee*.
- Research infrastructure quality assessment: *Amount of financial resources invested into VV infrastructure / number of academic staff*
- Acknowledgements: *Frequency of categories A, B, C, D*

### 2.5 Non-conformance, corrective action and improvement

Preventive role of the system is one of the key changes that were crucial to understanding and implementation. The standard no longer has a separate chapter or sub-chapter dealing with preventive measures.

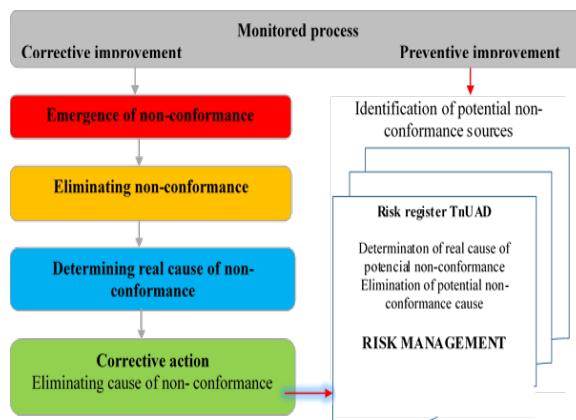


Figure 7. Corrective and preventive improvement

### 3 Conclusion

In the assessment period of 2016/2017 the University implemented all requirements of ISO 9001:2015 and the majority of requirements of ESG 2015 as conveyed by the regulation authority. As for the new requirements of ESG 2015 (e.g. requirement of student-oriented teaching and learning, or compliance of education objectives and outputs with national qualification framework), their successful implementation to fit the conditions of our country is not currently known. The analysis of best practices started in the second half of 2017, and is still ongoing. Methodology and plan of implementation will be prepared based on intentions of the regulatory authority (see project SIHE). In the middle of 2017, the University successfully completed the recertification audit and gained a valuable feedback. As a result, we have identified 11 strengths of the system and 5 areas of further improvement.

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**Primary Paper Section: A**

**Secondary Paper Section: AM**