

# Information Management in Quality Assurance System at Higher Education Institutions in Croatia

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*Abstract:* - Quality assurance at higher education institutions includes a series of complex activities and a continuous process of assessing the quality of their work and the achieved results in compliance with the regulations and accepted Standards and guidelines for quality assurance in the European Higher Education Area (ESG - European Standards and Guidelines). In order to assure quality, higher education institutions have to provide efficient information management, i.e. gathering, analysis, usage and exchange of all relevant pieces of information with internal and external system stakeholders. Efficient information management is imposed thus as an important factor in establishing as well as in continuous improvement of the quality assurance system. The paper will analyse the importance and the role of information management at higher education institutions in Croatia according to ESG standards.

*Key-Words:* - quality assurance, information management, ESG standards

## 1 Introduction

Over the last ten years there has been a growing interest in the field of higher education for establishing quality management systems. The concern for quality is at the heart of higher education institutions [1]. They are becoming increasingly aware of the importance of assuring and proving the quality of their study programmes, infrastructure, quality of the teaching and administrative staff and the satisfaction of the students and stakeholders. The assessment of the quality of work and the achieved results of higher education institutions is performed in compliance with the regulations and accepted Standards and guidelines for Quality Assurance in the European Higher Education Area (ESG – European Standards and Guidelines) developed by the European Association for Quality Assurance in Higher Education (ENQA), the European University Association (EUA), the European Students' Union (ESU) and the European Association of Institutions in Higher Education (EURASHE) in 2005.

Quality assurance is a methodology for judging the degree to which organisational aims, objectives and outcomes have been achieved [2].

Considering the social, cultural, and linguistic diversity in the European Higher Education Area, the European Standards and Guidelines represent the agreed set of procedures and guidelines for

quality assurance, applicable to all the higher education institutions in Europe regardless of the actual diversities.

In Croatia, the Act on Quality Assurance in Science and Higher Education, adopted in 2009, prescribes ESG standards for establishing quality assurance systems in higher education [3].

These standards and guidelines cover the key areas of quality assurance and monitoring the work of higher education institutions, which are related to the establishment of quality assurance procedures, monitoring and evaluation of the programmes and qualifications, student assessment, quality assurance of the teaching staff, resources for study and student support, as well as the development of information systems and public information.

Still, the assessment of the quality of work and achievement of the set goals of higher education institutions can be done only if the higher education institutions have access to relevant information about their own activities, needs, and satisfaction of all the stakeholders, as well as information about the opportunities and threats from the environment. For this purpose the higher education institutions have to ensure effective information management, i.e. gathering, analysis, usage and exchange of all relevant pieces of information with internal and external system stakeholders. These aspects of quality assurance are specially processed by the

ESG standards related to the Information systems and Public information.

The purpose of this paper is to analyse the importance and the role of information management at higher education institutions in the Republic of Croatia regarding the level of development of ESG standards which refer to the access to information of the quality assurance system and public information.

## 2 Information Management and Quality Assurance

Most institutions, whether public, academic, commercial or private, have their own arrangements for managing information [4].

Information and information management are important factors in establishing as well as in continuous improvement of the quality assurance system. Regardless of whether this refers to corporate organizations, higher education institutions, hospitals, government agencies or not-for-profit organizations, incomplete, poor and delayed information, as well as absence thereof represents the main threat to the quality assurance system.

To provide the necessary information at the right time to the right users is the basic task of information management. The information includes data, meaning, and context. Data represent the content of information, and the information acquires meaning when it is set into a certain context. The meaning is important since only meaningful information can insure purposeful action [5].

The technologically oriented information management, namely, places emphasis on the information systems based on the application of the computer which form the basis for data exchange in the system and emphasise the importance of application of information technologies in the realization of the set goals of the organization. On the other hand, the content-oriented information management places the emphasis on contents and information users, giving special importance to the gathering of information from the external environment, and does not limit the information systems only to the application of computers but rather to the way in which people handle information in reality [6].

Efficient information management requires an integration of these approaches. Starting, namely, from the assumption that the information is data that eliminate a certain amount of uncertainty and assist in decision-making, the building of information systems that have to satisfy the needs of their users,

provide gathering, storing, analysing, usage and exchange of all relevant information from the internal and external environment through the application of advanced information technologies with the aim of improving the quality of work and achieving of the set strategic goals, is an imperative.

The European Standards and Guidelines for internal and external quality assurance of higher education have been developed for the needs of higher education institutions and quality assurance agencies and cover the key areas related to the quality and standards. Their task is to assist the higher education institutions in quality management, stimulate the development of higher education institutions and development of quality assurance culture, and contribute to the creation of a common reference frame to provide higher education and quality assurance within the European Higher Education Area [7].

The assessment of the level of development and efficiency of the quality assurance system according to ESG standards is the backbone for the determination of the positions of higher education institutions, and it is not possible without relevant information about the higher education institution itself, its mission and vision, strategic goals, quality of study programmes, teaching and administrative staff, satisfaction of students and other stakeholders. In this sense, the higher education institutions should pay special attention to the establishment of information systems for gathering, storing, searching, using and exchanging information from the internal and external environment among all stakeholders in order to achieve the strategic goals of the higher education institutions, satisfaction of the needs of stakeholders and continuous improvement of the quality assurance system.

### 2.1 ESG standards – Information systems and Public information

Information systems form a structured interconnected unit of people, machines, and procedures planned to generate a continuous flow of relevant information gathered from the internal and external environment serving as the basis for decision-making [8].

Their task is to ensure gathering, storing, searching, using, and exchange of information among all users in the system.

ESG standard which refers to Information systems emphasises that the higher education institutions have to gather, analyse, and use relevant

information for efficient management of their study programmes and activities. This means that the information systems at higher education institutions have to include:

- information about progression and pass rate of students;
- opportunities for their employment after the completion of the study programme;
- satisfaction of students with the study programmes;
- efficiency of the teaching staff;
- profile of student population;
- available resources for studying and their price;
- key indicators of the efficiency of the higher education institution [7].

ESG standard which refers to Public information starts from the importance of the regular publication of the latest, impartial and objective qualitative and quantitative information about the study programmes and qualifications. The information published by the higher education institutions have to be precise, complete, adequate, and timely.

Based on the published data obtained by external audit of the quality assurance system of higher education institutions in the Republic of Croatia further in the text the level of development of the ESG standards which refer to the information systems and public information at higher education institutions in Croatia will be presented.

### 3 Analysis of the level of development of ESG standards – Information systems and Public information at higher education institutions in Croatia

External audit of the quality assurance system of the higher education institutions in Croatia has been performed since 2010 in Croatia. This procedure is used to assess the compliance of the activities and the work of the higher education institutions with the accepted European Standards and Guidelines.

External audit of the quality assurance system at higher education institutions is performed by the Committee of the Agency for Science and Higher Education. After a period of follow-up monitoring, the results of the assessment are presented in the final reports and published on the Agency for Science and Higher Education website.

In the period from 2010 till the end of 2012, external audit of the quality system was performed at 21 higher education institutions, and after the

follow-up period, the final reports about the performed procedure of external audit of the quality system were published for 14 higher education institutions in the Republic of Croatia.

In 2010, the reports for three higher education institutions (21.43%) were published and these meant the completion of the external audit of the quality system. In 2011 external audit of the quality system encompassed nine higher education institutions, and eight reports (57.14%) were published. In 2012 external audit was performed at nine higher education institutions, whereas final reports were published for three of them (21.43%). External audit of the quality system encompassed three universities and their constituents, eight faculties, two colleges and one university of applied sciences.

Table 1 contains data about the higher education institutions at which the external audit procedure has been completed and which are included in the analysis of the level of development of the ESG standards Information systems and Public information.

Table 1 – Names of higher education institutions at which the external audit procedure of quality assurance has been performed

Higher education institution	Year of audit
Faculty of Civil Engineering in Osijek	2010
Faculty of Humanities and Social Sciences in Osijek	2010
Faculty of Metallurgy in Sisak	2010
College of Agriculture at Križevci	2011
Faculty of Engineering University of Rijeka	2011
Faculty of Electrical Engineering and Computing University of Zagreb	2011
Algebra - University College for Applied Computer Engineering	2011
Academy of Applied Arts University of Rijeka	2011
Faculty of Organization and Informatics in Varaždin University of Zagreb	2011
Faculty of Medicine University of Zagreb	2011
University of Dubrovnik	2011
University Juraja Dobrile in Pula	2012
University of Applied Sciences in Rijeka	2012
University of Rijeka	2012

The quality assurance system audit has been developed on the basis of the criteria for assessing

the level of development and efficiency of the quality system of higher education institutions in compliance with the Standards and Guidelines for quality assurance in the European Higher Education Area. These criteria are the starting point for determining the actual position of the quality assurance system at higher education institutions.

Table 2 describes the criteria for assessing the level of development and efficiency of the quality assurance system at higher education institutions in the Republic of Croatia for ESG standards Information systems and Public information [9].

Table 2 – Criteria for assessing the level of development and efficiency of quality assurance systems at higher education institutions in the Republic of Croatia (ESG standards 1.6 and 1.7)

<b>ESG standard - Information Systems (1.6)</b> Importance and availability of QA system data	
<b>Preliminary phase</b>	Quality Assurance does not provide any information on system and institution to the stakeholders.
<b>Initial phase</b>	There is no systematic gathering and processing of data. Data are only partially available to internal and external stakeholders. Use of information for planning and continuous development of QA system is unsystematic.
<b>Developed phase</b>	Relevant information is available to all the stakeholders and mainly used for planning and continuous development of QA system.
<b>Advanced phase</b>	Quality assurance system is entirely transparent. There is a systematic exchange of relevant information between all the stakeholders/parts of HEI. Relevant information is the basis for planning and continuous development of QA system.
<b>ESG standard - Public information (1.7)</b>	
<b>Preliminary phase</b>	Institutions do not publish relevant, unbiased information on their programmes and educational levels.
<b>Initial phase</b>	Institutions only partially publish relevant, unbiased information on their programmes and educational levels.
<b>Developed phase</b>	Institutions often publish relevant, unbiased information on their programmes and educational levels.

<b>Advanced phase</b>	Institutions publish relevant, unbiased information on their programmes and educational levels on regular basis.
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Source: ASHE (Agency for Science and Higher Education Croatia)

Based on the published final reports about the carried out procedures of external audits, the analysis of the level of development of ESG standards that refer to availability of information of the quality assurance system and public information at higher education institutions in Croatia has been performed.

The data about the level of development of ESG standards Information systems and Public information are presented in Tables 3 and 4.

Table 3 – Level of development of ESG standard Information systems at higher education institutions in Croatia

<b>Criteria for Assessment</b>	<b>f</b>	<b>%</b>
Preliminary phase	0	0
Initial phase	1	7.14
Initial - developed phase	3	21.43
Developed phase	8	57.14
Developed - advanced phase	2	14.29
Advanced phase	0	0
<b>Total</b>	<b>14</b>	<b>100%</b>

The obtained results indicate that at the majority of higher education institutions in Croatia – eight of them (57.14%), the ESG standard Information systems is in the developed phase. Three higher education institutions (21.43%) are in the transition from the initial to the developed phase of this standard, and two higher education institutions (14.29%) are at the transition from the developed into the advanced phase. The analysis of the published reports has determined that only at one higher education institution (7.14%) this ESG standard is in the initial phase (Fig.1).

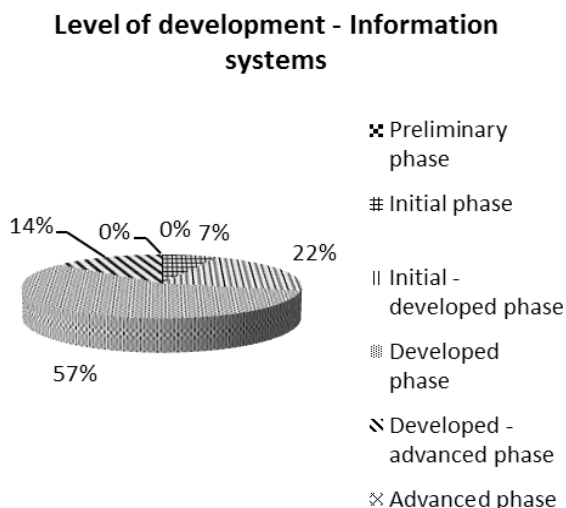


Figure 1 – Information systems

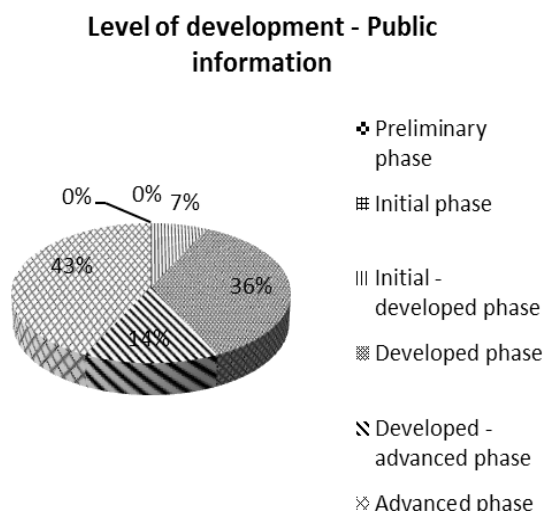


Figure 2 – Public information

It has also been determined that there is no higher education institution included in the analysis at which ESG standard Information systems is either in the preliminary nor in an advanced phase.

It may be concluded that higher education institutions are aware of the importance of information management and that they are developing information systems that make it possible to gather, analyse and understand all the relevant information among all the stakeholders of the higher education institution.

Table 4 – Level of development of ESG standard Public information at higher education institutions in Croatia

Criteria for Assessment	f	%
Preliminary phase	0	0
Initial phase	0	0
Initial - developed phase	1	7.14
Developed phase	5	35.71
Developed - advanced phase	2	14.29
Advanced phase	6	42.86
<b>Total</b>	<b>14</b>	<b>100%</b>

ESG standard related to Public information at the majority of higher education institutions encompassed by the analysis is in the advanced phase (42.86%), 14.29% of analysed higher education institutions regarding this standard are in the transition from the developed into the advanced phase, and 35.71% are in the developed phase. This standard is in the transition from the initial into the developed phase only at one higher education institution (Fig. 2).

This means that the higher education institutions are aware of the importance of regular, precise and objective information of the public about the study programmes, qualifications, and other activities of the higher education institution. Relevant information is regularly published by the higher education institutions, usually on their web sites. Higher education institutions should not use public information just for marketing purposes but rather with the aim of continuous management of the quality assurance system and by raising the awareness about the importance of the quality in the area of higher education area in all stakeholders of the higher education institution. Thus, public information acquires an important role in the construction of a positive image of a higher education institution and in creating a competitive edge.

## 4 Conclusion

During the recent decade increasing importance is placed on achieving quality at higher education institutions both in Europe and in the Republic of Croatia. The aim of promoting quality is to achieve high standards of teaching, professional and research work of higher education institutions, satisfaction of students and other stakeholders and finally, successful realisation of the set strategic goals.

The quality assurance system is a dynamic process which has to be developed and improved continuously, and in this process a special role belongs to information systems and public information which should support the construction of the culture of quality of all the stakeholders of the

higher education institutions and the realization of the set strategic goals.

The assessment of the quality of work of higher education institutions is performed in compliance with the Standards and Guidelines for quality assurance in the European higher education area – ESG standards.

The analysis of the published reports about the performed procedures of assessing the quality assurance system at higher education institutions in Croatia has shown that the majority of higher education institutions included in the analysis have ESG standards that refer to Information systems and Public information in the developed, i.e. advanced phase. This may lead to the conclusion that higher education institutions in the Republic of Croatia are aware of the importance of information management. Information management is an important factor in establishing and providing the quality assurance system. Therefore, higher education institutions, by applying advanced technologies have to continuously invest efforts in establishing information systems that will allow systemic gathering and usage of all relevant information from internal and external environment and provide information exchange with all the stakeholders in order to meet the needs of other stakeholders, building of the quality culture and realizing of strategic goals of the higher education institution.

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