# 11th European Quality Assurance Forum

## 17–19 November 2016

## Quality in context – embedding improvement

*Please note that all fields are obligatory. For a detailed description of the submission requirements and Frequently Asked Questions please consult the Call for Contributions.*

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As Head of Técnico Lisboa Institutional Studies and Planning Office, she coordinates a multidisciplinary expertise team with proven experience in the field of Higher Education (HE) assisting the Governing Board of Técnico Lisboa in specific areas that facilitate decision-making processes, promote quality and contribute to optimize institutional management and strategic development, while carrying out studies and projects in various areas of activity, with emphasis on strategic management, organisation and assessment in HE.

She is a member of the Quality Management Boards of Técnico Lisboa and Universidade Europeia, she collaborated in several international projects: SUMUP – Strategic University Management: Unfolding Practices (EU-LLP); PEOPLE-Promoting Educational Organization through PEOPLE (EU-Tempus) ATTRACT – Enhance the Attractiveness of Studies in Science and Technology (EU-LLP); Self-assessment exercise and evaluation of the EFQM model as applied to IST (CESAER); Quality Assurance: Public Policies and Management in HEI (EU-ALFA).

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He is a Civil Engineering Student at Técnico Lisboa and Vice-President of its Pedagogical Council. He participates in regular decision making processes as a full member of the Pedagogical Council,

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He is a Member of the Quality Management Board of Técnico Lisboa.

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Graduated in Statistics and Operational Research from the Faculty of Science, Universidade de Lisboa in 1998, she began her career in the Institutional Studies and Planning Office of Técnico Lisboa. She later integrated the team's Statistics and Prospective Unit (NEP), which aims to support school's activities that deal with assessment and planning in their various strands through the creation and maintenance of structures designed for collecting, processing, updating and providing information. Since September 2014, she has served as NEP Coordinator.

She collaborated in the development and design of " IST Course Unit Quality System - QUC " (2007-2015) and participated in several events: seminar "Quality Practices - Results in Higher Education," Universidade de Lisboa (2013); Communication "The Quality of Teaching and Learning Processes in Higher Education", 38th Quality Colloquium, Portuguese Quality Association / Lisbon (2013); communication "Degree programmes internal benchmarking", EAIR 35th Annual Forum 2013 - The Impact of Higher Education: Addressing the challenges of the 21st century, Rotterdam / Netherlands (2013).

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Maria Alexandra Sevinate Pontes is graduated in Agronomy in 1990 from the Instituto Superior de Agronomia of the Technical University of Lisbon and earned her Master Degree in Quality Management, from Universidade Aberta.

From October 1995 to May 2013 she performed her activity in Universidade Aberta and focused her professional activity on the areas of Quality and Strategic Planning. She currently performs her activity at Técnico Lisboa Institutional Studies and Planning Office.

She also collaborated in Universidade Aberta, as trainer, in MSC and lifelong learning courses in quality management through E-learning.

Between 2007 and 2014 she coordinated a working group for quality management in higher education (GT2) of the Sectoral Committee for Education and Training (CS11), which develops its activity under the Portuguese Quality System. She has been the vice-president of this committee since 2013.

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Graduated in Decisional Systems Engineering she is a member of the Evaluation and Planning team from Técnico Lisboa Institutional Studies and Planning Office since 1995. She has always been linked to the area of Quality in Higher Education Institutions, in particular through the coordination of the Programmes Assessment and Accreditation process (Self-assessment and External Evaluation processes), and the elaboration of strategic planning documents released by the School. She has participated in several national and international projects, such as the pilot assessment exercise of IST Integrated Quality Management System (SIQuIST) and QUEST-SI-Quality System of Sc&T Universities for Sustainable Industry (EU-LLP).

**Proposal**

**Title: Dealing with a new paradigm in Portuguese Higher Education Institutions: from Programme Assessment to Institutional Assessment**

**Abstract (150 words max):**

Based on an experience with more than 20 years in Study Programme assessment, this article presents the methodology adopted by Técnico Lisboa in carrying out a meta-assessment exercise of its Integrated Quality Management System (SIQuIST), as well as an example of its application to the strategic area of Education.

Certified in 2013 by the Portuguese Agency for Assessment and Accreditation of Higher Education (A3ES)[1], SIQuIST was one of the first four internal quality systems certified in Portugal by the national Agency.

From an assessment by subject area (Study Programmes), A3ES will adopt a new methodology for institutional assessment, which is expected to start in 2017. Técnico Lisboa is prepared for that disruption, much due to the experience from the meta-assessment exercise, which will be a major support to overcome emerging challenges that result from this new assessment paradigm.

**The paper is based on:** practice

**Text of paper (3000 words max):**

## 1. INTRODUCTION

In recent years, Portuguese HE has undergone a troubled phase due to far-reaching adaptations required by the Bologna process, in parallel with other major changes in the legal framework itself. HEIs have voiced concerns for quality issues over the years, which are manifested in institutions' everyday life.

Some HEIs have long invested in these quality issues, as was the case of Técnico Lisboa, with the creation of quality support structures.

Starting with a brief reference to the Portuguese Higher Education assessment system, this article presents the main features of the model adopted by Técnico Lisboa for the internal monitoring, assessment and quality promotion of its activities.

Finally, and considering the new paradigm of evaluation of the Portuguese Higher Education, the methodology used by the school for a meta-evaluation of its Integrated Quality Management System (SIQuIST) will be presented, as well as an example of its application to the strategic area of Education.

## 2.     THE PORTUGUESE QUALITY ASSURANCE SYSTEM

Following a new Higher Education (HE) policy, Portuguese government defined in 2007 the structure of a new quality assurance system for Higher Education Institutions (HEIs). A new legal framework was adopted, which took into account reference documents at European level, such as the ENQA[1] guidelines.

The 4 development priorities for this system were:

- to extend the scope of assessment, covering the performance of institutions and not just their programmes;

- to target the assessment criteria, for comparable results, and clarify the consequences of assessment in what concerns the functioning of programmes and institutions;

- to internationalize the assessment process, in particular from the perspective of institutional assessment;

- and to require tangible results, as HEIs should implement their own quality assurance systems, which are likely to be certified.

In 2007, considering the European quality assurance system for HE, the Portuguese government decided to set up the Agency for Assessment and Accreditation of Higher Education (A3ES).

This Agency is responsible for contributing to quality improvement of HE in Portugal, through the assessment and accreditation of HEIs and its Study Programmes (SP), assuring compliance with basic requirements of official recognition, while promoting an institutional quality assurance culture.

In order to ensure high standards of HEIs performance, the new quality assurance model followed by A3ES aimed at measuring the degree of compliance of the mission of institutions through performance parameters. In this respect, quality assessment, made through self-assessment and external assessment exercises, is a basis for accrediting HEIs and their SP, ensuring compliance with basic requirements that lead to the official recognition both of HEIs and their SP.

A3ES itself assumed the principle that each HEI is primarily responsible for its internal quality, and should set up adequate internal quality structures and procedures. In turn, the Agency shall be responsible for conducting audits to certify HEIs quality assurance procedures. Therefore A3ES started developing broader assessment processes that included certification of internal quality assurance systems, and commitment of adopting simplified accreditation procedures regarding institutions that implement these systems and present performance indicators clearly above legal minimum standards.

## 3.     STUDY PROGRAMMES ASSESSMENT

Técnico Lisboa started promoting assessment exercises of its SP in the 1990s, seeking to obtain an effective repercussion in the improvement of processes, Programme results and faculty performance. Over the years, the purpose was to develop an assessment system that could:

- set up structures and ensure necessary resources for regularly carrying out external and internal assessment of its teaching activity;

[1] ENQA http://www.enqa.eu/

- put a simple and effective system in place that could identify, collect, process and disclose information;
- and ensure that assessment exercises had visible and timely effects on the (re)formulation of the educational process.

Through regular cycles, all scientific areas of SP offered by Técnico Lisboa were assessed. In response to weaknesses identified in self-assessment processes, different internal and systematic quality control mechanisms have been developed, tailoring the needs identified and the resources available.

Despite all these developments, the need to adapt to the Bologna Process and to the international reality, led to a far-reaching reflection about these mechanisms, which culminated in a broad review of all quality monitoring processes.

## 4. IST INTEGRATED QUALITY MANAGEMENT SYSTEM - SIQuIST

Técnico Lisboa reflected internally on its quality policy, towards the development of an Integrated Quality Management System, known as SIQuIST, following the best European practices and covering Teaching, RD&I and Technology Transfer activities.
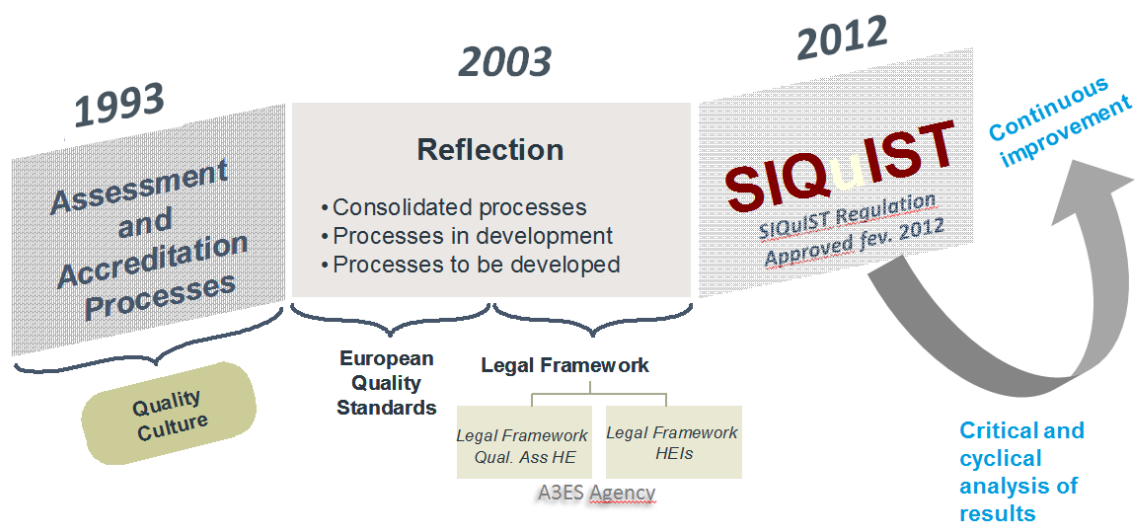


Figure 1 – Técnico Lisboa path towards Quality

Any quality management system should reflect the way an institution controls its activities, through a structure that supports the way planning processes, resources and documents are used to achieve the institution's objectives with certain levels of quality, while promoting the continuous improvement of services provided.

In this regard, the development of SIQuIST sought to identify and integrate the major processes in a trustworthy and effective system, giving an impetus to improvement and readjustment, in real-time, of internal procedures.

The SIQuIST is pivotal for the institution's external Assessment and Accreditation processes, by stimulating a global and integrated quality culture which links the strategic objectives of Técnico Lisboa to its operating goals. Nevertheless, more than responding to external demands, this system ensures updated information on how Técnico Lisboa operates, and helps to create feedback mechanisms to improve performance conditions.

SIQuIST Regulations contain a group of assumptions deemed essential to build up any assessment system, in order to:

- set objectives for assessment and assessors;

- get stakeholders involved in decisions regarding assessment processes and policies;

- redress the balance between institutional vs individual needs;

- disclose information on assessment in a clear way (criteria, processes and procedures);

- provide resources for teaching quality promotion and improvement;

- promote assessment regularly and continuously over time;

- use and adapt instruments to specific teaching situations;

- use validated instruments for institutional assessment purposes;

- keep formative assessment separate from summative assessment.

## 4.1 QUALITY POLICY

Técnico Lisboa statutes establish a commitment to quality assurance in Education, Research and Technology Transfer as fundamental bases for the accomplishment of its mission.

Thus, Técnico Lisboa's quality strategy relies on an institutional development programme with formally established milestones in strategic management documents, including actions to be carried out, monitoring tools, time scales and responsibilities and competences of the different bodies, services and agents involved.



Figure 2 – Strategic management documents of Técnico Lisboa

The quality assurance policy also seeks to stimulate active participation of stakeholders, in order to make activities assessment a common procedure in Técnico Lisboa eleven focus areas.

The focus areas cover the three components of the core missions of the School (Higher Education, Research, Development & Innovation and Technology Transfer), but also include support and cross-cutting areas. Three cross-cutting focus areas are shared by all the core activities of Técnico Lisboa, closely associated with the needs of a global organization (Internationalisation and Communication), and the need to consider a new aspect of the school's organization, its

Multipolar Operation accross three distinct campuses. The core activities depend mainly on its Human Resources, which themselves depend on the support of a number of different areas whose development is addressed in the Strategic Plan: Infrastructure, Processes and Quality, and Information Technology. Finally, all the development strategy rests on adequate and flexible Funding resources, which have to be further developed in order to make Técnico Lisboa as independent as possible from the fluctuations that are inherent in public funding.
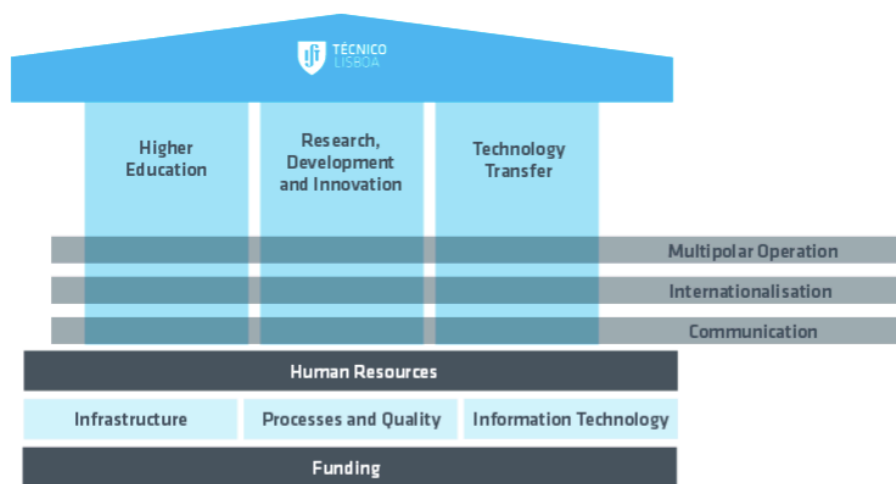


Figure 3 - Schematic representation of Técnico Lisboa eleven strategic action areas[2]

Every decision and strategic action is monitored and supported by a Quality Plan (QP), which aims at specifying targets and indicators that substantiate the strategy for development, the quality assurance and the continuous improvement of Técnico Lisboa.

But, are we doing the right things the right way? To measure success, two types of indicators were included in the QP:

- quality indicators, to measure the process, expectations, perceptions, satisfaction, improvement, impact of activities carried out;

- and progress indicators, to measure results, the accomplishment of targets, the achievement of the objectives.

The objectives established for the strategic Processes and Quality area, include the development of adequate practices that promote quality in all strategic areas and respective assessment procedures. Together with the consolidation and improvement of methodologies and tools for monitoring and promoting quality, the school should provide wide dissemination and sharing of good practices identified in the various levels of school performance, pursuing the objective of increasing productivity and commitment of the whole community in the implementation of its strategy.

Furthermore, six action lines have been defined:

1. identification, consolidation and dissemination of good institutional practices;
2. review/implementation of evaluation processes for Departments, Research Units and Laboratories;
3. consolidation of the assessment processes regarding the SP offered;
4. consolidation of the internal assessment of faculty, researchers and non-academic staff;
5. redefinition and optimization of administrative processes;
6. alignment and monitoring Técnico Lisboa positioning in international rankings.

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[2] IST Strategic Plan "A School for the World" in https://tecnico.ulisboa.pt/files/sobre-IST/plano-estrategico-2015.pdf

## 4.2 CERTIFICATION OF SIQuIST

Técnico Lisboa applied for an experimental audit exercise to its internal quality assurance system, held by the Agency for Assessment and Accreditation of Higher Education (A3ES). This exercise was coordinated by Técnico Lisboa Council for Quality Management, and aimed to promote a reflection on the scope and effectiveness of quality assurance procedures and structures in each of the strategic areas of the school, according to A3ES guidelines:

- to assess the degree of the internal quality system estimated development (insufficient, partial, substantial and very advanced);

- to support this assessment through evidence and examples;

- to identify aspects for improvement;

- to present a SWOT analysis.

To obtain a favorable decision for SIQuIST certification, schools had to reach a minimum appreciation of "partial" in all areas and "substantial development" (at least) in areas like "teaching and learning" and "the system as a whole".

| AUDIT AREAS | RESULTS |
|---|---|
| Teaching and Learning | *Substantial Development* |
| Research and Development | *Substantial Development* |
| Links to Society | *Substantial Development* |
| Information System | Very Advanced |
| Human Resource Management Policies | *Substantial Development* |
| Support Services | *Substantial Development* |
| Publication of relevant information to stakeholders | *Substantial Development* |
| Internationalisation | *Substantial Development* |

Figure 4 – SIQuIST Certification results summary: 2013-2018

In January 2013 SIQuIST was certified by A3ES for a period of six years, and Técnico Lisboa became one of the first four Portuguese HEIs with their internal quality systems certified. Three years later, in 2016, there are ten more institutions, but only 6 have a six years period certification.

In addition to the external visibility of SIQuIST and promised simplification of accreditation procedures by A3ES, many other benefits have been identified at Técnico Lisboa, following the certification of its quality system, in particular:

- reinforced commitment of institution's governing bodies concerning quality issues;

- an opportunity for involving all leaders of the institution's different strategic areas in a joint reflection on quality monitoring/promotion mechanisms;

- the development of new SIQuIST support documents;

- greater visibility for the quality system itself, inside and outside the institution;

- greater transparency and involvement of people in quality processes, establishing better links and information channels on the monitoring processes and quality promotion among stakeholders;

- an opportunity to share experiences and clarify doubts among stakeholders;

- an opportunity to review and reformulate some bureaucratic and complex processes;

- increased participation of students in the quality management and assessment system;

- greater awareness of the whole institution not only concerning quality assessment/promotion procedures but also concerning their effectiveness: what it is done with the results of assessment processes (corrective measures, improvement plans);

- recognition that external assessment always end up being an encouragement, an additional stimulus to the processes of change and continuous improvement inside the institution;

- acknowledgement that there are neither unique nor ideal quality systems, only benchmarks with minimum requirements from which HEIs should develop their quality system.

## 5. SIQuIST META ASSESSMENT

Currently lacking any information on the guidelines to be used in institutional assessment processes that A3ES will carry out by 2017, and taking into account the importance committed to HEIs internal quality assessment systems with the certification process at national level, it is expected that the Agency takes into account, in its evaluation criteria, the consistency and effectiveness of the schools' quality systems.

In this regard, and aware of its responsibilities which include the production of self-assessment reports on SIQuIST operation, in April 2016 Técnico Lisboa Quality Management Council approved the work plan for reviewing SIQuIST Quality Manual. The work plan includes a comprehensive mapping and assessment of the various quality mechanisms developed under the SIQuIST.

## 5.1 METHODOLOGY

The proposed methodology, which adopts Deming[3] four-step management method for control and continuous process improvement, covers eleven strategic action areas activities of Técnico Lisboa, and aims to identify (for each area):

1. coordination structures and strategic guidance;

2. documents (manuals, regulations, ...) establishing the rules and procedures for the implementation of the activities;

3. tools for the monitoring and evaluation of results;

4. evidence for continuous improvement, with possible action plans and corrective measures;

5. results, through a number of relevant indicators for monitoring activities;

6. and a global assessment level of the quality mechanisms for each area, on a 1-5 scale, in which 1 (insufficient) to 5 (very advanced).

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[3] https://www.iseg.ulisboa.pt/aquila/getFile.do?fileId=645874&method=getFile

Figure 5 – SIQuIST meta-assessment methodology

This mapping, which is a partnership between several support services of Técnico Lisboa that deal with quality issues, will be validated by both the Strategic Plan Monitoring Committee and the Quality Management Council.

Alongside this mapping, Técnico Lisboa is involved in a pioneering iniciative in Portugal, which consists of assessing Scientific Departments. This process relies on the coordination of a newly created Council for Assessment of Research and Education, and Técnico Lisboa Computer Science Department has adopted the methodology presented here for the development of its self-assessment report.

## 5.2 EXAMPLE FOR EDUCATION STRATEGIC AREA

This process is under development, but an example for one of Técnico Lisboa core processes can be presented: the strategic (focus) area of Higher Education

| | Sub-processes | What to do? Plan according to set objectives | How to do? Carry out as planned, according to set rules and procedures | How to assess? Monitor and assess results | How to improve? Promote continuous improvement | INDICATORS | |
|---|---|---|---|---|---|---|---|
| | | Strategic coordination and guidance *(identify coordination structures and strategic guidance documents* | Performance rules and procedures *(identify documents - manuals, regulations, ... - which set performance rules and procedures)* | Assessment and control instruments *(identify result monitoring and assessment mechanisms)* | Improvement plans *(identify improvement plans, with any preventive and/or corrective measures)* | Characterisation (AR) | Quality (impact/ recognition) |
| **STRATEGIC** | Improvement of Academic Success | **Structures** - Vice-President for Academic Affairs of the Governing Board - Scientific Board - Pedagogical Council, - SC Coordinators - Mobility coordinators - Academic Office | **Legislation** - Framework Law of Educational System - Legal Regime of Higher Education Assessment - Award of degrees and diplomas - Regulations for Registration Foreign Diplomas ... | **Internal** - Faculty performance assessment surveys - Course Unit and faculty audits - Annual Self-assessment reports of Study Programmes - Admission characterisation studies of new students - Final-year student surveys regarding their academic path - Technical and administrative service assessment surveys - Activity Report ... | - Recommendations and Reports of the Study Programmes - Audit Improvement Plans - Recommendations of the External Assessment Committees - Activity Plan ... | 1. No. of programmes 2. No. of students enrolled 3. No. of course units 4. No. of Graduates 5. % of women 6. No. of study programes with RD&I 7. No. of MOOC ... | 8. Vacancy staffing rate 9. Student admission average 10. Dropout rate 11. Survival rate 12. Average completion time of the Study Programme 13. Average pass rate in Course Units ... |
| | Development of digital contents and e-learning platform | | | | | | |
| | Increase in attractiveness of MSc and PhD degrees | | | | | | |
| | Improvement of flexibility of curricular and mobility of national and international students | | | | | | |
| | Promotion of lifelong learning | | | | | | |
| | Streamlining educational offer | | **IST Documents** - Study plans (OJ) - Academic Guide 1st, 2nd and 3rd cycles - Service procedure manual - Tutor Manual ... | | | | |
| **OPERATIONAL** | Creation, review and closure of study cycles | **Strategic documents** - Strategic Plan - Quality Plan - Activity Plan - IST By-Laws ... | | | | | |
| | Creation, review and closure of SC | | | | | | |
| | Preparation of academic activity | | | **External** - Assessments of the Portuguese Accreditation Higher Education Agency (A3ES) - Assessment of the Order of Engineers under the award of the EUR-ACE seal of quality | | | |
| | Selection, admission and registration of students | | | | | | |
| | Performance of academic activity and award of academic degree | | | | | | |

| Self-assessment | Very advanced | Substantial | Partial | Poor | | |
|---|---|---|---|---|---|---|

Figure 6 - Mapping of quality mechanisms in Higher Education focus area

### 5.2.1 Activities characterization

First of all, activities in this big core process must be identified in terms of strategic activities and operational activities:

- Strategic lines for Education:
  - ✓ Academic Success Improvement;
  - ✓ Development of digital contents and e-learning platform;
  - ✓ Increase the attractiveness of Master and PhD degrees;
  - ✓ Improvement of the flexibility of curricula and mobility of national and international students;
  - ✓ Promotion of Lifelong Learning;
  - ✓ Rationalisation of the training offer.
- Operational lines for Education:
  - ✓ Creation, review and extinction of Study Programmes;
  - ✓ Selection, admission and registration of students;
  - ✓ Preparation of teaching activity;
  - ✓ Implementation of teaching activity and degree assignment.

### 5.2.2 Coordination structures and strategic guidance

The first step involves identification of coordination structures and strategic guidance that define the activity goals: what to do? Plan according to the objectives is the first step, so HEI have to look for the existence of management structures (eg Councils, Boards, Services) and related guidance documents (eg: strategic plans, activity plans).

### 5.2.3 Implementing rules and procedures

The second phase encompasses implementation instructions for the activities: how to perform the planned actions according to the appropriate standards and procedures? In this regard, it is necessary to identify the documents (eg manuals, regulations) establishing the implementing rules and procedures.

### 5.2.4 Monitoring and assessment tools

In a third step, one must ensure that the HEI is doing well what it is supposed to do: how to evaluate? Here comes the need to check for the existence of monitoring and assessment tools to control activities results.

### 5.2.5 Improvement plans

In the fourth and final step, if the purpose of the mechanism is to improve the activity, the results obtained in the previous step will help define improvement plans: how to improve? By identifying possible preventive and / or corrective measures to develop, and incorporate them in the first step of strategic guidance and planning of the activities.

### 5.2.6 Performance indicators

Finally, and going through the whole process, there must be a number of indicators not only to fix specific targets in the first planning step, but also to measure and monitor activities results in the second and third step: records to measure results of operational activities and strategic targets; and quality indicators measuring recognition and impact of the activity. And these indicators will certainly be incorporated in the last step (improving plans, re-definition of goals).

### 5.2.7  Meta-assessment results

By analysing mapped quality mechanisms, it will be finally possible to assess and classify their level of development. Using a similar scale to that used by the national Agency for quality systems certification (insufficient, partial, substantial and very advanced), it is now possible to identify any gaps in each of the four stages:

- ✓ are existing coordination structures sufficient and do they produce/disclose strategic orientation that allows activities of each strategic area to be satisfactorily planned?

- ✓ are regulations and implementation rules for specific activity tasks the most appropriate and do they lead to efficiency and effectiveness of planned activities?

- ✓ are the monitoring and evaluation tools of the activities sufficient and do they provide indicators for the result assessment and activity quality?

- ✓ Is there an effective feed-back from assessment tools, using assessment results for the development of improvement plans with possible corrective actions?


### 5.    FINAL REMARKS

Regardless of greater or lesser degree of development of quality systems in HEIs, assessment exercises ended up contributing to the implementation of internal quality assurance mechanisms in institutions, despite much remains to be done in order to articulate them in a cohesive and integrated system. It is true that information is gathered and results analyzed, but what has been lacking is a more comprehensive assessment, more oriented to thinking about the results in view of set objectives.

It is important that efforts of HEIs continue to devise quality systems and make accountability an obligation, but should not overshadow the importance of continuous improvement. The critical sense of those who prepare the self-assessment exercises in institutions should be emphasized, allowing for the introduction of changes for a true quality enhancement process. Institutions should look for quality assessment models and systems that allow them to internally ensure and improve quality, irrespective of the external mandatory assessment systems.

With this new paradigm of Institutional Assessment, the Portuguese HEIs should implement and consolidate their quality management systems, and for that it is fundamental to promote a meta-assessment which helps track the system in terms of strengths and weaknesses.

The methodology proposed for the mapping of quality mechanisms, contributes to simplify the task of evaluating the system in all its focus areas and proposing suggestions for improvement to bridge any possible gaps.

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**Discussion questions:**

By sharing experiences, it is expected that participants in this session are able to give feedback to this questions:

- Is there an integrated quality system in your HEI? If yes, what is the model adopted in terms of focus areas?

- In your opinion what are the advantages of an integrated quality system for HEIs?

- Is there a formal link at your institution between strategic planning and quality monitoring mechanisms?

- Is a meta-evaluation of the system made? If yes, how often is the report prepared and who is in charge of it?