Background and Rationale

The need to assess Quality in the H.E.I. has been discussed and presented by Organizations like CRE, IRDAC, EAIE and in so many conferences, meetings and official documents either of the European Commission or European Council (1-8).

Particularly, one may distinguish discrete efforts and deep concern to introduce Quality principles through the SOCRATES programme, the European Pilot Project for Quality Evaluation in the H.E.I. in E.U. (7,9) and finally in the Council’s Recommendation on Quality.

However, the attitude prevailing internationally, throughout the years, likes the Universities to strive, by all means, to develop an ethos of excellence i.e. to pull the Society rather to produce just what the market needs now (11-15). This culture pinpoints an intrinsic factor embedded in the University environment and life, which seems to be a sine qua non what the University serves for.

Hence, without abandonning the idea to introduce Quality processes in a H.E.I. one should first deepen into the three main activities or roles a University possesses (19).

- Education - Learning environment
- Training - Services - Consultancy
- Research and Technology Development

From the above three modes of University functioning one realizes that the component for the Societies’ future developments, lies mainly in the third one, which feeds the other two. This scheme underpins that Education and Training curricula and methodologies, are continuously fed by the RTD outcomes, which in parallel feed the Industry or the Market, too, spanning any kind and level of users of the RTD results / products.

Up to now, through the European Pilot Project for Quality Evaluation of H.E.I. (7, 9) in Europe, the Research domain was not touched or evaluated.

However a careful look on the self assessment reports (26) gives the picture of the headings and parameters peers had to review upon (20). However, this set of checklist parameters presented in Appendix I offers limited accountability.

As an attempt, the adoption of a first Quality Evaluation System within the H.E.I. in Europe, is appreciated a lot; thus the Council’s recommendation to the national Authorities to support initiatives for Quality Evaluation on University courses and services.

The successful efforts made by CRE, EFQM, EAIE and other Organizations and countries like, France, U.K., NL, on Quality Evaluation give the idea that one may expect another stage of
development of the Quality Evaluation systems to meet accountability in all sections of the self-assessment and the Peers report (20).

**Quality and Evaluation of Performance**

The need for better quality in all the activities of higher education and science becomes more pressing, as competitive processes in our modern societies largely reflect the comparative skills and abilities of human resources (21).

Both the providers of funding and the consumers of higher education services (students, employers, etc.) will require the institutions not only to maintain quality, but also to be seen to do so.

The meaning of quality has obviously to be related to the specific objectives pursued by the educational or research programmes (15,18).

The definition of such objectives and the identification of the corresponding operational organisation, also the adoption of appropriate criteria of performance (15) in order to apply efficient monitoring methods (21), should become a basic rule in the implementation of all programmes of post secondary education.

Quality and evaluation of performance (14) go together and accordingly progress in the implementation of evaluation methods, helps to increase the autonomy, responsibility and responsiveness of institutions. The use of systematic evaluation, the principal aim of which is to help bring about a better allocation of resources, will result in radical change in the traditional methods of public monitoring and control of third-level institutions.

There are several different approaches to evaluation. The most immediate is that which is done by the «market». This is reflected in the choices of students to attend particular programmes in particular institutions, or in the choice of users of other services to engage their use.

The willingness of employers to take on graduates (employability) from particular courses or from particular institutions is a measure of the quality of the courses as much as of their suitability to the consumer «market».

An indirect indication of market evaluation is derived from public opinion, the media and the willingness of faculty and administrators to shift from one institution to another. Evaluation of courses by the students themselves, a normal enough procedure in universities and colleges in the United States and an important component in the dynamics of change, is still to be developed in Europe.

All formula designed to increase the mobility of students and of faculty underpin the «market» evaluation process. «Contractual» relations with attached funding can also function as a market indication. Any choice or arrangement of partners in international networks of co-operation and exchange implies also quality evaluation.

A second type of evaluation is that which is done by funding organisations, such as ministries, foundations, boards, etc. In a number of Member States there are established procedures and organisations for comparing performances between universities. Evaluation of research is now being adopted generally (22) and in turn affects University funding.
The participation of non-national experts, in such evaluation especially from other Member States, could be more systematically practised in order to establish a common understanding and disseminate basic and significant information in courses, professions, needs, demands, etc.

Given the concentration of certain aspects of science and advanced research, advanced professional education and graduate studies within certain centres, or certain international networks, it is possible to envisage the development of a Europe-wide evaluation systems although the origination and funding of these is not immediately clear. They would, of course, have to be carried out in the context of partnership with the member states.

A third form of evaluation which can be expected to develop quickly is self-evaluation by the institutions themselves (14). Comparative quality of qualifications is already maintained in many institutions through the engagement of external assessors for examinations and not only.

In the broader sense, however, «self-evaluation» would be an outcome of more strategically oriented management of institutions, which would follow where funding authorities relax their direct and a priori control over the use of resources.

In the E.U. national systems of Higher Education, it becomes more and more important:
- the mass education,
- the new role(s),
- the market needs,
- the contribution to development (regional, national)

These systems do have similarities and differences, but the policy is to build upon the deservity and flexibility of these systems and not necessarily to drive them to homogeneity.

It must be pinpointed that each Higher Education system functions with the following major stakeholders whose role and importance vary per country:

- state: central / local government
- the universities: autonomous, but the degree of autonomy depends on the national culture
- other institutions of Higher Education e.g. Unions of teachers, staff, students of any dimension. Also, international scientific bodies or advisory ones
- the society, as a whole

The society: enjoys complex and often ambiguous relation with the University as an Institution. The society: finances the Universities at a level of about 90%:
- defines the objectives
- strives to achieve accountability

The difficulties and needs of evaluation arise from the interplay between the interests of these stake-holders which are rarely identical.

Several parallel developments have made the need for evaluation more urgent.

- As Higher Education, moved from elite to mass education
  - changed the nature of student population
  - demands Quality in the Higher Education space in order to meet a diversity of student needs and abilities
strives to satisfy the «clients» expectations

At the same time, the national governments and the social partners ask for accountability from the Higher Education Institutes in the process of decentralisation. In this context more freedom for the Higher Education Institutes has been balanced by the setting up of systematic evaluation programmes (24).

**Measurement of Quality and Indicators principles**

Traditionally, performance measures and indicators were based to:
− cost - accounting information, often arbitrary and
− scientific prestige principles, rather vague and subjective

These provided little motivation to the University Authorities and to the University members to support a Total Quality System within the University.

Sometimes, such indicators discouraged plans for continuous improvement based on the analysis of those indicators as those were unable to map the process management and performance.

In the cycle of never ending improvement, measurement plays an important role in:
Identifying opportunities for improvement
Comparing performance against internal standards (process control and improvement).
Comparing performance against external standards (benchmarking).

Measures are used in *process control*, and in *performance improvement*, so they should give information about how well processes and people are doing and motivate them to perform better in the future.

The Deming cycle of continuous improvement - PLAN, DO, CHECK, ACT - clearly requires measurement to drive it, and yet it is a useful design aid for the measurement system itself:

**PLAN:** establish performance objectives and standards
**DO:** measure actual performance
**CHECK:** compare actual performance with the objectives and standards - determine the gap
**ACT:** take the necessary actions to close the gap and make the necessary improvements.

In a quality-driven, never ending improvement environment, the following are some of the main reasons *why measurement is needed* and why it plays a key role in quality and accountability improvement:

- To ensure that customer (internal, external) requirements have been met.
- To be able to set sensible objectives and comply with them.
- To provide standards for establishing comparisons (not ranking) for continuous improvement
- To provide transparency and provide a ‘score-board’ for people to monitor their own performance levels.
- To highlight quality problems and determine which areas require priority attention.
- To give an indication of the costs of poor quality
• To justify the use of resources.
• To provide feedback for driving the improvement effort, to heal the weak points and update the strong ones.

It is, also, important to know the impact of TQM on improvements in University performance, on sustaining current performance, and perhaps on reducing any decline in performance, compared to the targets set under the Policy Statement or Development Policy.

In order to assess and evaluate performance accurately, appropriate measurement must be designed, developed and maintained by people who own the processes concerned. They may find it necessary to measure **effectiveness, efficiency, quality, impact, and productivity**. In these areas there are many types of measurement, including direct output or input figures, the cost of poor quality, economic data, comments and complaints from customers (internal, external), information from customer or employee surveys, etc.

No one can provide a generic list of what should be measured but, once it has been decided what measures are appropriate, they may be converted into indicators. These include ratios, scales, rankings, and financial and time-based indicators. Whichever measures and indicators are used by the process owners, they must reflect the true performance of the process in «customer/supplier» terms, and emphasize continuous improvement. Time-related measures and indicators have great value.

If true measures of the effectiveness of T.Q.M. are to be obtained, there are three components that must be examined - the human, technical and business components. The human component is clearly of major importance and the key tests are that, wherever measures are used, they must be:
1. Understood by all the people being measured
2. Accepted by the individuals concerned in the University life
3. Compatible with the rewards and recognition systems
4. Designed to offer minimal opportunity for manipulation

Technically, **the measures must be the ones that truly represent the controllable aspects of the processes, rather than simple output measures that cannot be related to process management**. They must also be correct, precise and accurate. This implies that no mechanism approach or end stage or output values give the real insight of the process if the real target is the process, management for improvement.

The business component requires that the measures are objective, timely, and result-oriented, and above all they must mean something to those working in and around the process, **including the customers** (employers, employees, students).

Measurement, as any other management system, requires the stages of design, analysis, development, evaluation, implementation and review. The system must be designed to measure progress. Progress is important in five main areas: effectiveness, efficiency, productivity, quality and impact.
Effectiveness may be defined as:

\[
\text{Effectiveness} = \frac{\text{Actual output}}{\text{Expected output}}
\]

Hence effectiveness looks at the output side of the process and is about the implementation of the objectives - doing what you said you would do. Effectiveness measures should reflect whether the organization, group or process owner(s) are achieving the desired results, accomplishing the right things.

Measures of this may include:
- Quality: grade of students graduates, or level of service (s), consultancy
- Quantity: number of graduates, degrees, research papers, contracts e.t.c.
- Timeliness: speed of response, product lead times, cycle time (years students need to finish a course)
- Cost/price: running cost per student

Efficiency is concerned with the percentage resources actually used over the resources that were planned to be used:

\[
\text{Efficiency} = \frac{\text{Resources actually used}}{\text{Resources planned to be used}}
\]

Clearly, this is a process input issue and measures performance of the process system management. It is, of course, possible to use resources ‘efficiently’ while being ineffective, so performance efficiency improvement must be related to certain output objectives.

All process inputs may be subjected to efficiency measurement, so we may use student/staff efficiency, equipment efficiency (or utilization), material efficiency, information efficiency, etc. Inventory data and throughput times are often used in efficiency and productivity ratios.

Productivity measures should be designed to relate the process outputs to its inputs:

\[
\text{Productivity} = \frac{\text{Outputs}}{\text{Inputs}}
\]

and this may be quoted as expected or actual productivity:

\[
\text{Expected productivity} = \frac{\text{Expected output}}{\text{Resources expected to be consumed}}
\]

\[
\text{Actual productivity} = \frac{\text{Actual output}}{\text{Resources actually consumed}}
\]
There is a vast literature on productivity and its measurement, but simple ratios such as degrees per man x months (expected and actual), pages of word-processing per operator-day, and many others like this are in use. Productivity measures may be developed for each input or a combination of inputs, e.g. contracts funding over the persons equipment employees costs.

**Other Quality Indicators**

The non-quality-related measures include the simple counts of Universities leavers, drop outs or resits, not in time graduation (feedback to revise methodology to improve effectively regulations), also, measures of defects or non-conformance in operation of the equipment to use (Total Preventive Maintenance is a necessary chapter in Quality Management).

The quality measures should indicate positively whether we are doing a good job in terms of «customer» satisfaction, implementing the objectives, and whether the designs, systems, and solutions to problems are meeting the requirements. These are the voice of the customer measures.

Value added (financial indicator) could be seen as the sum of fees and funds by all sources minus the costs for running (operational, maintenance) and provides a good measure of the performance of the University thus enabling it to play its social role, too, providing rewards, recognition (incentives) improved care to (student, employees) customers e.t.c. increasing its prestige and fame.

Another indicator could be the value added over the number of employees (cost of employees) e.t.c. 

**In performance measurements the strategic objectives of the University will be converted into desired standards of performance.** This will lead to the development of metrics that will be used to compare the desired with the actually achieved standards.

This separation of process performance from process management is important, for different questions need to be asked under these headings. Process performance is concerned with quantifying - the how often, how many, how big/small, how good/bad - while process management must concern itself with the what, why, where, when, who, and how.

**The Process of Performance Management.**

The establishment of positive quality policy objectives within a University must be accompanied by the clear allocation of responsibilities. It is generally accepted that the primary operational responsibility for ensuring that the quality chain does not break must rest with line management.

Managers or Management Boards are in control only when they have created a system and climate in which their staff/students can exercise self-control. Mechanisms may then be created to provide clear performance standards in all areas, backed by appropriate job descriptions and training, to ensure that standards are achieved. The process of performance management consists then of:

- Clarifying responsibilities
- Developing performance indicators and objectives
- Preparing action plans
Clarifying responsibilities
If job descriptions have been written for the University, they may serve as a starting point for clarifying each individual’s role. It should be emphasized, however, that these need to be updated and reviewed with each staff member to ensure their relevancy. The format for job descriptions is not of critical importance, although it must be standardized for any particular H.E.I.

Developing performance indicators and objectives
Although the responsibilities should clarify what is to be performed, they do not define how well the tasks are expected to be performed. Performance indicators therefore are the means by which performance will be evaluated. To be meaningful they must be:

a. Measurable - indicators must lead to performance objectives which are quantifiable and tangible. Achievements in these areas must be recordable, verifiable, and observable. Areas such as quantity or quality of output, time schedules, costs, ratios, or percentages would be examples of measurable indicators.

b. Relevant - indicators must serve as a linkage between specific areas of responsibilities and the individual performance objectives to monitor achievement. They must describe what is the expected role of the position - the critical areas of performance.

c. Important - indicators need not be defined for every area of responsibility. They should be developed for those activities that have a significant impact on the results for the individual, department, and organization.

The establishment of performance objectives provides clear direction and communication of expected levels of achievement. The process is a joint one - an interaction between the Rector or the Senate and the staff students. If full commitment on the part of both parties is to be realized, the targets should be negotiated in the form of a performance ‘contract’. Once the indicators have been agreed, the specific results desired need to be decided. The greater the participation, the greater the motivation to achieve. Agreed performance objectives should therefore contain the following ingredients:

• Be participatively developed
• Be challenging but attainable
• Be clear statements of performance expectations
• Lie within the individual’s scope of control

Participation - an interaction which leads to mutual agreement provides a good exchange of ideas between the Rector of the Senate and staff. The results are not a compromise but should be the outcome of a persuasive but logical presentation of why such an outcome is plausible. Discussions should be analytical, not emotional, and deal with both sides of an issue if there are significant differences. The crucial factors in examining the advantages of this approach are:
Involvement → Commitment → Personal responsibility → Higher drive to achieve
rather than
Imposition → Lack of acceptance → External responsibility → Lower drive to achieve

It is inevitable to avoid any ranking of Universities through the evaluation procedures (25) as this is generally misleading, since a H.E.I. is a living organisation which develops, has trends which vary, limitations or established responsibilities and a framework based on the national culture and policy and therefore a static measurement of Quality may give nothing essential to the ones concerned.
However, one has to define some performance indicators which pinpoint the dynamics on the potentiality of the University system and cover the need for accountability. There is a need to measure as accurately and essentially as possible characteristic factors which determine the University functions and role.

The Quality Indicators shown in the table below may be categorized to correspond to the objectives set or to the chapters of the self-assessment report (see Appendix I) and also to meet the requirements the Academic, Professional bodies and Social Partners ask for, in order to achieve credibility (25).

The whole set of Quality Indicators presented in this Table has to be considered as a provisional group of Indicators. These have to be translated and adopted to the Academic culture of each H.E.I. which would plan along with the adoption of a Quality Management System, either for the courses and/or services or in some activities e.g. Mobility, to define the Quality Indicators and measure after them the results or outcomes of the objectives set by the Board - Senate - Rector e.t.c.

This exercise is left to the Conference participants to try to correspond these Q.I. to the check list parameters making the self-assessment report more accountable.
### TABLE

Recommended set of Quality Indicators in H.E.I.

1. \[
\frac{(Students \times hours)}{(Staff \times hours)} \quad \text{contact hours}
\]

........................................

2. No of students in class :

........................................

3. Graduates per year vs number of enrolled

........................................

students in the corresponding period

4. Employment successes:

........................................

5. No of foreign students per course :

........................................

6. Foreign students from E.U. Member States, Y/N: ........ No.: ........
or CEE countries per undergraduate /course

Y/N: ........ No.: ........

7. Foreign students at p.g courses from E.U. Member States Y/N: ........ No.: ........
or CEE countries

Y/N: ........ No.: ........

8. Visiting professors from other countries Y/N: ........ No.: ........

Countries: B, DK, D, GR, E, F, IRL, I, L, NL, A, P, FIN, S, UK, IS, FL, N, CY, M, BU, CZ, H, PL, RO,
9. Increase of student population per department/course: during the period of the last 2-3 yrs

10. The percentage of student who (want to) continue studies at p.g. level

11. National and International awards for the Department, the Institution, the student:

12. Curricula based on objectives: approved by Professional & Academic Bodies

13. Funding policy: State %

: Public %

: Private services (consultation, tests, training etc).................................%

RTD...........................................................................................................

: E.U. ...........................................................................................................

Self - activity innovations e.t.c.........................................................%

joint ventures.................................................................%

TOTAL 100 %
14. **Library**: Volumes of books:  
........................................

No. Journals:  
........................................

Interlibrary loan facilities:  Y/N:  
........................................

15. Library policy for development: increase budget per year.................................%

16. How often textbooks the educational/training material are revised or renewed per course  
...........................................yrs

17. Any forms of structures or processes to disseminate RTD results  
Y/N: .......... No.: ..........

18. Employability rate:  
\[
\text{\( \frac{\text{no of graduates employed}}{\text{no of graduates tried to}} \)}
\]  

...........................................  
Integration over one year

19. Running cost per student:  
...........................................

20. How many Technology transfer lines exist in the University through participation in Networks: Euro or National, or Sectoral  
EURO:..............
National:..............
Sectoral:..........  

21. Number of RTD projects per year..........................  Y/N:........ No.: ..........

22. Conferences:  
Organisation:  Y/N: .......... No.: ..........
Participation with papers:  Y/N: .......... No.: ..........
23. Publications:
   Educational: Y/N: ........ No.: ........
   ........
   Research papers Y/N: ........ No.: ........
   ........

24. Review papers, (fields*): Y/N: ........ No.: ........
   ........
   monographs e.t.c.

25. Investments on infrastructure, %, of the total expenditure

26. Running cost in ECU/student:
   ........................................
   (A model to be developed later on)

27. Certification procedures ISO 9001 or similar: Y/N: ........ No.: ........

28. Effectivity: (actual output/planned output):
   ........................................
   Propose procedures to estimate it
   ........................................
29. Number of Academic staff in %, who have a
   ........................................
   leave for updating or training or a leave for RTD

30. Number of Administrative staff in %,
   ........................................
   who have attained training

31. No. of staff trained per year:
   ........................................

* use ERASMUS coding
References

5. CRE
10. Accreditation, Credit Transfer and Quality Assessment in Europe. J.Monnet Lectures (in English) by S.Kaplanis, Patra, 1998.
CHECKLIST OF HEADINGS FOR THE SELF-ASSESSMENT REPORT


CHECKLIST
1. Institutional Context

- brief presentation of the institution (university or other);
- organisational structure and position of the department or discipline within the overall structure;
- brief description of the management structure (i.e. decision-making process and role and function of committees)

2. Aims and objectives

- description of the aims and objectives of the programme concerned;
  - in relation to national objectives;
  - in relation to institutional missions and goals;
  - specificities of the department assessed;
- impact of research and scholarly activities on the level of teaching.

3. Programme

a) Organization of the programme

- organization of the programme and responsibility for delivery to students:

b) Teaching and learning practice

- teaching methods applied;
- balance of specialist content, general conceptual skills and personal transferable skills;
- European dimension in the curriculum
- courses for students in study skills, behaviour and job-search techniques;
  - encouragement of independent learning and student responsibility;
- department/faculty liaisons with industry, commerce, public agencies and professional bodies.

c) Assessment of students on the programme

- assessment methods used (global integrated knowledge/discipline examinations, written/oral examinations, continuous assessment etc.);
- frequency of assessment;
- responsibility for setting the level and standards for the assessment (institution / national authority etc.);
- responsibility for the content of the exams and other forms of assessment;
- Relevance of assessment system to course objectives.

4. Students

- quantitative data (see data annex);
- comment on quantitative data;
- entrance requirements;
• means of selection;
• student advising / counselling;
• results of any student and employer satisfaction surveys carried out recently.

5. Staff and management of human resources

• quantitative data (see data annex);
• comment on quantitative data;
• who teaches at which levels?
• policies with respect to the recruitment, renewal, training etc. of staff;
• special problems with respect to staff which affect the teaching programme.

6. Facilities

• budget;
• sources of funding;
• infrastructural support;
• lecture halls, areas for practical work, laboratories, libraries, computers for student use, etc.

7. Quality management

• collection and assessment of comments on the programme by students, employers and external examiners;
• effectiveness of liaisons between programmes/departments and institution-wide services;
• support systems for induction, tutoring, remediation and curriculum choice;
• student access to reasonable appeal procedures;
• procedures for monitoring student progress;
• procedures for evaluating teaching;
• invoicement of students in evaluation procedures;
• responsibility for innovation in the curriculum;
• information on regular procedures in operation and on follow up activities.

8. External relationships

• liaison between the department/faculty and industry, commerce, public agencies and professional bodies;
• liaison with similar faculties or departments in the national context and abroad;
• participation in ERASMUS or other European exchange schemes;
• international links and co-operation agreements for the study programme.

9. Strengths and weaknesses

• Comments by the department on the self-assessment report and its plans for remedying weaknesses identified.

10. Data annex (with a 5 year evolution)
a) Students

- total number of students within the department and/or the discipline;
- composition of students (number of freshmen; men/women; national/foreigners etc.);
- period of study of the student population;
- drop out and completion rates;
- average study time;
- study load;
- success in gaining employment.

b) Staff

- total number of staff within the department and/or discipline;
- composition of staff by category (teaching; research; administrative; technical etc.)
- composition of staff by other criteria (grades, men/women etc.)
- balance between academic and professional teaching staff;
- unfilled appointments