

THE ROLE OF THE AUDIT PROGRAM IN THE INTERNAL QUALITY ASSURANCE SYSTEMS AS MOTOR OF THE TECHNICAL LEARNING PROCESS ADAPTATION FOR EUROPEAN SPACE FOR HIGHER EDUCATION (ESHE): AN OPPORTUNITY TO RESTART THE SYSTEM

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EXTENDED ABSTRACT

The so-called "Bologna Process" has raised a set of new challenges for the University System that will emerge as essential characteristics of the European University system from now on. This situation will be especially important for the evolution of engineering studies subject to a renovation process that has been increasingly speeding up in the last twenty years. Firstly, new issues have to be included in programs and lectures, secondly some methodological changes are needed to adapt to XXIst Century learning processes and instruments, thirdly the present state of knowledge in the different subjects has to be considered, fourthly the business model has to be redefined by the university, and finally the university products, whether degree or R+D research, have to be reorganized too.

All these processes require a professional staff of managers in the university system that currently does not exist, and a consistent analytical system has to be created in order to conduct the broad and intense decision process needed to adequately pilot this revolutionary change. To guarantee a relative success, a common exigency has been included in the definition of the applied educational policy: the general implementation of an Internal Quality Assurance System (IQAS), as a key instrument for aligning all the efforts involved in the strengthening of the university system.

With this aim, Spanish Public Agency ANECA has developed a set of useful instruments to provide the university with guidelines and procedures for the implementation of a robust framework for the future strategic evolution of the university. Among them, the AUDIT program represents a key issue created to help the Universities and Schools in the process of defining their new strategic adaptation to the European Space for Higher Education (ESHE). This program is an open instrument for each Center to adopt, which initiates a process for qualifying and certifying its quality assurance systems and which represents the highest scale in compromise with official quality exigencies at the present.

The aim of this paper is to analyze the implication of the AUDIT for the strategic evolution of "ETS de Ingenieros de Caminos Canales y Puertos" at the University of Cantabria. The paper is organized as follows. First we start with a review of the Audit Systems procedures and requirements, then we review the specific issues that have emerged through the implementation process, and third we describe the final framework adopted. Conclusions about the value added by the system and the evolutionary paths initiated are then derived.

KEYWORDS

Quality assurance, Integration policy, Evolutionary paths, University management

1. INTRODUCTION

1.1 The ESHE and the University

The European Space for Higher Education launched after Bologna Declaration (1999) represents the starting point for a complex multipurpose process relevant both for the national educational policies across Europe and for the construction of an integrated European University System. This is not the place to discuss the objectives yielding behind this broad reform, but some relevant issues have to be quoted to clarify the general framework we are involved in:

a) The moment has arrived to redefine the role for the educational system at present, new concepts as Life-Long Learning represents are not just a new totem for the didactic paradigm but a new product for the University. To supply this new product a new set of capabilities are required: the ability to migrate to different client, to a different product, (time schedule, learning outcomes, financing details, certificates...). This new paradigm represents a totally new framework that has to be internalized by the university agents. Unfortunately the migration process is to be executed by a previously existent structure and administrative framework that gives very little space for new needs. The implications for this change may be greater than expected according to the present financial and budgetary crisis in European states and hence the university has to adapt to the new situation.

The traditional management system in the university is a combination of several mechanisms: first of all the system is subject of a typical top-down strategies structure where administrative restrictions and budgetary provisions define the conditions for the system to develop its activities. The legal regulations emerging from central state and the budgetary provisions from regional authorities have put a continuous pressure on the university to reduce endogamy, to gain efficiency and to open to social needs. Secondly the bureaucratic and hierarchical internal structures have been fighting to preserve the internal status-quo and hence the system has not showed enough capacity to change and move towards new models. Thirdly the increasing efforts made by Spanish society towards research-funding have attracted researchers and create opportunities to develop new groups and institutions within the university system (and obviously outside of it as competing agents) that require new institutional arrangements. As a result, the polynomial structure of university staff organized around teaching activities, research and industrial interchange, and management and strategies have not yet reached a stable situation. Fourthly the aim of the political agents is to decentralize university agents at a greater scale, making the institution free and responsible to choose self-defined strategies, and compete among them pursuing results. Under this framework political agents keep only the role of regulators of the system. Surprisingly there is very little tradition of debate and spontaneous proposals in the university. The traditional co-optative system for provision of decisive positions in the university, the extremely powerful bureaucratic structures that guarantee a sufficient competence for candidates and a regular profile according with standards, represent a clear limitation for the university to self-lead in the new situation expected under the European Space for Higher education.

A second source of pressure that the university is facing is related with the knowledge itself that has to be handed down to the next generations to guarantee a continuous process of improvement. In this view two relevant issues have to be considered. On the one hand didactic methodologies obviously have to be reconsidered in this XXIst Century, and on the other the menu of contents that have to be studied in teaching activities need to be reviewed as far as the continuous improvement in specialized knowledge needs to find space in the curricula. The methodological issue is especially relevant in this moment when social activities and knowledge sharing have found in the web a new space that has to be assumed by conventional educational system. The traditional strategy of ignoring what emerges outside of the school can no longer deal

with new interaction paths. E-learning, B-Learning and M-Learning have been fruitful attempts that at the end may question the traditional educational process. Obviously we are far from arguing that a "new" e-human has born and new e-institutions have to be created, but nevertheless the ultimate function derived from learning activities has revealed to be different: traditional roles as knowledge (read contents) suppliers have lost part of the preeminence and have been assumed by media industry (McGraw-Hill, Pearson...), The training activities (even personalized when needed) can be obtained from different agents in the society as consulting firms in the professional learning industry have showed. The sole area where the university is still leading the match is the area of certificating the competence gained by students along their academic studies, been the extension of this role to the professional career period a question under discussion at the moment.

The second issue in this point related to the extent and timing of contents has to be again under analysis. Along the last 50 years we have assisted to a continuous discussion on the knowledge emerging in curricula, with lack of consensus on the debate. Specialized subjects have found their way to the curricula following the pressures of their promoters' power expansion; but there is also a perception that the level of exigency has dropped in some areas. In any case the debate on the actual needs in contents for a student, the needed instruments to be provided, and distribution of responsibility in this critical point among teachers is still pending. The revolution that the concepts of competencies and learning outcomes aspired to represent, has failed, contents are still the main parameters to define curricula, and in the assessment process competencies are far from playing a relevant role.

A third source of pressure has conditioned the final university framework from outside, the coordination of job and professional framework across Europe is a key issue to guarantee the effective creation of a unified market. Hence the educational system and within it the university system has been called to adapt to a compatible system. But the inertias of the system have stopped this integration process (mainly in technical studies), different cultures have showed different expectations for a degree to cope with. The professional structures and institutions have put strong pressure on the system in order to obtain self-defined objectives and advantages creating a continuous source of entropy that have been received in the university as boundary conditions, often in open contradiction with educational needs and again university institutional objectives have contributed to manipulate the final commitment received. Also a long period of maturing of the process has allowed pervasive arguments to circulate, and perverse rules and proposals to be instilled. The idea that those following the rules strictly as they were originally made will find themselves as naive supporters of a dead revolution is generally accepted.

Although this description may look skeptical or suggest a certain degree of reluctance we have included it in our discussions because this review gives a clear idea of how important the quality assurance system results from now on, and shows the key role to be played.

1.2 The ESHE as a starting Point for the future

All the described phenomena can be understood either as a "lampedusian" strategy to block reforms designed with a conservative scope or, as we believe, this situation is just a complex network of perplex attempts developed by agents that try to adapt to the new situation and is just the first step of an evolutionary process that may drive us to a new state. If we assume this perspective the main issue to be considered is related with learning process across agents facing an uncertain situation. According to evolutionary analysis (Holling, 1973), the situation can be understood as follows: First of all the static situation we initially had, has to be understood as the result of the previous management decisions, taken by relevant active agents according to their boundary conditions. After

this situation was reached a process called "exploitation" started, and along it the different agents involved tried different strategies to reach their objectives, questioning rules, developing new paths, investing in new resources, but as it happens always, this energetic step full of ideas and experiences was followed by a more conservative state "conservation phase" where the winners in this process had already learnt how to obtain the most efficient results and managed to block any kind of innovation that could eventually cause damage to the status quo. One can easily imagine the stakeholders aim to establish control mechanisms and protect the stability of the situation. But the game starts again when some strategic changes are needed, be it by lack of flexibility in the organizations to give space to new agents (generational changes) be it technological adaptation, be it sociological or legal, or whatever the source of obsolescence is, new issues have to be addresses, new agents become protagonist, or new products are needed. Hence the business has to be reformulated but the agents that lead and select the strategies will hardly assume the dynamic attitudes required for this, and eventually prefer a defensive strategy to preserve the situation built with great effort. But as far as the tide have changed the unavoidable pressures that emerge are important enough to restart the process through a "release phase" where a new race start to take advantageous positions, to release old-fashioned controls and refurnish the system with better adapted instruments that will, on their own, reorganize the competitive ranking among agents, redistribute roles and power, and create a new state, reinventing the system. This 4th phase of "reorganization" is essentially the creative destruction process, as Schumpeter defined (Schumpeter 1950), that yields behind all the innovation process, and is the engine of the evolutionary process be it biological or sociological. Obviously, we have to consider two different layers of the problem: on the one hand the university (or the society as a whole) will undoubtedly find an efficient way to cope with the new problem with the available resources, but on the other this optimistic expectancy does not guarantee at all that each organization will find the best path towards success. Hence there is a great dependence in each institution towards the leadership, to be able to imagine and draw the new situation, and incite the institutional arrangements needed, and secondly towards the techno-structure that forms the organizations to identify the problems faced with open mind and flexibility combining robustness and imagination. Under this scope we can interpret the present situation of the university system as a release state, where new requirements are addressed by the society, new technologies are available to adopt, and new solutions and agents have to be developed in order to deal with these issues.

1.3 The role of the Internal Quality Assurance Systems (IQAS)

As a conclusion from previous items in this paper we can observe three clear ideas. First University has to assume new requirements that have led to the obsolescence of the present model, what was acceptable in the 70's or the 80's is no longer valid, be it product (courses, subjects...), instruments (tools, activities...) or results. This does not necessarily mean that we have been doing things the wrong way, but that what was important in our business was not what we thought. Secondly, the financial crisis suffered by European societies will put efficiency in the first level of objectives and a lot of decisions will be taken in the future for this purpose. Thirdly the present organic configuration that has driven the institution until here will not be capable of leading the adaptation to a new state without reinventing the overall system. Fourthly we are facing a new uncertain phase where the conventional mechanisms of control will no longer be the management solution. Fifthly, the role for universities in education is changing from pure content generators and teaching services to tuition and certifying and hence new procedures are needed. And finally we have to assume that the university can supply a broad set of services and activities whose regulations and needed resources need to autonomously emerge from university institutions.

In this scenario a transparent management system as (IQAS) is critical and should be valued as strategic asset in the university. The roles of this institution include giving space to all the contributions, revealing the real situation in the system and guaranteeing a continuous improvement system for a flexible management strategy

Of course the public regulation framework for the universities is defined with a more strict view focusing specifically in the quality of the main business of the institutions that is the regulated education, but as has been previously quoted there are two reason to expect much more from this instruments, first the educational schedule is moving from one single degree to a lifelong learning schema with more diversity involved, and secondly a new idea as this quality culture will hardly limit its impact to a single regulated area.

2. The AUDIT program

According with general objectives of transparence and governance that emerge from ESHE the universities are committed to create an Internal Quality Assurance System (IQAS) that is explicitly defined and openly available.

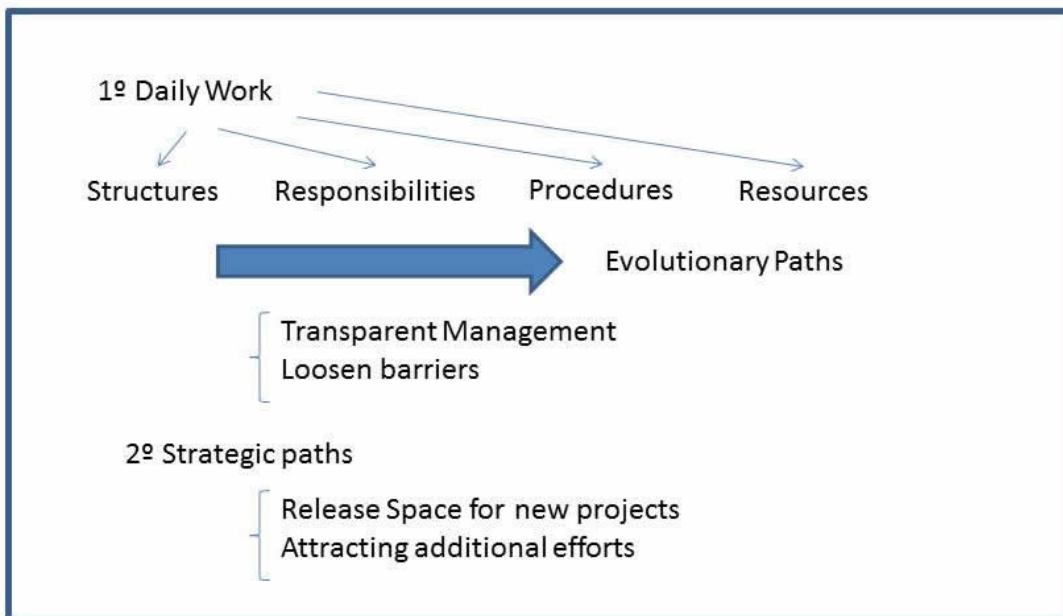


Table 1 General objectives of Quality Assurance System

The aim of the system focuses on two relevant issues: on one hand it affects to the ordinary activities developed on a day by day basis, where transparence is the key factor to work with, and on the other affects strategic management, where consensus and participation are the key factors.

Focusing in the first issue, internal structures, responsibilities distributed, establish procedures and assigned resources should be affected. Transparent and standardized processes have to be adopted so that the evolutionary paths are generally visible and all the affected stakeholders are given the possibility to question and debate and hence have the opportunity to internalize the overall needs and roles to play and develop their own strategies. But as a second result, entry barriers for new projects should be loosen adding flexibility to the system. If this two objectives are successfully reached, the evolutionary paths initiated from now on will increase the efficiency and value add by the agents to the university project, and we will move away from the possibility of collapse.

Focusing on the second issue, the strategic decisions taken at the management levels of the university will also be affected. As the overall objectives and options adopted will be subject to open debate and transparent decisions, the degree of interest, concern and compromise will increase and so the potential of the university will also increase and new efforts and energies can be attracted.

In order to reach these objectives, the debate has to focus in three issues to be solved: (ANECA 2010)

1st The aims and expectations of the different stakeholders have to be explicitly expressed and disseminated, a clear transaction has to emerge between individuals and groups with needs and objectives on one hand and the overall strategies collectively (and transparently) defined. Quality assurance does not guarantee a "best solution" for the business case under analysis, but the transparent definition of objectives that consistently represents the collective decision.

2nd The definition of the role played by the quality assurance system: the long and short term objectives, instruments and resources will define what QA represents for each organization so that no agent or stakeholder takes decisions and develops strategies without robust information on evidence and knowledge on the existent collective problems.

3rd The QA criterion have to be defined in order to send a message to all the involved agents on how all the emergent management issues have to be processed. The continuous revision of rules and procedures is essentially a continuous sequence of management decisions produced not as executive decisions but as normative, but in both cases what we expect from managers are decisions.

2.1 The stakeholders and their relevant issues

The first step to introduce is the definition of the involved and legitimate stakeholders to be considered as participants and involved in the management of the university:

- Students

There is an obvious reason to consider the students as part of the educational system. As clients they have the ability to select among studies on a transparent basis that guarantees an informed decision process. But there is also the issue derived from their role as students in the university where the incentives created for them to improve and develop their competencies should be first of all transparent, secondly adequate to the objectives and thirdly accessible for them to be obtain in a realistic approach (but without losing their incentive capacity). And finally there is the final issue of the success obtained in the transition to the labor world according to their expectation. All this issues have to be taken into account when the management of the system is considered.

- Teachers

This category is the obvious agent to include as far as teachers play a central role in the system. In contact with all the stakeholders and directly involved in the process, the management problem in education is directly related with teachers. The processes that we have to consider includes, first of all the selection and recruiting system for teachers as a static process, where the conditions are transparent and public, and as an intergenerational process, where future needs in different areas are publicly solved. Secondly promotion plans have to be transparent and equitable, given opportunities to all the teachers to be promoted and to develop a successful career according to their attained results and goals. Thirdly the teacher's involvement in a successful curricula definition requires their open contribution in a debate where the evidence on the results and the available alternatives are discussed. Fourthly the definition of each subject contents and objectives cannot be established without collecting the teacher's contribution, actually the process has traditionally been done through the debate among teachers but transparency and openness is a critical goal for this issue. Fifthly, the activity program, within and across the different subjects, configure the overall exigency both to the staff and the students and again is the result of a general experience where teachers are a principal agent to take into account. And finally the contribution of teachers to the feed-back process is again critical for the success of the system.

- Educational staff

The teaching process has evolved in the last century from a situation where all the responsibility was committed to the teachers alone, to a modern situation where the technical support from educational staff, that provide pedagogical advice and assessment, technological staff responsible for the implementation, exploitation, updating and maintenance of web infrastructure, (a new teaching instrument that is critically changing the educational process through wikies, forums, social networks...), and finally job and career advisers and counselors that have a new view of the situation that might enrich the collected evidences of the functioning of the system.

- Administrative staff

The administrative staff has reached a relevant role in the university system. Starting from an initial point, where pure auxiliary duties where their area, it has move to a modern framework where the rigorous treatment of the accreditation process, and the collection and treatment of evidences derived from the educational activities that represent a critical issue for the system, are their main contribution to the educational process. The educational activity is far from a pure teaching activity that happens in the classroom in a limited time schedule, and finishes not only with a competence acquisition, but with a degree award.

- Management staff

A new relevant source for the quality system to develop its function is the presence of a new category of agents formed by the management staff, typically formed by qualified teachers that move their career from pure teaching activities to a new job as managers, they need be suitable for this new role. Their contribution to the quality of the system is again multiple. First of all they play the role of promoters of innovation and adaptation measures and hence they are responsible for the functioning of the system. And secondly they provide the system with the global view of the organization. They deal with rankings strategic decisions, options selected, representation into the society, global motivation.... They have a prominent set of evidence to supply to the system and their voice has to be heard.

- Job Employers

Until this point we have been focusing on internal agents involved in university, even in the student's case we were interested in their role as members of the community and clients more than external stakeholders that may produce a feed back for the system. But if we want an adequate university product definition there is an obvious need to consider the final receptor of our product, represented by those who recruit our graduated students put price to their abilities, integrate them in the real world, and contribute to develop their careers. Their views on the set of degrees offered, the orientation given to the studies, the adequacy of the competence level acquired by the students cannot be adequately defined without paying attention to employer's views. Hence a robust system to collect their feed-back is needed. No quality or excellence can be reached without this. The strategic movements needed to adapt globally the university degrees can hardly be produced through an internal debate without their advice.

- Graduated students.

A qualified stakeholder to be considered is the graduated student. This agent, as long term related stakeholders has a rich critical and balanced view of the experience collected in the global interchange with their educational community, and the final contrast with job experience is obviously observed by him. The evidence collected on their long term satisfaction will balance the short term views from students and moderate bias from job employers.

- Public supervisors

As external agents, public supervisors have a new different view of the situation in the university, their role as intermediate agents between public policies and objectives on one hand and management agents in the society on the other, give them the possibility to assist to the management and strategic processes, making a critical contribution through the exigency of this quality assurance policy to be pursued. But from a more specific point

of view, public supervisors are responsible for the certification of the degrees and hence represent the final guarantee for the stake-holders of the adequate functioning of the system.

- Society in General

There is an obvious contradiction between the strict definition of stake-holders and specific contributions and the introduction of a global stakeholder as society. Nevertheless we cannot avoid the fact that at a higher macro level issues as financial contributions to the university, overall assessment of adequacy is executed by families, media, politicians, voters... a complex amalgam of agents that produce the final valuation of the university, and whose verdict can hardly be ignored. The evidence collection in this issue is a highly sensitive matter that we cannot solve directly but that somehow has to be taken into account.

Stake-Holders	Processes
Students	Selection and admissions Studying process Labor and professional career
Teachers	Selection and contracting Promotion Plans Curricula definition Subject definition Time-schedule Feed back
Educational Staff	Curricula definition Subject definition Time-schedule Feed back Labor and professional career
Administrative staff	Feed back Certification Degree awards
Management staff	General Strategy Staff Motivation General Policy adequacy Representation
Job employers	Definition of offered degrees Training profile Quality of training Job adequacy for graduates.
Graduated students	Definition of offered degrees Training profile Quality of training Job adequacy for graduates
Public supervisors	General Strategy Staff Motivation General Policy adequacy Representation Degree Certification
Society	Funding policy Social Support Values and cultural exigencies

Table 2. Stakeholder and contributions to an IQAS

2.2 The Quality Assurance criteria

In order to define a "correct" policy a set of criterions have to be defined on the following relevant issues:

- Quality policy and objectives

We can consider this issue to be adequately treated if two conditions are guaranteed, first of all transparency in the objectives and procedure is critical. Everybody must have a free and operative access to information during the process of implementation of the system and on the results collected through evidences. It has to be noted that this criterion, although looks evident and somehow naive, is one of the most important source of problems for the implementation of the quality system. Evidence collected on the actual sources of information, the actual level of knowledge, and the actual use made to the rules and procedures should demonstrate the actual state of this issue in the assessed institution. As a result the quality culture will be evident.

- Design of the training offered by the center

The criterion in this issue creates the exigency of providing a flexible mechanism capable of generating robust degrees recognized by the market, and successfully adopted by the students. This issue has two different layers to be considered, first the internal mechanism have to show their ability to identify, diagnose the problems and finally react to them in a continuous improvement process. But in a second layer the system should show the capacity to adapt to unexpected needs and problems and show the ability to migrate to new configurations when needed.

- Teaching and learning activities

Under this issue the criterion defines the exigency for the center to have an adequate procedure to firstly control the actual process under development, so that evidence can be collected on the actual execution of the projected curricula, and secondly on the evaluation of obtained results providing evidence that the instrument adopted has been successful and efficient. This goes further than just checking the agenda and reviewing the assessment but requires a more profound attitude open to rich and fruitful revision of the learning process, in the broad sense of the concept, covering from the formal activities (lectures) to the internship activities developed outside of the university.

- Academic and support staff

Evidence should be collected that the staff involved in academic duties, be it teachers or support staff is first recruited with open standards that facilitates the competitive access to the job, following recruiting policies that guarantee the best candidates to be selected and further on that the promotion and payment systems helps a continuous improvement process to be adopted.

- Available resources

Evidence should be collected that show the adequacy of the resource providing system to detect the actual needs, to provide the sufficient resources, and to assign them with transparent and efficient criterions. Obviously this idea has to be moderated with the funding policy of the educational system and the university, but from the evolutionary point of view developed in the first part of this paper, it becomes again a critical issue to guarantee that funds are allocated according to global needs and not the individual agent's needs.

- Learning Outcomes

As previously established control of activities is not enough to guarantee a proper behavior for the university, the final results of each activity be it lecturing, practical issues, external internship, selection of subjects..., have to be assessed according with their contribution to the students competence and hence the evaluated institution should demonstrate its ability to capture this evidence, to analyze it, to obtain conclusions and apply improvement measures.

- Transparence policy

Under this criterion, evidence has to be collected that the institutions are ready to elaborate transparent indicators and make them visible to the stakeholders that have to take decisions based on them. Once again this is more than pure statistical data diffusion, but to identify relevant, pertinent and opportune indicators, to circulate them on a transparent basis and to avoid external agents to create inaccurate judgments on the institutions.

3. CONCLUSIONS

In this paper we have introduce three separate ideas. First of all we have made an analysis of the present situation on the university in order to verify its capacity to cope to with the challenges created by the Bologna Process. Secondly we have reviewed the situation from an evolutionary point of view, showing the role played by the agent's implication in the management and strategic policy of the university. This two initial analysis have showed the evidence of critical role to be played by Quality Assurance System to lead this process. And thirdly we have review how the Audit program is ready to contribute to the strategic evolution of the University.

More specifically we can conclude that:

- We are initiating a new phase of evolution of the university where management and strategy issues will be critical. This does not mean that educational activities are going to lose importance in the university but that their contribution to the learning outcomes of the system have to be explicitly showed and justified.
- The business model for the university is giving increasing preeminence to the certification of awards and degrees, and hence the IQAS is evolving to be a strategic policy for the university.
- The stakeholders involved, the process they have to work in and the criterions to approve and validate the institutional frameworks are emerging issues in the definition of a university institution.

The AUDIT project has been introduced in the Spanish university as an instrument to provide clear guidelines to guarantee that all the institutions adopt the new philosophy and responsibly adopt their future strategies. For this process to be successful three layers are critical:

- Stakeholders contributions have to be openly assumed and freely discussed
- Clear criterions have to be applied in decisions and guarantees have to be offered that the final products offered respond to the actual needs.
- Transparence on the dissemination of results is needed to produce successful results.

The consequences of the inclusion of new quality assurance system will not be seen in the immediate management procedures that will increase their bureaucratic load, but in the future evolution of the university system that will improve its flexibility.

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