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Quality assurance in university administrative services: models, techniques and tools

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1. Introduction

Quality management has been successfully adopted by private (Powell, 1995; Kaynak, 2003; Heras, 2006) and public (Hammons and Maddux, 1990; Sharma and Hoque, 2002; Kanji and Sá, 2007) sector organisations, aiming at continuous improvement. Generally speaking, most core concepts of quality management are equally as valid in the public sector as elsewhere, considering that some adaptations need to be made for successful implementation (Morgan and Murgatroyd, 1994; Boyne et al., 2002).

In this context, the establishment of self-assessment techniques has been used in higher education institutions (HEIs) as a way to develop a quality system (Davies et al., 2001). These self-assessment processes have proliferated in the public sector worldwide, and their implementation has become a distinctive and sometimes explicit feature of attempts to improve public services. Nevertheless, these issues have been examined in public services to a lesser extent and there has been little analysis of how they are functioning or whether they are both attractive and effective (Hartley and Downe, 2007).

In the case of administrative services in public HEIs, they can apply quality techniques, as in banking or travel (Srikanthan and Dalrymple, 2007). Nevertheless, they have applied these processes less frequently than other public services (McAdam and Welsh, 2000). Few papers have examined excellence models and self-assessment in HEIs (McAdam and Welsh, 2000; Davies et al., 2001; Osseo-Asare and Longbottom, 2002; Clavo-Mora et al., 2006). In addition, there are few studies analysing self-assessment within public services in HEIs in the Spanish context.

In Spanish universities, both teaching and administrative services have been under assessment since the 1990s. For instance, in Spain there is an agency designated for the deployment of these assessment processes in HEIs (National Agency for Quality Assessment and Accreditation –ANECA–). The services provided within each university are generally assessed by applying the European Foundation for Quality Management (EFQM) model (see http://www.aneca.es/modal_eval/evalserv_present.html) and degrees have been assessed using a model based on the following criteria (see http://www.aneca.es/active/active_ense_pei.asp): academic programme (objectives of the programme, curriculum and its structure); organization of education (planning, management and organization); human resources (academic personnel, administrative

personnel); material resources (classrooms, experimental spaces for work, laboratories, library); learning process (attention to the student and integral training, process of education-learning); results (results in the academic programme, results in the students, results in the academic personnel, results in society).

At present, Spanish universities have gone beyond this assessment system and are adopting other quality practices. For example, they have designed a quality management system to assure the quality of each degree. This quality management system is based on the AUDIT programme (http://www.aneca.es/active/active_audit.asp), based on standards and guidelines for quality assurance in the European higher education area from the European Association for Quality Assurance in Higher Education (ENQA). As for administrative services, they are also using other techniques and tools to improve the service quality and efficiency such as service charter, strategic plan and process management.

The aim of this paper is to examine the models, techniques and tools (e.g. the EFQM self-assessment model, service charters, and strategic plan) used to improve service quality and efficiency in public HEIs' administrative services. This chapter analyses the steps of the EFQM self-assessment model in 12 university administrative services and suggests other techniques and tools to complement this exercise, such as a service charter and strategic plan. Primary and secondary data from 12 administrative services were considered, following the case study methodology. Consequently, the contribution from this study provides support to the existing literature dealing with self-assessment in private organisations, expands the empirical literature about these issues in public services in HEIs, and suggests other techniques and tools to complement this exercise to improve the service quality and efficiency.

The chapter begins with a literature review about self-assessment in HEIs, followed by a methodology section, the results section, and finishes with a discussion and conclusions.

2. Literature review

Self-assessment has been examined by several studies in private organisations (Samuelsson and Nilsson, 2002), public organisations (Sharma and Hoque, 2002) and in both (Wilkes and Dale, 1998). The first large-scale survey in Europe to gather empirical data on the use of self-assessment against the quality award model was initiated in 1994 with co-operation between six European Universities in order to explore organisational practices regarding self-assessment (Van der Wiele et al., 1996a,b). Later, the academic literature has analysed the quality awards models and their relationship with performance (York and Miree, 2004), the self-assessment process (Ritchie and Dale, 2000; Samuelsson and Nilsson, 2002; Balbastre et al., 2005; Ford and Evans, 2006) and the development of a self-assessment tool based on the criteria of quality awards (Lee and Quazi, 2001). In general terms, there are more studies about self-assessment processes in private organisations than in public services.

In the case of public services in HEIs, they may use models based on quality awards, or models created specifically for self-assessment in academia. Regarding the former, mention must be made of the standardised quality models, such as the Malcolm Baldrige National Quality Award model in the USA (Kumar, 2007; see http://www.quality.nist.gov/Business_Criteria.htm), the EFQM model in Europe (Conti, 2007; EFQM, 2003) and the Deming Prize model in Japan (Kumar, 2007; see http://www.juse.or.jp/e/deming/index.html). Alongside these models, several academic

studies have developed instruments for measuring quality management applicable to both manufacturing and service organisations (Saraph et al., 1989; Flynn et al., 1994; Black and Porter, 1995; Ahire et al., 1996; Rao et al., 1999; Conca et al., 2004).
In relation to the deployment of models created for academia, HEIs may also use models such as the European Quality Improvement System (EQUIS) accreditation (see http://www.efmd.org/equis) and the Malcolm Baldrige Criteria for Performance Excellence for Education (see http://www.quality.nist.gov/Education_Criteria.htm). It is worth analysing those studies which have developed empirically validated instruments for quality measurement in HEIs (Owlia and Aspinwall, 1998), or for the measurement of administrative quality in universities (Waugh, 2002). In Spain, ANECA has been promoting the use of self-assessment methods for the implementation of quality systems in administrative services using a procedure similar to that used by the EFQM model (see http://www.aneca.es/modal_eval/evalserv_present.html).
Generally speaking, organisations may resort to different approaches to self-assessment: questionnaire, workshops, pro-forma and award simulation (EFQM, 2003). Irrespective of the approach chosen, the generic stages for self-assessment are the following (EFQM, 2003):

1. Developing management commitment.
2. Communicating self-assessment plans.
3. Planning self-assessment.
4. Establishing teams and training.
5. Conducting self-assessment.
6. Establishing action plans.
7. Implementing action plans.
8. Review.

Self-assessment is a tool that helps managers to improve the management of the organisation. It implies the investment of resources (material, economic and human) and the selection of an approach (Balbastre et al., 2005). Although models and scope vary, this technique contributes to identify strengths and areas for improvement in order to: develop an improvement plan, which could be linked to strategic planning; measure performance; involve people in developing a process improvement approach to quality; raise the understanding and awareness of quality related issues; facilitate the integration of quality factors in all day-to-day practices (Van der Wiele et al., 1996a,b; Van der Wiele and Brown, 1999; Ritchie and Dale, 2000; Samuelsson and Nilsson, 2002; Sharma and Hoque, 2002; EFQM, 2003; Balbastre et al., 2005; Ford and Evans, 2006) and improve public service (Hartley and Downe, 2007).
This exercise has been analysed by several authors regarding public services in HEIs. McAdam and Welsh (2000) showed that the use of the model is seen by public organisations as a means of securing the confidence of external stakeholders. Davies et al. (2001) analysed how the EFQM model is a framework addressing the challenges faced by universities. Based on the case study methodology, the authors showed that the aim of the process was to identify strengths and areas for improvement as a method for improvement. Osseo-Asare and Longbottom (2002) showed the status of quality management in HEIs using EFQM model self-assessment methodology based on semi-structured interviews. Similarly, Hides et al. (2004) examined the implementation of self-assessment using case study methodology.

Finally, Clavo-Mora et al. (2006) found that it is necessary to have the leadership and commitment of the senior managers of the centres to adopt the EFQM model. They create and disseminate the value of this management philosophy, set goals and objectives and create an appropriate organisation and system to achieve them.
These studies showed that the purpose of this methodology for HEIs is to focus on the strengths and areas for improvement as a method for improvement, that each HEI chooses the approach best suited to its needs, and also identify establishing senior level commitment and focusing on customer delivery as major issues to address self-assessment. Nevertheless, there are few studies in HEIs related to self-assessment process in the Spanish context. In addition, administrative services in Spanish HEIs are implementing other techniques and tools to complement this exercise such as service charter, strategic plan and process management. Based on this literature review, these issues are evaluated in public services in HEIs. Thus, the research questions are:

1. How have the EFQM self-assessment model, service charter, and strategic plan been carried out in university administrative services?
2. Why have these models, techniques and tools been successful?

3. Methodology

In order to understand how the self-assessment process, service charter and strategic plan are developed and why they may succeed, the case study approach has been used. Case study research is defined as research that provides a detailed account and analysis of one or more cases (Johnson and Christensen, 2004). This method has been chosen because this approach is preferred when "how" and "why" questions are being asked (Yin, 1984). Case studies can involve either single or multiple cases and the evidence may be qualitative, quantitative or both (Yin, 1984; Stake, 2000). The interest of this research is to show a self-assessment exercise from 12 cases using qualitative evidence.
Data collection combined several methods: interviews, direct observation, organisation documents and feedback from 12 administrative services in a Spanish public university. This way, the findings have been validated by employing the triangulation technique, which reinforces the belief that the result is a valid one, and not a methodological artifact (Bouchard, 1976; Yin, 1984).
The sources of primary data were the direct observation of the provision of the service, and the semi-structured interviews with the team members of each service. This information was used to analyse the objective and stages of a self-assessment exercise; the definition of service charter and strategic plan.
The secondary data were provided by certain internal documents from each service, i.e. self-assessment plan, written material produced during the process (e.g. forms containing strengths, weaknesses and improvement actions, forms containing action plans), objectives, indicators, materials from the training sessions, improvement plans, service charters and strategic plans. This information was used to complement the primary data.
The 12 services chosen were those taking part in the self-assessment process during the 2005-6 and 2006-07 academic years at the University of Alicante in Spain. They are administrative services that serve mainly as support to teaching and research activities and also students.

4. Results

The University took part in the Quality Scheme for Spanish Universities (approved by the government), focusing on the assessment of university degrees and administrative services. In Spanish universities, both teaching and administrative services have been under assessment since the 1990s. The quality manager developed a quality scheme to assess degrees and administrative services. Regarding degrees, they were assessed using a model from ANECA as has been suggested previously. The aim was to identify a set of strengths and weaknesses in order to define an improvement plan. At present, Spanish degrees have gone beyond this process and are designing a quality management system based on the AUDIT programme. The criteria of this programme are based on guidelines from the ENQA. The implementation of this type of quality system requires the preparation of a number of documents allowing people to know what to do and when they must do it, and also complying with the seven guidelines in the AUDIT programme: quality policy and goals; quality assurance in training programmes; student-oriented learning; assured and improved quality in academics and teaching support staff; management and improvement of material resources and services; analysis and use of results; and dissemination of information on university programmes. The quality system documents usually include a quality policy and quality goals, a quality handbook, a procedures handbook, plus any other document required in order to ensure efficient planning, implementation and control of processes (Table 1).

In the case of administrative services, the University quality manager developed a quality scheme aimed at assessing the university administrative services from 2003 to 2007 using the EFQM model. Under this plan, 22 services were assessed. 6 and 4 services were assessed in the academic years 2003-04 and 2004-05 using a workshop approach, and 8 and 4 services in the academic years 2005-06 and 2006-07 using the questionnaire approach. The purpose of this process was to evaluate the situation in each service, in order to develop a plan for the improvement of the service, as part of the overall quality improvement strategy of the University. In addition, there was a change from the workshop to the questionnaire approach, because the former involved excessive work for the teams, whose members had no knowledge of quality-related issues.

In addition to the self-assessment, the 22 services have developed other quality practices. Thus, once a service has been evaluated using the EFQM model, under the University Quality Scheme, the following year it prepares its service charter. Also, in 2007 the 22 services began to defiy their strategic plan. In this way, the EFQM model quality assessment, the service charter and the strategic plan are the three pillars improving the quality and the efficiency of services at the University. Also, in 2008 the quality area carried a follow-up of these three pillars, in order to verify the degree of implementation of the improvement actions (identified in the self-assessment report), the quality commitments (shown in the service charter) and the objectives (identified in the strategic plan). The idea is to carry this follow up yearly, with the support of the quality area, which will prepare a report that will be sent to the senior manager.

An example of a possible index in a quality handbook (Chapters 4 to 10 in the index shown correspond to the seven guidelines in the AUDIT programme. In each of them (chapter 4 to chapter 10) a university may describe in a general way what it does to comply with the AUDIT programme guidelines (without explaining how) and, in each chapter, refer to the related processes (where it will describe how it is done). Introduction Chapter 1. The internal quality assurance system (IQAS) Chapter 2. The centre Chapter 3. Structure of the centre for the development of the IQAS Chapter 4. Quality policy and goals Chapter 5. Quality assurance in training programmes Chapter 6. Learning orientation Chapter 7. Academic and support staff Chapter 8. Material resources and services Chapter 9. Training results Chapter 10. Public information
An example of a possible index in a procedures handbook Strategic processes: SP01. Setting, reviewing and updating policies and goals SP02. Academic and clerical staff policy SP03. Training programmes
Key processes: KP01. Undergraduate programmes offered KP02. Masters programmes offered KP03. University-specific programmes offered KP04. Doctorate programmes offered KP05. Review and improvement of degrees offered KP06. Profiles of students admitted KP07. Support and advice for students KP08. Training development and assessment KP09. Student mobility KP10. Management of external practices KP11. Career guidance KP12. Analysis of academic results KP13. Public information
Support processes: SP01. Document and registers control and management SP02. Elimination of degree SP03. Satisfaction of interest groups SP04. Dealing with complaints and suggestions SP05. Academic and clerical staff management SP06. Material resources management SP07. Services management SP08. Admission, registration and academic records management
Measurement processes: MP01. Review, analysis and continuous improvement of IQAS

Table 1. An example of an index in a quality handbook and an example of a potential list of processes

4.1 Self-assessment process

The process started with the approval of the plan by the senior manager. After that, he called a meeting during which, alongside the quality manager, he would explain the plan to those responsible for each service involved. The purpose was to inform them about their participation in the process and receive their agreement to participate; 8 and 4 administrative services took part in this process in academic years 2005-06 and 2006-07 (using the questionnaire approach). These were precisely the services considered as case studies for the research presented here. Next, the academic responsible for the quality area, acting as facilitator, addressed all the employees in each service in order to familiarise the staff with the quality scheme. Following this, the teams were created, and the training and self-assessment began. The process finished with the preparation of the improvement plan, which was submitted to the senior manager.

Based on the self-assessment stages shown in the literature section, an analysis was made of how they had been implemented.

Step 1 – Developing management commitment

Management leadership is a key factor in self-assessment in HEIs (Davies et al., 2001; Hides et al., 2004). At the University the commitment has been obtained through the approval of the plan, written communication to each service concerning their participation in the process, and support to the improvement actions. This has reinforced the commitment of the staff participating in the self-assessment as well as the implementation of the improvement actions.

Step 2 – Communicating plans

The objectives of self-assessment have to be clear to everyone involved (Samuelsson and Nilsson, 2002). At the University the objective was to prepare an improvement plan, and communication took place in two ways. First, by presenting the plan to the person responsible for each service; second, a talk was given to all the employees in each service. The presentation was used to inform the service that it would take part in the process. The talk allowed all the employees to learn that their service was to be assessed, and how it was going to be done and why.

Step 3 - Planning self-assessment

As mentioned in the literature section, an organisation may follow various approaches. For the 2005-2006 and 2006-07 scheme, the University used the EFQM model and the questionnaire approach. However, previous attempts in the quality scheme developed by the University (namely, during the academic years 2003-04 and 2004-05) were based on the workshop approach. Although this methodology was successful, it posed several difficulties which led to its abandonment (Tarí, 2006), in favour of a simpler and faster approach (questionnaire approach), expecting that it would facilitate the assessment. Hence, a questionnaire was designed according to the principles of the EFQM model, to be used for the academic years 2005-06 and 2006-07. It consisted of 140 questions, 81 covering the enabler categories and 59 assessing the results categories, plus an additional open question for each category. The enabler categories were leadership (16 questions), policy and strategy (13 questions), people (17 questions), partnerships and resources (18 questions), and processes (17 questions). Results categories were customer results, people results, society

results and key results (13, 19, 12 and 15 questions respectively). Each of the items was valued according to its degree of importance for the service, and its degree of implementation, in a 4-point scale. A brief explanation section was also included that provided descriptions of terms. With the results, a weighted average was calculated for each item, which was then used in order to detect which aspects were more or less implemented, and thus list the strengths and areas for improvement.

Step 4 – Establishing teams and training

Each of the 12 services created a team of at least three persons to complete the assessment process. Some of these teams were made up of staff from the service itself only, whereas others also included external people. Notwithstanding the regular use of customers' opinion surveys, some services considered that the inclusion of external users in their assessment teams would provide a more complete identification of strengths and areas for improvement.

Training should be a priority when implementing self-assessment (Van der Wiele and Brown, 1999). At the University, the 12 services received training sessions and workshops (Table 2). The employees were not familiar with the EFQM model or the general issues regarding quality prior to this exercise. Therefore, training and workshops were necessary and useful because they allowed employees to become acquainted with the model and acquire a working methodology in order to understand how to conduct self-assessment, and also to review their work during each of the workshops.

Session	Objectives
1	Presenting the plan and initial training.
2	Identifying the interest groups for each service, analysing their needs and expectations, and revising the survey which will be circulated amongst employees and users.
3-4-5	Presenting the model surveys, process mapping and preparing a draft version of the procedure.
6	Presenting the self-assessment questionnaire according to the EFQM model and assessment method.
7	Analysing the results from the three surveys, supplied by the quality department, in order to start identifying strengths and areas for improvement.
8	Further work on strengths and areas for improvement, and defining the areas for improvement with their respective reasons.
9	The teams start to prepare the improvement plan.
10	Reviewing the work carried out by each team (mainly strengths, areas for improvement and improvement plan).

Table 2. Training and workshop sessions

The initial training session offered a review of the contents of the Public Sector version of the EFQM model (2003). The session started with a presentation by the senior manager, in order to prove his commitment to the process and the improvement plan, followed by an explanation of the EFQM model. The first session gave a general overview of the EFQM model, and explained the working scheme. The following sessions took place in 9 Friday

meetings between March and June, in order to: (a) explain the EFQM model criteria and (b) hold workshops. This way, the team members could draft strengths, areas for improvement and improvement actions (for each criterion). The last two sessions were used to prepare the draft improvement plan and review the work carried out by each team.

Step 5 – Conducting self-assessment
This procedure consisted in training sessions and workshops (20 hours), as described in Table 2, with support from the facilitator, plus meetings of the members of each team, to finish the self-report. The purpose of these actions was to identify the main stakeholders, processes, strengths, areas for improvement and improvement actions based on information from the training sessions and three surveys (one for employees, one for users, and one based on the EFQM model).
The employee and user surveys were carried out by the technicians from the quality area, in order to gauge their satisfaction level, whereas the team members individually completed by themselves the questionnaire based on the EFQM model. In this respect, for those teams with less than five members it was decided that the questionnaire should be filled in by some additional employees or even the whole staff (as decided by each service), so that the number of people answering the questionnaire should total between 5 and 7. Thus, a person from the quality area was appointed to process the results of the employees' and users' surveys, those of the EFQM model questionnaire, and also to deliver the results to each service. Next, the teams, in view of the results from the three surveys, were able to first list the strengths and areas for improvement, and then decide the improvement actions. The result of these workshops was a draft self-report containing the items reflected in Table 3.

Step 6 – Establishing an action plan
Some authors have pointed out that the establishment of an improvement plan for submission to higher management is a critical phase of self-assessment (Van der Wiele et al., 1996b; Van der Wiele and Brown, 1999; Samuelsson and Nilsson, 2002). Should this not happen, the improvement actions may not be implemented, and the process is most likely to fail. At the University, each team prepared its improvement plan (see Table 3). Then, the self-report was given out to everyone in the service in order to receive other opinions to complete the self-report, as well as the approval of the person responsible for the service. The result was a list of suggestions for some of the services, which were added to the self-report. Next, the self-report was returned to the quality area for analysis. Finally, the facilitator called a final meeting in order to close the self-report, prepare the meeting with senior manager, and start with the implementation.

Step 7 – Implementing action plans
Once the improvement plan was approved by the senior manager, the people responsible for each service reported to the senior manager and the quality area manager. The purpose was to obtain both the management's approval for the actions corresponding to each service and the manager's commitment to carry out these actions and to submit to the governing board those for which the Univeristy would be responsible.

1.Introduction 1.1. Members of the self-assessment committee and working plan 1.2. Describing the service: service organisational chart, role within the UA structure, number of employees and physical location 1.3. Mission, vision and critical factors for success 1.4. Objectives and services offered 1.5. Stakeholders 1.6. Process mapping	After a brief explanation on these issues supplied by the quality area, the team members draft the corresponding sections
2. Analysis of survey results 2.1. Population and sample 2.2. Data collection process	The University quality area handed in to the services two surveys which some teams adjusted to their needs and others used with no modification. These surveys were statistically processed by a person from the quality area, which in turn sent the results to the services. This information allowed the team members to consider other points of view when defining strengths, areas for improvement and improvement actions.
3. Strengths, areas for improvement and improvement actions	The team members fill in this section (for each criterion) with the results from the 3 surveys (EFQM model, customer satisfaction and employee satisfaction).
4. Improvement plan	Prepared by each team with the information from section 3. In this table the teams establish the following items for each improvement action: task, person responsible, time, resources and follow-up. These improvement actions are divided into two sub-sections: those for which the service is responsible and those for which the service is not responsible (e.g. those corresponding to the management, the rector and vice-rectors, etc.).
5. Appendices	In this section the teams may include some example of one of the processes, the results from the surveys, etc.

Table 3. Self-report

Step 8 – Review

Management-approved improvement actions have more possibilities of being implemented. Nevertheless, some kind of monitoring must be carried out (Van der Wiele and Brown, 1999; Ford and Evans, 2006). This review consists in periodically monitoring the degree of implementation of the actions.

The team members suggested that the follow-up, supported by the quality area, is key to ensure the implementation of the improvement actions and the success of the whole process. This follow-up is done in the same way for all the services and on the basis of the same

document: the improvement plan. In 2008 the quality area started to carry out this follow-up; the purpose is to do it annually, in order to verify the degree of implementation of the improvement actions. The follow-up is done through a meeting between a service team, including the person responsible, and the quality manager. After such meeting, a member of the quality area prepares a report with the minutes from the meeting and the results (degree of implementation of the improvement actions), which is sent to the senior manager. The follow-up has made it possible to realise:

- The usefulness of the self-assessment, as it is seen that the actions are really being implemented.
- Which indicators are valid and which are not, since the degree of implementation of the improvement action is measured.
- The need for an information system making it possible to collect information which in turn might facilitate the follow-up process and subsequent decision-making; and the need to encourage a number of practices (e.g. defining processes, objectives and indicators) in order to improve the efficiency and quality of the service.

4.2 Other quality techniques and tools

Based on the senior manager's directives, the service adopted other techniques and tools to complement the self-assessment exercise. Thus, the process of quality improvement based on self-assessment has been improved with a definition of a service charter and a strategic plan in each service.

Regarding service charters, once the university administrative service has been evaluated, it elaborates its service charter. For that, the senior manager, through a meeting with the people in charge of the administrative services, communicates the plan of work and the need to appoint the teams, usually formed by 2 or 3 people, so that they participate in the training and they elaborate the service charter. Once the teams have been appointed, their members attend a training session on the objectives and definition of the service charter, the structure of the service charter and the process to elaborate the service charter. This training was basic to:

- Help the team members to know what a service charter is and its usefulness for its service.
- Know the stages for the elaboration of the service charter.
- Know the standard approved by the senior manager to use for all teams to write the service charter.

In a second workshop, the facilitator reviewed the work made by each team, in an individual meeting with each team. The facilitator reviewed the work made until that moment by the team members, in particular the mission and the services offered. In a third workshop, also individually with each team, the facilitator reviewed the work of the team members, in particular the following sections of the service charter: quality commitments and indicators. Finally, each team finishes writing of the service charter following the approved structure for all the services of the university by senior management, services offered, quality commitments, indicators, forms to participate (complaints, suggestions, surveys), directions and other data of interest. This work usually lasts three months.

Finally, the service charter is approved by the head of the service and senior manager. Later internal and external communication is made via a leaflet and a website. Then, annually a follow-up is made in order to examine the degree of fulfillment of the commitments acquired, and every two years the service charter is updated and published again.
In relation to the strategic plan, all the services began to elaborate their strategic plan. First, the head of the service attended a training course and later created a team to elaborate the strategic plan defining the elements of the strategic plan in the following order: mission; vision, strategic axes; SWOT analysis and list of strengths, weaknesses, opportunities and threats; strategic objectives; operative objectives; measures and standards; actions to develop. Second, the team was created and then the members work in the following way: each member of the team individually defines by writing each one of these elements; next, in a consensus meeting the individual work is discussed to write this element in a joint way; finally the strategic plan is reviewed and an annual follow-up is made to analyse the degree of fulfillment of the objectives.

5. Discussion and conclusions

The aim of self-assessment was to obtain a rough idea of the service situation and identify improvement actions in a general way. Balbastre et al. (2005) showed that the aim of self-assessment and the importance of the areas for improvement are important variables that affect the decision on the self-assessment approach. Then, the questionnaire approach should be an excellent option.
The results show that the teams went through the process with the purpose of preparing and implementing an improvement plan as pointed out by the literature (Ritchie and Dale, 2000; Ford and Evans, 2006; Williams et al., 2006). Then, the results show that a university administrative service can use self-assessment as a tool for continuous improvement planning. For that purpose, the services must go through all the stages in order to ensure that the process is successful, starting out with senior manager support and finishing with: (a) a formal improvement plan, approved by the senior manager, and (b) a follow-up. This supports the empirical literature that showed that management commitment, the improvement plan and the follow-up are key to favourable self-assessment outcomes (Van der Wiele et al., 1996b; Van der Wiele and Brown, 1999; Ritchie and Dale, 2000; Davies et al., 2001; Samuelsson and Nilsson, 2002; Ford and Evans, 2006). In addition, these results support the literature about the process of self-assessment that suggested it is a planned activity that requires commitment and planning, specific training in self-assessment, improvement plan and follow-up (Balbastre et al., 2005). Therefore, this exercise has served as a way to helps service managers to improve the management of the service via an improvement plan.
Also, it can be seen that the facilitators have played a major role in the assessment process, since the teams have acknowledged their presence throughout all the stages. The analysis of these case studies has shown that their support has improved the preparation of the self-report. Actually, for some organisations it is a basic component (Samuelsson and Nilsson, 2002).
Similarly, the formulation of an improvement plan allows organisations to document the actions for improvement, which in turn helps towards success (Ford and Evans, 2006), alongside submitting these documents to the management, discussing them at meetings,

approving them and appointing persons responsible for implementation. The follow-up report shows the percentage of fulfilment to each improvement action. Thus, it may be said that this exercise has been successful because services are implementing the improvement actions. These data show that all the services have implemented part of the improvement actions. Even though this stage is certainly important, it is not sufficient, and the experience of many Spanish universities suggests that many self-reports have led to no profits at all, perhaps due to lack of follow-up. Therefore, the formulation of the plan should always be accompanied by a follow-up in order to ensure success.

Many authors have suggested that self-assessment facilitates learning about quality management (Aly, 1997; Svensson and Klefsjö, 2000; Balbastre et al., 2005). The team members suggested that this exercise increased their knowledge about quality-related issues.

This exercise was conducted by employees. Balbastre et al. (2005) showed that the greater the decentralisation of self-assessment, the less sophisticated the approach. Consequently, when many employees with a low knowledge about self-assessment participate directly in the process, the questionnaire approach is a good option.

This process of quality improvement based on the self-assessment has been improved with a definition of a service charter and a strategic plan. The self-assessment, the service charter and the strategic plan are the three basic elements to help service managers to improve the quality of the service. These models, techniques and tools may be a way to: assess the service to improve quality; identify and document the processes; clarify the service commitments to stakeholders; define objectives; and define indicators for follow-up. All this has made it possible to identify strengths, areas for improvement and improvement actions; to define in writing commitments, objectives and indicators; to start to describe processes; to clarify the responsibilities for each person; and increase the knowledge of quality management among the staff. As a result, the follow-up will become a key element for the assessment of the implementation of the practices developed regarding the three elements.

From these findings several lessons can be drawn:

- When the objective of self-assessment is to obtain a rough idea of the service situation and adopt a decentralised approach, the questionnaire approach is a good option. In addition, if the knowledge about self-assessment is low, the facilitator may play an important role.
- These models, techniques and tools may serve as a way to help managers to improve the management of the service.
- The senior manager commitment and follow-up are key factors in this process.

The contribution from this study provides support to the existing literature dealing with self-assessment in private organisations, expands the empirical literature about self-assessment in public services in HEIs, and suggests other techniques and tools to complement the self-assessment to improve the service quality and efficiency.

Finally, this study has limitations. The limitations are the difficulty to extrapolate and the researcher's bias. First, it is difficult to extrapolate the lessons learnt from the cases to other situations, while avoiding over-generalizations. The latter has been reduced by means of triangulation. Therefore, future research could focus on comparing these issues with other

case studies in HEIs, and performing a quantitative analysis on HEIs that have carried out self-assessment exercises.

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The widespread deployment and use of Information Technologies (IT) has paved the way for change in many fields of our societies. The Internet, mobile computing, social networks and many other advances in human communications have become essential to promote and boost education, technology and industry. On the education side, the new challenges related with the integration of IT technologies into all aspects of learning require revising the traditional educational paradigms that have prevailed for the last centuries. Additionally, the globalization of education and student mobility requirements are favoring a fluid interchange of tools, methodologies and evaluation strategies, which promote innovation at an accelerated pace. Curricular revisions are also taking place to achieved a more specialized education that is able to responds to the society's requirements in terms of professional training. In this process, guaranteeing quality has also become a critical issue. On the industrial and technological side, the focus on ecological developments is essential to achieve a sustainable degree of prosperity, and all efforts to promote greener societies are welcome. In this book we gather knowledge and experiences of different authors on all these topics, hoping to offer the reader a wider view of the revolution taking place within and without our educational centers. In summary, we believe that this book makes an important contribution to the fields of education and technology in these times of great change, offering a mean for experts in the different areas to share valuable experiences and points of view that we hope are enriching to the reader. Enjoy the book!

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