Higher Education System in Portugal: An Exploratory Study about the Challenges Setting by the New Bologna Paradigm

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Abstract — Total quality management is a process based on a “to do differently” strategy. This strategy implies trying to achieve continuous improvement by sharing responsibilities reducing misused resource and meeting customer’s expectations. Typically, Total Quality Management is implemented in industry and services using a group of principles. The implementation of such principles guides the organizations towards the improvement of quality standards. Deming contributed to the total quality management process by proposing the set of principles and techniques that helps organisations to improve their quality process. We implement the total quality management principles inn two Portuguese high education institutions: ISCTE and University of Évora. We use separate questionnaires in order to verify if the techniques of the Total Quality Management, proposed by Deming, which were applied in Japanese and US companies, could be applied similarly in Portuguese high education institutions. Likewise for industrial companies, application of Total Quality Management techniques may help higher education institutions in their adaptation to the constantly changing education environment. The improving of quality in higher education will result in a general quality improvement of people’s skills which ultimately will improve the level of efficiency contributing to the development of markets and the economy. The results of this study show a set of difficulties as well as benefits from implementation of Total Quality Management, which may be a consequence of the cultural environment of the institutions. This study concludes that the two higher education institutions can still improve the application of the 14 principles proposed by Deming, and that correct application of these principles may permit them to evolve to the excellence level. However, it is important to notice that the principles should be applied in a flexible way and in agreement with the specific needs of each organization.

Index Terms — Bologna process, Continuous improvement and excellence, Development, Education quality, Evaluation quality, High education, Principles of Deming, Total Quality Management.

1 INTRODUCTION

High education institutions are constantly pressured to show success and to show high levels of quality**.** The community generally demands high quality services from high education institutions, as such institution are regarded as prepares of the younger members of the community (students) to the highly demanding labour market.

Employers which can be viewed as the ultimate customers of the educational system, depend on the capacity of schools to graduate qualified and efficient future employees. There is also a general belief amongst social and economic leaders worldwide that future economic prosperity largely depends of today youth’s education. Therefore education institutions are expected to educate students in a way that they can generate future new knowledge and create value. The application of the Total Quality Management (TQM) to the higher education sector appeared as an answer to the community's growing demands. Universities, particularly in the US, were criticized because for not preparing adequately their students for the competitive business world. Business employers claimed that new administration techniques, namely TQM, should be a study-subject in university courses. Inclusion of TQM in the course programs was just one of the suggestions. There was a general loss of trust in the high education system and a demand for quality improvement in the universities (Chaffee & Sherr, 1992; Helms & Key, 1994). Employers pointed out that the better products and services could only be achieved through an improvement of the level of future employees’ education. It became then urgent that education institutions satisfy these demands.

The success of the TQM implementation in the industry and the impact attain in other activity sectors, among them the health sector, captured the attention of education institutions that started to consider adopting such techniques (Tribus, 1993a; Aamot, 1994). Quality improvement proposed by TQM as a continuous effort that involves all

members of the organization to meet the needs of customers (students and other interested parties as the employers) was seen as a possible form of accomplishing the necessary transformation (Hittman, 1993). The opinion was that " the TQM values are more compatible with the higher education than many existent administration systems" (Helms & Key, 1994:97). However, when considering TQM implementation it became necessary to ensure that differences between education and the industry were taken into account. Education differs from industry sectors in many ways so the market metaphors might not be directly applicable to education (Tribus, 1993a; 1993b).

2 THE DEMING'S PRINCIPLES IN TQM IMPLEMENTATION IN HIGHER EDUCATION

Usually TQM is implemented in the industry and in the services through the adoption of a group of principles. The implementation of those principles simultaneously guides the organizations into the desired quality improvement. In spite of being originally applied to businesses and companies, the Deming's principles when correctly applied can be implemented in the reformulation process of high education system (Edwards, 1991; Salmon, 1993). Table 1 presents the TQM principles developed by Deming.

TABLE 1

DEMING FOURTEEN PRINCIPLES

Principle	Title	Explanation adapted to the Education system
1.º	Create consistency of purpose	Definition of the institution mission. To try to obtain qualified students capable to improve all the processes forms and to assume relevant positions in society.
2.º	Adopt the new philosophy	The top responsible and all the administration staff should make and accept a plan based on TQM. The administration and the teaching staff should assure society that the new graduates will have both the capacity to deal with the change and the ability to contribute to the general welfare. The adoption of the philosophy will be facilitated with the formation of quality improvement teams.
3.º	Cease dependence of inspection	End dependence of inspection as a form of achieving quality. End people's classifications.
4.º	Minimize total cost	Guarantee product quality through the exact specification of a group of characteristics.
5.º	Improve the system	Improve the efficiency and assistance to customer's needs.
6.º	Introduce training on the job	Make clear to all members of the institution which are their functions and how they should carry them out. Learning plays a primordial role in the improvement of quality.
7.º	Adopt and institute leadership	The higher education institutions can only speak about quality, change, Innovation and service if they have a clear functional leadership that support them.
8.º	Drive out the fear	Fear should be removed from work environment so that the workers of the institution can work in a constructive way. Promote the academic spirit.
9.º	Tear down barriers between departments	All the elements of the institution should work in teams. They should develop strategies to increase the cooperation between groups and individuals. All members should know the problems of other departments as that is one way to learn.
10.º	Eliminate slogans, exhortations and goals	Eliminate slogans, exhortations and goals directed to the labour force asking for zero defects or new productivity levels. The exhortations only create adversities, since most of the causes of low quality and low productivity lies deep in the system, out of the workers competence and, most of the time, the slogans generate resentment and frustration among all.
11.º	Eliminate work standards-quotas	The task of the administration is to replace the work shares with a wise and intelligent leadership, because quality is not incorporated with numeric objectives.
12.º	Promote the pride for the work	Eliminate barriers and create pride in work, to create an appropriate work atmosphere, to eliminate the quantitative objectives and to centre the attention in quality goals.
13.º	Self improvement	An institution needs teachers that improve their education, rather than teachers focused on specific objective
14.º	This transformation is task to all of us	The involvement of all the persons involved is an essential element in the definition and implementation of quality services.

Source: [29]

3 USUAL MISTAKES MADE IN IMPLEMENTATION OF TQM

Internationally, some high education institutions rushed the implementing TQM preoccupied with answering quickly to the growing critics. This resulted in disappointment, little institutional involvement or even a total rejection of the concept. According to Wolverton (1993), is it common to find the following problems in implementing TQM:

→ Lack of strong commitment from management. If the top managers are not totally convinced or devoted to the TQM implementation, the institution will lack the necessary visionary leadership that guides to cultural change required in a process of quality improvement;

→ Insufficient support. The institutional change that includes cultural restructuring requires time and energy. If the motivation for the adoption of the TQM principles attract only a few followers inside the institution, then, the necessary cultural and behaviour changes will be difficult to reach;
→ Not being able to recognize all costs. Financially, the immediate costs of training, educating and re-educating the managers, the staff and the teachers, can be substantial. Even when the financial investment is correctly considered the largest cost, time, is often ignored. Without recognition that the task requires the time of those involved, the results of implementing total quality are limited to outlying positions. Without the proper time e dedication the implementation losses priority and importance.
→ Very complex projects and little manpower to achieve them. It can happen that the institutions identify the problems, but fail to acknowledge the complexity of the events and processes related to the problems. The urgency guides the resolution process and leaves some themes weakly approached;
→ Limit the efforts to the administrative functions and to the supporting activities. If the essence of the education is to teach and to learn, to ponder the efforts of quality improvement in the administrative functions and in the support functions of the institution, will just superficially affect what happens in the classroom.

4 OBSTACLES TO IMPLEMENTATION OF TQM

The purpose of a higher education institution that intends to implement TQM through the Deming's principles will be continuous improvement. But it is important to consider the obstacles that are likely to appear initially and along the implementation process. Usually, quality is defined as the satisfaction of customer's needs and expectations. In teaching this definition might be applicable because the customer's identification generates a great diversity of opinions, which constitutes one of the first obstacles to the implementation of TQM. Besides customer's definition many other obstacles can appear in the TQM implementation in the higher education. Examples include:

→ The negative connotation associated with the terminology of TQM - some educators consider TQM an administrative philosophy "out of place ", especially because it uses terms as "customer " and " value ";
→ Rotation of the top management - the rotation of the top management can represent a barrier to TQM implementation, not only because a new administration takes some time to adapt to the institution, but also because the new administration might not share the enthusiasm of the previous one in relation to TQM. All these facts will be able to affect the pledge of the remaining members of the institution, because they ask themselves if the current administration will stay in the institution enough time to complete the implementation, or if they are wasting their time and efforts for something that will be ignored later;
→ The reward and recognition system in place in the higher education institutions - the progression in the educational career and most of the incentives are mostly connected to the time dedicated to investigation instead of the time dedicated to teaching;
→ Several inadequacies of the institutions to TQM - The structure of the higher education institutions do not allow the progresses of TQM implementation, namely high levels of bureaucracy and resistance of people to changes in the system;
→ Lack of time of top management;
→ Insufficient time, training and funds;
→ Lack of an institutional mission generally perceived and broadly accepted;
→ Reluctance in delegating authority;
→ Resistance to work in teams and to change;
→ Teachers' concerns that the changes might impair their future career.

5 BENEFITS OF TQM IMPLEMENTATION IN THE HIGHER EDUCATION

Despite all possible obstacles in implementing TQM in higher education institutions the potential benefits justify the efforts and the time expended (Ivancevich, 1992). The reports about the benefits achieved with the implementation of the TQM principles in the higher education are already quite significant. Edwards (1991) and Horine et al. (1993) point out several improvements that the TQM implementation can bring to higher education. Specifically:

→ Helping the higher education to focus in the appropriate market needs;

→ Helping the higher education getting excellence in quality in several areas;
→ Producing systems to lead to high quality performance;
→ Examining and removing non-productive aspects of the higher education system;
→ Developing accomplishment measures;
→ Developing a teamwork approach in the resolution of problems.

According to Horine (1993), Seymour (1991), Cornesky (1994) and Edwards (1991), the implementation of the TQM principles:

→ Allows sharing of values and unity leading to a better focus in the institutional mission;
→ Facilitates a synergetic and simultaneous planning;
→ Improves work environment and the motivations between members of the institution;
→ Increases the productivity and the involvement levels of all members of the institution;
→ Improves the institutional image;
→ Makes possible the satisfaction of several teaching customers;
→ Eliminates barriers inside the institution;
→ Improves communication between the institutional components;
→ Reduces redundancies; and
→ Facilitates the cultural change in the institution.

This way TQM can be the answer to the various quality demands as well as a factor of competitiveness for education institutions as it is in the industry.

Seymour (1991) identified other benefits at administrative level of the TQM implementation in teaching. For example, the increase of concern from staff on customers; the increase of efficiency; the increase of respect for decisions taken based in data; and the increase of the workforce empowerment.
Spite of the remarkable and attractive savings and improvements obtained in administrative functions, the greatest potential of TQM seems to be connected with the academic aspects. Several authors argue that the TQM implementation results in a significant improvement of the education (Edwards, 1991; Tribus, 1993a). This improvement results from increasing scholar success; significant adaptation of teaching methods; more efficient use of teaching staff and students time due to higher productivity; larger satisfaction of teachers and students with their work; and a larger involvement of the student's parents (in the case of the secondary teaching).

The application of TQM can also sponsor the student's individual development preparing them in a more effective way for professional life, as TQM can teach them to think for themselves and lead them to learn how to work in teams. These are vital characteristics for students to become hard-working professionals, increasing the probabilities that they will bring positive contributions to society (Tribus, 1993a).

Figure 1 below, presents a system of connections between obstacles, benefits and Deming's principles when implemented in an education institution:

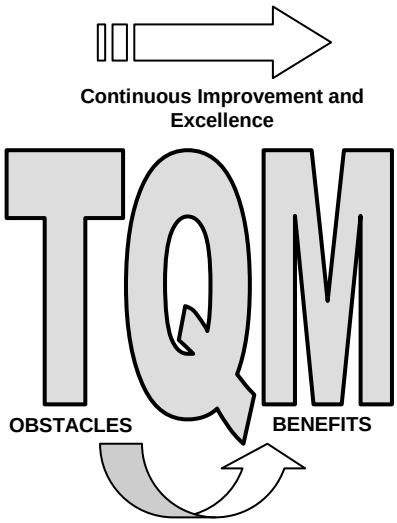

Fig. 1. Implementation of Deming's principles in an education institution. Source [29].

6 EMPIRIC STUDY IN ISCTE AND UE

The objective of the empirical study is to verify if the principles of Deming could be applied in the Portuguese higher education institutions. We use inquired two higher education institutions using a questionnaire. ISCTE School of Management is located in the costal and capital city of Portugal: Lisboa. University of Évora (UE) is situated in a smaller interior city - Évora. The questionnaires were done between October and November of 2002 at ISCTE, and February and March of 2003, at UE. The resulting data was treated using the software SPSS (*Statistical Package for the Social Sciences*). 591 employees answered the questionnaire at ISCTE, while 1102 employees answered the questionnaire at UE. The employees subjected to the questionnaires were selected from lists supplied by the administrative services, with

authorization of the institution's Principal. Table 2 below presents the data.

The results obtained in the empirical study allow analysing the adaptability and the applicability of the chosen theoretical model. We acknowledge that TQM implementation using the principles of Deming in the Portuguese higher education need some adoption to the high education system. Some principles should be modified so that the process of the quality succeeds. Other principle cannot simply be applied and another principle is not adaptable to the Portuguese higher education institutions (see Table 3).

TABLE 2
DATA FOR QUESTIONNAIRES AT ISCTE AND UE

	ISCTE					UÉ				
	Teaching		Non Teaching		Total	Teaching		Non Teaching		Total
Distributed questionnaires	441	74,6%	150	25,4%	591	631	57,3%	471	42,7%	1102
Collected questionnaires	95	68,3%	44	31,7%	139	199	58,9%	139	41,1%	338
Answer rate	21,5%		29,3%		23,5%	31,5%		29,5%		30,7%

Source: [29]

TABLE 3
APPLICABILITY AND ADAPTABILITY OF THE PRINCIPLES OF DEMING IN A PORTUGUESE HIGHER EDUCATION INSTITUTION

Principles of Deming	Applicability Without modifications	With modifications	Not adaptable	Not applicable
1.º - Create consistency of purpose	The definition of the mission of a higher education institution is a primordial task for the materialization of the improvement of the quality.			
2.º - Adopt the new philosophy	All the members of the institution should accept a plan based on the philosophy of total quality.			
3.º - Cease dependence on inspection			Although not an ideal method notes are to be the only tool to classify the people.	
4.º - Minimize total cost				The abandonment of the businesses with base in prices doesn't depend on the will of the institution.
5.º - Improve the system		The institution customer's definition is one of the principal and first obstacles that should be outlined. Then the institutions should motivate their participation in the several school activities.		
6.º - Institute training on the job	Clarifying their functions, the philosophy and the mission of the institution all the employees can contribute to the quality improvement. Training is an important part.			
7.º - Adopt and institute leadership	The Portuguese higher education institutions can only speak about quality If leadership exist.			
8.º - Drive out the fear		Besides removing fear out of the system it is essential to have a continuous and consistent communication that promotes a real involvement of all collaborators in the process.		
9.º - Break down barriers between departments		Working in teams is essential to eliminate the existent barriers between the departments of the institution and improve knowledge and applicability of the tools and techniques of the quality which will produce better results in the process implementation.		

10.º - Eliminate slogans, exhortations and goals		The slogans, exhortations and goals can exist but within a recognition program.		
11.º - Eliminate work standards-quotas	The work shares should be replaced by a wise and intelligent leadership.			
12.º - Promote the pride for the work	To grow up pride in work it is necessary to create an appropriate work Environment, to eliminate the quantitative objectives and to centre the attention in the quality.			
13. º - Self improvement	The institution should offer training and self improvement opportunities to all members.			
14.º - the transformation is task of all	All the intervening parts of the institution should collaborate in the improvement of the process.			

Source: [29]

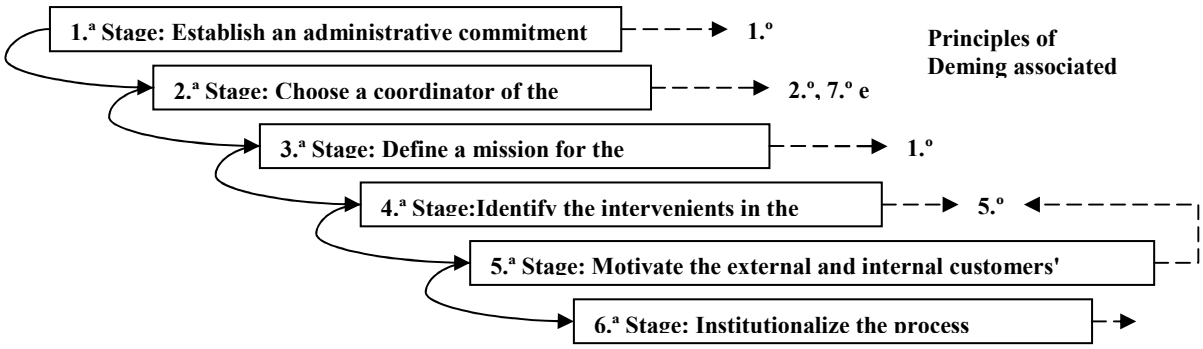

Fig. 2. Stages for TQM implementation in the Portuguese higher education institutions. Source [29].

7 STRATEGIES TO IMPLEMENT TQM IN THE PORTUGUESE HIGHER EDUCATION

Considering that the total quality plays a strategic part in the quality improvement of higher education and taking into account the empirical study, the implementation of a process of total quality based on the principles of Deming in a higher education institution can be summarized in six ordered stages (Figure 2).

1.st Stage: Establish an administrative commitment

All quality theories refer that total quality can only work if the institution administration is committed. All the changes implemented in high education are meant to improve the life of the intervening persons and to solve their problems. Even though, it is often found that teachers and other members of the institution become sceptical and concerned about the implementation. Therefore the move towards total quality in education has to be more than just words and intentions. The top responsible for the institution (Principal, Director…) must act as a “general” that leads their "troops”. He or she must be at the first line of battle not at the rear.

Deming refers in a repetitive manner about the need of the “constancy of purpose “(1st principle). He points out that the process will not work without that constancy. The total quality in education without a sincere commitment of the top management is deemed to fail. The top management should address collaborators in a clear way to present the essential and necessary elements for the correct process of total quality in the institution. They must show their entire commitment in implementing the process, asking for their help, taking the responsibility of everything that does not work as planned and offer their support in order to accomplishment success of implementation.

2.nd Stage: Choose the quality coordinator

The job of the institution top responsible is to drive the organization and not to operationalize the implement of the total quality program. As Deming refers in his 7 º Principle the major role of the administration is not to supervise but to lead. And in a quality program the top responsible should be the

vehicle for change and the catalyst of the means, time and necessary space. Besides that, he must show his support through words and actions to the efforts made by the coordinator and the rest of the team.

The quality coordinator has to drive the quality movement in the institution. Consequently it is his competence to establish, with the Principal's or Director of the institution advice, the direction that the quality movement will take. Ideally, his dedication should be fulltime so that he can treat all of the subjects related with the program. Deming defends, in the 2. º And 9. º Principle that the implementation of the total quality philosophy in all the institution will be easier if the quality improvement teams are formed. These teams should be made of individuals that represent all the functions /services /departments of the organization. The teams should be lead by coordinators that, among other characteristics, should put faith in the process, have aptitude to lead and delegate authority, are pacifying individuals and that inspire trust and respect.

3.rd Stage: Define a mission for the organization

Frequently members of a scholar community connect themselves more like enemies than members of the same team. In establish a mission it is important helps to align the distinctive parts inside the organization and create common goals. The mission should represent the majority and integrate if possible all the convictions of the intervening members. In this way the mission will offers a clear vision of the institution objectives to all personnel, to students, to internal and external customers and to society in general. As Deming refers in number 1 Principle without that mission the institution looses direction which can results in a reaction against the institution objectives. The Portuguese higher education needs a cultural change. To undertake such change all the intervening parts should be on the same side. The existent barriers between them should be demolished (9 º Deming Principle). This combined effort will help people to view each other as “enemies ". By aligning forces the mission will have a synergetic effect.

4.th Stage: Identify the intervening on the process

As mentioned by Deming in his 5º Principle, to improve the system so that quality becomes part of the institution culture all parts should assist to the intervening needs. Therefore to make changes in a high education institution it must be know in advance who the intervening parts are in the educational process. Just as in the business community, education institutions relate with suppliers, customers and offer products. The final products of these organizations are the graduates. The high schools, the families, the teachers, the collaborators and the community in general can be viewed as suppliers. The internal customers are the educational and non educational personnel, the students and the government's members. External customers are the graduates’ receivers, the business community and the employer.

In this diversity of customers and suppliers it is important that each department or service of the organization identifies their correlates. Before taking any decision the higher education institutions should always remember the needs of their suppliers and customers. Deming, in the 5º Principle, alludes to it by referring that if the organizations do not know who are their suppliers and the customers it is difficult to satisfy them and they cannot proceed “to create the product “desired.

Traditionally, the higher education institutions impose their aspirations to the suppliers and to the customers. Instead of referring to what the organization expects from suppliers and costumers they should question suppliers and costumers to understand what they expect from the institution, in a way that both reach what they intend. Otherwise results will not improve.

5.th Stage: Motivate the external and internal customers' participation

The higher education institutions must motivate external and internal costumers to take part in their activities. However, as children grow up parent’s participation in the school institution decreases and by the time students enter a higher education institution parents’ participation is minimal. Asking for parents’ to participate in the institution activities is a complicated task. On the other hand, asking the students to help their friends facing difficulties in their studies is also something unheard.

Usually, both employers and high schools do not participate in the educational institutions activities. It is obvious that all parts should return to the institutions, not only to appreciate the changes but also to give a more appropriate sense to the economic-social reality.

Usually, the higher education institutions invite employers to visit the organization, with the purpose of asking for financial contributes

to accomplish any activity, as if that was the only interest in the community! With an active participation in the institutions the community in general can make suggestions about the studies plan and other aspects, which would be beneficial for the graduates in the moment of their entrance in the active life.

6.th Stage: Institutionalize the process

After the establishment of the administrative commitment, the election of the quality coordinator, the definition of the institution mission, and the identification and motivation of the intervening parts, what remains is the application of the quality process. However the organization must keep in mind that if it intends to implement the Deming principles it should consider that some need to be adapted.

To institutionalize the quality process is like “planting a tree with deep roots ". “A strong wind can make the tree to lean but its roots will maintain it right ". The same is verified in the high education institutions. Usually the administration stays in the direction of the organization for about four years. Even if the top responsible quits from the task, once initiate, the institutionalization of the process should continue till the end. The same happens with the quality group. It should continue because without it the process would not go forward.

But the largest challenge of the total quality applied to the high education institutions is to make a cultural change. In the educational community, in general, and in the high education in particular cultural changes is something extremely difficult to reach. Saying to the bureaucrats what they have to improve is almost a heresy, with all the connotations that this word supports, given that such individuals usually do not accept any suggestion easily.

To introduce TQM in high education is like “pushing a heavy stone to the summit of a hill". It is slow, tedious and very hard. The largest obstacle is the inertia. Once surpassed there will be other obstacles that will interfere with the process. But if all members take part in the process (students, students' parents, suppliers, internal and external customers) it will be easier to push the “stone", that is the task becomes more reachable. If all parts push the stone upward in the same direction everyone will benefit including the institution.

Some teachers do not view themselves as important parts to improve the institutions they belong to. Even if they are often overloaded with tasks that never intend to do they are adverse to changes. For them the responsibility of helping the institution is subdued to the teaching and exam tasks. Some do not even intend to perform that! However not all teachers of the high education institutions are characterized this way. The great majority of them is hard-working and totally dedicated to work and wishes the best for their institution. It stands out that a great part of these professionals is only waiting for the moment that can act to improve the system!

However the process needs a certain amount of time for the cultural changes to take place. The time necessary depends on the institution and on the people of that institution. Firstly the people should be educated and must not expect immediate results. It should also be insisted that resisting only makes matters worse. The change deserves the effort! At the same time, it should never feel completely satisfied before time, because when we believe that all the “flanks are covered “somebody will attack “it” on the other hand.

8 CONCLUSION

The European higher education system has passing for several transformations, in a process which involves more than 5.600 institutions and 29 million students. Aiming at to promote the mobility in the whole of Europe and the rest of world, the Bologna Process will establish a vast higher education area by 2010, in which common principles will be applied to all those institutions.

The need for a European Higher Education Area became effective in the 80’s and was firstly formalized with the *Magna Carta Universitatum*, signed in 1988. Nine years later, European Council and UNESCO agreed on a convention – usually referred to as the Lisbon Convention – about the recognition of qualifications concerning higher education in the European Region, signed and ratified by most European countries, which set a number of basic requirements and acknowledged that individual countries could engage in an even more constructive scheme. In September of 1988, the Recommendation N.º561/98 of the Council of the European Union calls on the Member States to introduce quality-assessment and quality-assurance mechanisms into their higher education systems and to promote cooperation between the authorities responsible for quality assurance in higher education. In the same year, the Sorbonne Joint Declaration on harmonisation of the architecture of the European higher education system, by the

four Ministers in charge for France, Germany, Italy and the United Kingdom, had already anticipate the creation of an European Higher Education Area.

After the Bologna Declaration, the process towards the European Higher Education Area has been point out by a clarification and a priority definition of objectives, as occurred successively in Prague (2001), Berlin (2003) and Bergen (2005)

This ambitious process will aspire too to answer to social issues and economic challenges so that the education quality, the research capacity and the graduate employment are ensured. The process is on the implementation stage, and its development will depend on the capacity of countries, institutions and other parts involved.

Like most European countries, Portuguese institutions are working hard on *curricula* harmonization and implementation of a specific set of tools developed to smooth the process of recognition of academic degrees and qualifications, mobility, employment, and so on. Despite on those efforts, we believe that the success of the process will strongly depend on the close collaboration networks with stakeholders, such as labour market participants (enterprises and other organizations).

Instead of relying on a conventional public education system, higher education institutions will be focused on offering an apprenticeship system and a set of competences (e.g. initiative, adaptability, flexibility and communication skills) facilitating the graduates incorporation in the labour market, even in areas different from their original specific qualifications. The integration in the labour market is, thus, a central point of the Bologna Process, and should be considered in the reorganization of current *curricula*.

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