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The use of ISO 9001 quality standard in higher education institution libraries[1]

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Abstract [Resum] [Resumen]

ISO standard 9001 is one of a set of management tools that libraries have adopted in recent years. This article focuses on libraries in higher education institutions that have received ISO certification of their quality management systems (ISO standard 9001:2000). We examine their reasons for seeking certification and the advantages and difficulties they have encountered in applying this ISO standard. Finally, we consider the future prospects of ISO standard 9001 in university libraries.

1 Introduction

Quality management has become increasingly present in the life of organizations. Their survival is mainly linked to the quality of their activities. The way in which each organization focuses on quality issues may vary according to the sectors and the environment where it carries out its activities and of course, the organization's own strategies. There are various ways of focusing on quality and one of the options is to approach the quality management system using the standard ISO 9001.

Since its initial publication in 1987, the number of implementations of ISO 9000 quality systems has increased year after year in the business context and it has led to a growing number of business information services being managed using these standards. The first review of this series of standards was carried out in 1994, and the second review and the publication of the edition in force took place in 2000. The ISO 9000 series includes several standards but, at present, the only one that is certifiable is the ISO 9001.

The ISO 9001 standard is also slowly being adopted in public institutions, where still there are few information services and libraries that have opted to manage their quality system with ISO 9001:2000.

University libraries, both traditional and digital, are very important parts of the educational process, especially in terms of the 2010 horizon of the European Higher Education Area. As a service to the university community, it has to have mechanisms for measurement and evaluation of its activities in order to guarantee the quality of the services offered and the satisfaction of its users. As a result, one of the main challenges of libraries is to investigate and to decide upon the most appropriate mechanisms to improve and to ensure the quality of their services.

The application of ISO 9001:2000 in libraries in the specific context of higher education institutions leads to a series of questions:

1. What are the features shown by libraries certified ISO 9001?
2. What have been the reasons for implementing ISO 9001?
3. Which difficulties has the implementation shown?
4. Which advantages do the certified quality systems offer?
5. What could be the future of the ISO 9001 standard in this context?

The search for answers to these questions led to the PhD dissertation by the author of this article (Balagué, 2007), in which some of the main findings are presented. The aim of that work is to contribute to knowledge of management of the ISO 9001:2000 quality systems in libraries of higher education institutions. At a time when many university libraries are seeking the consolidation of their quality management systems in order to be able to respond in a clear and flexible way to the demands of institutional evaluation, the study may be of interest to libraries that have already adopted the standard as well as to those that have not yet determined which quality management system to adopt.

2 Methodology

First, a bibliographical review was conducted, and many contributions were gathered during the research in order to prepare a review on the current state of quality management using the ISO 9001 standard in information units, mainly in higher education institution libraries, and the main benefits and problems that have been described related to its use in libraries were analyzed.

An empirical study that comprised two phases of data gathering was designed. The first phase consisted of the determination of the scope of the population. The difficulty resides in the fact that there is no universal database of all the certified companies, much less of the certified libraries, which is due basically to the large amount of certification bodies that are found in a globalized world in which any organization can be certified by an accredited agency from its own country or by one from another country authorized to operate internationally. Therefore, neither is possible to find it consulting an only database for each country. ISO itself offers only an annual report, *The ISO Survey of ISO 9001:2000 and ISO 14001 Certificates*, with the aggregated data that has been provided by more than 750 certification agencies from all over the world. This difficulty has been noted in previous studies such as those by Casadesús (1999) and Thonhauser (2005).

In order to establish the population in a way that is as approximate as possible, a request for information was e-mailed to library associations in each country. When the country has a specific association of academic libraries or librarians this specific type of association was contacted directly. For countries where it was not possible to locate any library association, alternative agencies were contacted such as the national library. Whenever possible, local accredited bodies were consulted in order to find information on the few countries that could not be contacted following the mentioned systematic method. This first phase enabled the identification of 121 libraries of higher education institutions of 34 different countries that had achieved the certification of their quality systems with the ISO 9001:2000 standard either alone, or in a broader frame of certification of the processes of their institution, at the beginning of 2006.

This figure is an estimate that should be adjusted upwards, since the research does not guarantee absolute exhaustiveness. The study concentrates on libraries with quality systems that have a valid certification. In fact, some of the first university libraries that were certified later decided not to update their certifications for their own reasons and they are beyond the scope of this research.

The second phase consisted of the production of a questionnaire sent by e-mail to the directors of all the libraries identified. The questionnaires produced in previous studies on the application of the ISO 9000 standards were taken into account in its preparation either in the business field (Casadesús, 1999; Lee, 1999), or in the area of education (Thonhauser, 2005), or in the libraries field (Osman, 1998; Praditteeera, 2002). A number of the questions were closed-ended, a smaller number was open-ended and some questions were answered on a 5-point Likert scale.

The data obtained were studied to analyze the results and to draw some conclusions. There was a total of 67 answers from the identified universe coming from 27 countries,

which represented an answer rate of 55.4%. The first questionnaire was mailed back on October 26, 2005 and the last on August 1, 2006 .

It is important to stress the absence of control group. This research does not intend in any way to compare institutions that have certified quality systems with others that do not have them. It is therefore impossible to ensure that the effects arising from the application of the ISO 9001 would not also happen in non-certified libraries.

3 Results

The ISO 9000 series has not been specially conceived to be applied in libraries and – as noted by St. Clair (1997:58) – a lot of work remains to be done to establish the value of implementing ISO standards in information services. Since the point when libraries began to adopt this standard, they have basically used two of the three editions that have appeared so far - the 1994 and the 2000 editions.

The result of contacts in every country with library associations, national libraries, certification bodies and other agencies enabled an approach to the universe of higher education institution libraries applying ISO 9001. **Figure 1** shows the geographical distribution of the 121 identified libraries.

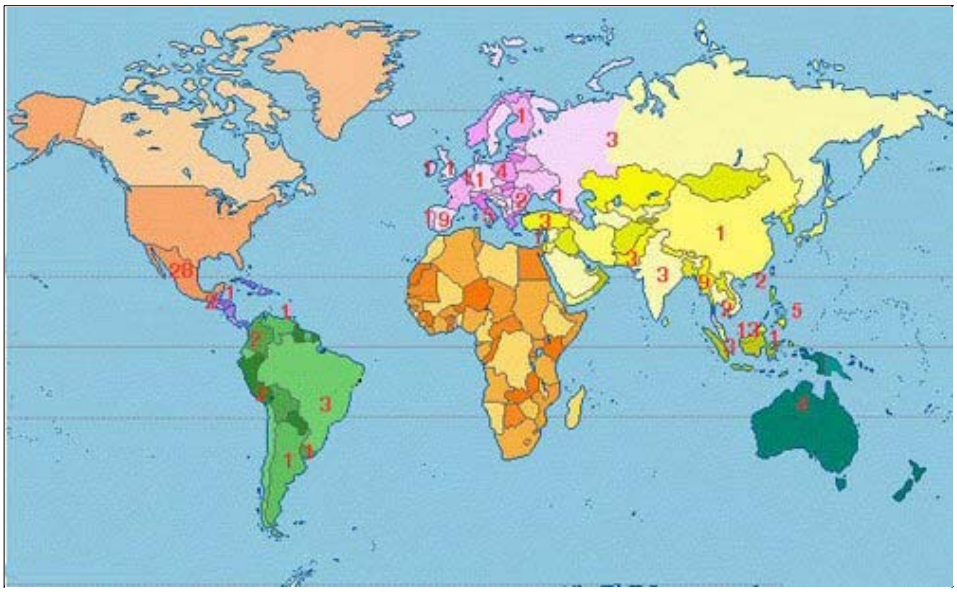

Figure 1. Geographical distribution of certified ISO 9001:2000 libraries

The percentage of answers obtained in relation to the number of identified certifications is shown in **table 1**:

ASIA				**EUROPE**			
Country	Estimate	Answers	%	Country	Estimate	Answers	%
South Korea	2	1	50,0	Germany	1	0	0,0
Philippines	5	1	20,0	Belgium	1	1	100,0
Georgia	1	0	0,0	Bulgaria	2	2	100,0
India	3	1	33,3	Slovakia	1	1	100,0
Indonesia	1	1	100,0	Spain	9	7	77,8
Israel	1	1	100,0	Finland	1	1	100,0
Macao	2	0	0,0	Italy	5	4	80,0

Malaysia	13	6	46,1	Poland	4	2	50,0
Pakistan	3	1	33,3	Portugal	1	1	100,0
Singapore	3	1	33,3	United Kingdom	1	0	0,0
Thailand	9	0	0,0	Russia	3	2	66,7
China	1	0	0,0	Turkey	3	2	66,7
Total	**44**	**13**	**29,5**	**Total**	**32**	**23**	**71,9**
AMERICA				**AUSTRALIA**			
Country	Estimate	Answers	%	Country	Estimate	Answers	%
Argentina	1	1	100,0	Australia	4	3	75,0
Brazil	3	3	100,0	**Total**	**4**	**3**	**75,0**
Colombia	2	1	50,0				
El Salvador	2	2	100,0				
Honduras	1	1	100,0				
Mexico	28	18	64,3				
Peru	2	1	50,0				
Uruguay	1	0	0,0				
Venezuela	1	1	100,0	**TOTAL**			
Total	**41**	**28**	**68,3**	**Total**	**121**	**67**	**55,4**

Table 1. Comparison between the estimated universe and the answers received

3.1 Main features of certified libraries

The standard ISO 9001 is based on management by processes. As processes are cross-functional within institutions, this means that at the time of certification, it is very important to establish the scope of the quality system to be certified. Various approaches to quality systems are found in the libraries of higher education institutions.

On the one hand, there are the libraries that manage the quality within the broader framework of their institution as a whole (45.3%), which has chosen to implement a single quality management system. On the other hand, there are library systems that have opted to certify their processes independently from the rest of the institution (21.9%). This does not necessarily mean an “outsider option” but it may be a matter of pace, level of interest and schedules in which the different components within an institution are moving towards a common goal at different speeds.

Another option is represented by those libraries in a library system that have been certified as unique case within the system (15.6%). In this case it is often a decision that is a first step towards subsequently gradually extending the certification to the other service points. Finally, another casuistry (17.2%) includes libraries with their quality management system linked to their faculty or college that — regardless of the university — has chosen to establish its own quality management system that affects all its activities and services, including the library.

ISO 9001:2000 is applied to libraries in institutions of higher education of all sizes, regardless of whether the library system consists of a single library or a large network with many service points that is scattered across different campus locations. More than half the cases (50.8%) are library systems that consist of a maximum of three libraries, but the range is extended to fairly large library systems, with numerous points of service and 14.3% are systems consisting of 20 or more libraries. In the same way, the human resources of certified libraries vary from a library managed by a single person to library

systems with a very large staff. 28.1% of the libraries have staffs of 15 people or less, 25.4% have staff of between 16 and 50 people, 20.6% have between 51 and 100 people, 20.7% have between 101 and 200 people and finally, 6.4% have more than 200 employees.

Although ISO 9000 was published for the first time in 1987, only 10.9% of the cases were certified before 2000 and the number of certifications begins to increase at exactly the same time as the publication of the 2000 edition. 37.5% of the libraries obtained the certificate between 2001 and 2003. The increased pace continued in the following two years as in 2004 and 2005 48.5 % of the cases obtained the certificate. As for financing, 71.9% of the libraries belong higher education institutions funded by public money and 28.1% to institutions funded with private money.

3.2 Reasons for implementing ISO 9001

Ascertaining the source of the initiative in bringing the process of implementation and certification of the quality system provides information on leadership on this issue.

In about 50% of cases, this leadership emerged from the senior management of the university, as the result of a holistic vision and inclusive vocation of all initiatives relating to quality matters within the institution. A second group of libraries — also quite large (31.3%) — shows the library leadership completely in synchronisation with the senior management of the institution, and a final group (17.2%) consists of libraries with managers so strongly committed to quality management that they even became leaders on this topic within their institutions. In one case, a government circular acted as a trigger for the decision to establish the quality system.

Several factors influence the decision to implement the ISO standard in a library. **Table 2** presents these factors ordered by the degree of importance in the libraries surveyed.

Main factors influencing the decision-making process	Rating (scale 1 to 5)
Goal of improving the quality of library services	4,1
Strategy of the university in quality issues	4,0
Need to improve the work systems of the Library	3,8
Need to improve the organization of the Library	3,7
Prestige of ISO 9001	3,6
Users' requirements and expectations	3,4
Requirements of a government body (e.g. Ministry of Education)	2,5
Implementation of ISO 9001 in other libraries	2,0

Table 2. Main factors influencing the decision-making process

The improvement of the quality of library service and the alignment with the strategy of quality of the institution were factors with a higher weight, while the requirements of the country's education policies or the implementation of ISO 9001 in other libraries have

lower weights. Other factors were also mentioned by some of the libraries, such as "strengthening communication between different units of the same university", “consolidating and expanding the range of services", "becoming an example in the country", "contributing to better education” or “because financing is linked to the certification".

The ISO certification involves some financial effort. Some other quality management options also require resources, but may be perceived as less costly. However, 66.7% of libraries surveyed did not study any other option before making the decision to adopt a quality system based on ISO 9001. Among the comments from those who did, there was no alternative majority suggested and national models, university accreditation, EFQM model, quality improvement groups and Total Quality Management were mentioned.

25.4% of ISO-certified libraries have other awards or certificates related to quality. In some cases these are some sort of internal recognition by the institution itself (best staff award, best service award, best customer care award), while in other cases the libraries have obtained national quality awards, and three libraries said they had some kind of international award or recognition.

3.3 Difficulties in the process of implementing ISO 9001

The implementation of a quality system based on ISO 9001 and its subsequent certification is not a trivial process, as it involves resources and commitment. Libraries are highly appreciative of the level of support and commitment of their institutions — 56% consider it "absolute" — during the implementation of the quality system in the library. A way of demonstrating this support is that 79.4% of libraries were able to count on the help of external consultancy on an ongoing basis (44.4%) or occasionally (34.9%) during the implementation of the system. Only 20.6% managed to certify their system of quality without external aid.

ISO 9000 has a long-standing bad reputation — originally somewhat based on reality — that suggests it is difficult to understand, bureaucratic and difficult to manage. This bad reputation comes from the original version but in the 2000 edition, a considerable effort was made by the Technical Committee 176 of the ISO responsible for updating it to reduce the basis for this reputation.

As the standard is generic and independent of the economic sector of the organization, understanding it is a key factor to applying it correctly to each particular environment. Library directors were therefore asked about the degree of difficulty in the interpretation of each chapter and each clause of the text of ISO 9001:2000 and the level of difficulty found in their practical application. Respondents were asked to evaluate each section on a 5-point scale (1 = none, 2 = little, 3 = quite; 4 = very; 5 = total). The chapters from one to three are introductory and do not contain certifiable elements. For this reason appraisal begins on chapter four.

In **chapter 4, *Quality management system***, the difficulty of interpretation is concentrated in clause 4.2, which deals with the documentation requirements. However, this is a chapter that is easy to understand and the overall assessment of the difficulty in interpreting the chapter is 1.9 (little difficulty).

Also **chapter 5, *Management Responsibility***, presents no difficulties of interpretation to libraries that use the standard. The overall assessment is rated at 1.8 (little difficulty). However, clause 5.4, Planning, is slightly more difficult to understand than the other clauses in this chapter.

The overall assessment of the degree of difficulty in interpretation of **chapter 6, *Resource Management***, is also in 1.8 (little difficulty) and only clause 6.2, Human resources, slightly exceeds the average difficulty of the chapter.

In **chapter 7, *Production realization***, the difficulties in understanding the standard increase and the overall assessment are 2.3 (between little difficulty and quite difficult). In this case, clause 7.6, *Control of monitoring and measuring devices*, is considered the most difficult in the chapter.

The overall assessment of the difficulty in interpreting **chapter 8, *Measurement, analysis and improvement***, is 2.4 (between little difficulty and quite difficult). With this assessment, this chapter becomes the hardest to be interpreted by the libraries of institutions of higher education. Clause 8.3, *Control of nonconforming product*, presented the highest degree of difficulty in the standard.

Table 3
shows that valuations lower than 2 (little difficulty) in the interpretation of the standard are chiefly in chapters 4, 5 and 6 while those higher than 2 are in chapters 7 and 8.

Interpretation of the ISO 9001:2000	Rating (scale of 5)
4. Quality management system (overall)	**1,9**
4.1. General requirements	1,7
4.2. Documentation requirements	1,9
5. Management responsibility (overall)	**1,8**
5.1. Management commitment	1,6
5.2. Customer focus	1,7
5.3. Quality policy	1,6
5.4. Planning	1,9
5.5. Responsibility, authority and communication	1,8
5.6. Management review	1,9
6. Resource management (overall)	**1,8**
6.1. Provision of resources	1,9
6.2. Human resources	2,0
6.3. Infraestructure	1,9
6.4. Work environment	1,9
7. Production realisation (overall)	**2,3**
7.1. Planning of product realisation	2,3
7.2. Customer-related processes	2,2
7.3. Design and development	2,5
7.4. Purchasing	2,2
7.5. Production and service provision	2,1
7.6. Control of monitoring and measuring devices	2,6
8. Measurement, analysis and improvement (overall)	**2,4**
8.1. General	2,0

8.2. Monitoring and measurement	2,3
8.3. Control of nonconforming product	2,6
8.4. Analysis of data	2,4
8.5. Improvement	2,4

Table 3. Ratings of the interpretation of the ISO 9001:2000 standard

In **figure 2**, it can be seen how the level of difficulty in understanding the standard increases as well as the oscillations depending on whether the library has or has not consultants. Apparently, it is easier to interpret the standard without aid than with the help of external consultancy.

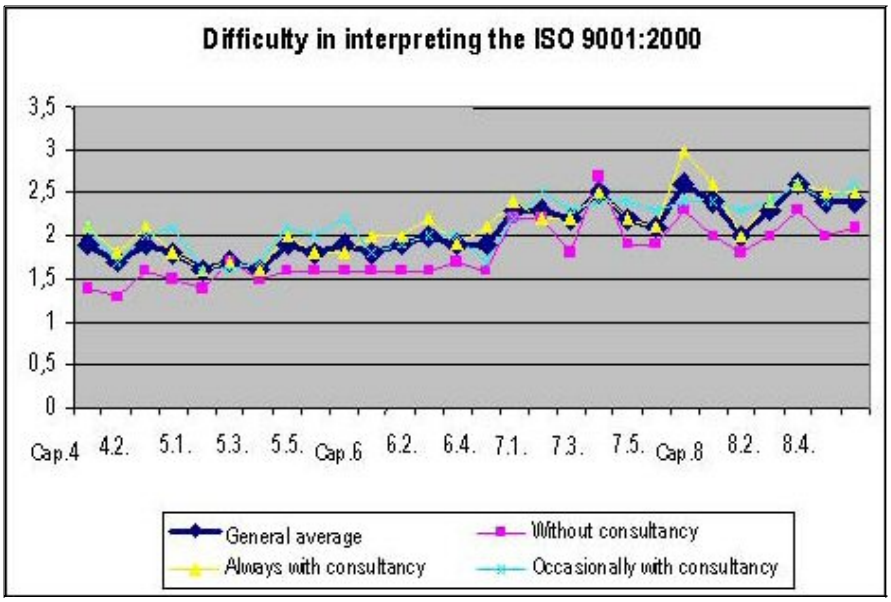

Figure 2. Ratings on the interpretation of ISO 9001:2000

The libraries were consulted not only on the difficulties of interpreting the standard, but also on those occurring during its implementation.

The overall assessment of the degree of difficulty in the implementation of **chapter 4, *Quality management system***, is 2.0 (little difficulty) and the place where this slight difficulty is felt is in clause 4.2, which covers the *Documentation* requirements.

The overall assessment of the degree of difficulty in the implementation of **chapter 5, *Management Responsibility***, is 2.0 (little difficulty). It must be stressed, however, that there is a greater complexity of application in clause 5.4, *Planning*.

The overall assessment of the degree of difficulty in the implementation of **chapter 6, *Resource Management***, is 2.2 (little difficulty), but implementing clause 6.2, *Human resources* is slightly more problematic.

The overall assessment of the degree of difficulty in the implementation of **chapter 7, *Product Realization***, is 2.3 (between little difficulty and quite difficult), but a couple of clauses are significantly difficult to implement - 7.3, *Design and development*, and 7.6, *Control of monitoring and measuring devices*.

The overall appraisal of the degree of difficulty in the application of **chapter 8, *Measurement, analysis and improvement***, is 2.7 (between little difficulty and quite difficult). This appraisal shows that the chapter is the one that the libraries consider most difficult to put in practice and in particular, clause 8.4, *Analysis of data*, is the one

that is considered the most difficult to implement.

Table 4
shows that the lowest valuations (little difficulty) in the application of the standard are in chapters 4, 5 and 6 while the highest (most difficult) are in chapters 7 and 8.

Application of the ISO 9001:2000	Rating (scale of 5)
4. Quality management system (overall)	**2,0**
4.1. General requirements	1,9
4.2. Documentation requirements	2,2
5. Management responsibility (overall)	**2,0**
5.1. Management commitment	1,8
5.2 Customer focus	1,9
5.3. Quality policy	1,9
5.4. Planning	2,2
5.5. Responsibility, authority and communication	2,1
5.6. Management review	2,2
6. Resource management (overall)	**2,2**
6.1. Provision of resources	2,2
6.2. Human resources	2,3
6.3. Infrastructure	2,1
6.4. Work environment	2,0
7. Production realisation (overall)	**2,3**
7.1. Planning of product realisation	2,3
7.2. Customer-related processes	2,2
7.3. Design and development	2,7
7.4. Purchasing	2,5
7.5. Production and service provision	2,3
7.6. Control of monitoring and measuring devices	2,7
8. Measurement, analysis and improvement (overall)	**2,7**
8.1. General	2,2
8.2. Monitoring and measurement	2,7

8.3. Control of nonconforming product	2,7
8.4. Analysis of data	2,8
8.5. Improvement	2,7

Table 4. Assessments on the implementation of ISO 9001:2000.

In **figure 3**, the rating of the degree of difficulty in interpreting the standard correlates with the degree of difficulty in implementing the standard.

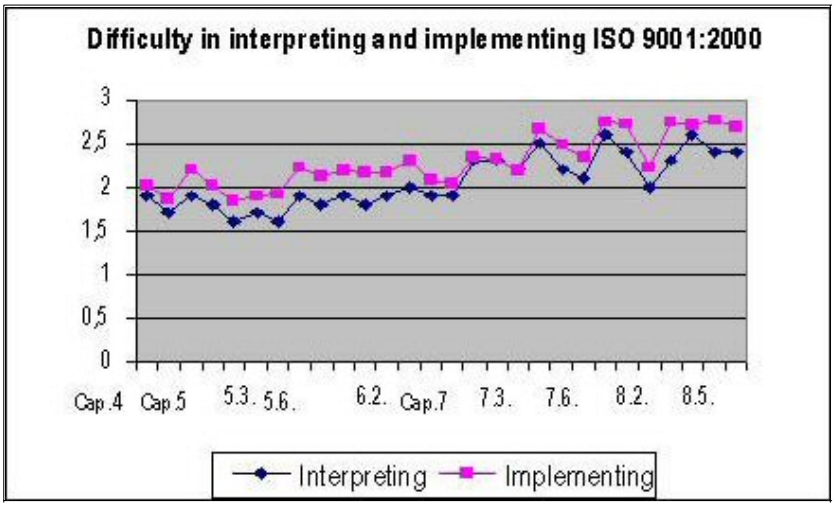

Figure 3. Relationship between interpretation and application of ISO 9001:2000

This parallel between the degree of difficulty of interpretation and implementation of ISO 9001:2000 could be related to practices in the library before the launch of the quality system. For example, if a library did not have a system for collecting indicators prior to its initial contact with the standard and they merely collected a few statistics which were also barely exploited, this would probably increase both the difficulty of understanding and applying chapter 8, devoted to *Measurement, analysis and improvement*, and requires a greater effort by the library.

The process of putting in place a quality system management and certifying it requires time. The question is how much? Clearly, the duration of the project is influenced by many aspects, such as the complexity of the system, the overall management of the library at the start of the implementation or the availability of resources. The answers range from libraries that carried out the entire process in a few months to one that needed three years to obtain the certification. The average is 13.5 months. A comparison between private and public institutions shows a slightly shorter process in libraries in the private sector (11.7 months) than in libraries with public financing (14.2 months). On the other hand, the availability or otherwise of consultants does not shorten the time spent on the implementation of the quality system a great deal. The process is only one month shorter with external consultants.

3.4 The advantages of quality certificates

Another objective of the study was to highlight the main benefits provided by the implementation of ISO 9001:2000 in academic libraries. **Table 5** shows these benefits in order of the importance given by respondents.

Main benefits of ISO 9001	Rating (scale of

	5)
Standardizes work processes	4,3
Improves documentation procedures	4,3
Facilitates data gathering for management	4,1
Defines responsibilities clearly	4,1
Promotes the dynamics of continuous improvement	4,0
Reduces improvisation	3,9
Provides management transparency	3,9
Improves effectiveness of library services	3,9
Provides a tool for promoting the library	3,8
Acts as a catalyst for organizational change	3,8
Increases user satisfaction	3,8
Improves operational efficiency	3,8
Creates improved understanding between the library and its customers	3,8
Improves integration of the library within the university	3,7
Improves communication within the library	3,7
Improves the attitude of the staff	3,6
Improves staff management	3,5

Table 5. Main benefits of the implementation of ISO 9001

With a score of over 4 (strongly agree), there are five potential benefits that achieved the highest ratings (continuous improvement, decisions based on data, definition of responsibilities, standardization of procedures and documentation). All of them form the main part of the essence of ISO 9001. Some of those answering gave indications of other benefits observed: “empowers the skills of human resources", "covers the international requirements", "improves the staff morale", "brings a higher professional recognition" or “helps in carrying out an important introspection".

So far it has already been able to establish the profile of the libraries of institutions of higher education that are applying ISO 9001, the main reasons that led to this move towards quality, the length of this journey and the main problems encountered either in the interpretation of the standard or in its practical application, and the observed benefits. The question now is was it worth the effort? The average rating is 3.5 (between quite and strongly agree). Of all the responses received, only three libraries believe that their expectations were not fulfilled.

3.5 The future of ISO 9001 in the libraries in higher education

institutions

The final section of the questionnaire was prospective, to ascertain the opinions of the directors of certified libraries on the possible future of ISO 9001 in academic libraries. **Table 6** shows the five arguments on which the extent of their agreement is based.

The future of ISO 9001 in university libraries	Rating (scale of 5)
Progress will depend on the overall policies that each country has regarding the quality of education	3,9
The future of ISO 9001 in university libraries does not lie with a restrictive attitude ("only ISO 9001 and nothing else") but with an integrative approach in the framework of total quality management as regards other techniques and models	3,7
In my country, the number of university libraries that choose to be certified will continue to grow over the coming years	3,4
The future of ISO 9001 in university libraries lies in the effective application of ISO 9004	3,1
Other successful quality management models that will chip away at the leading position of ISO 9001	2,5

Table 6. The future of ISO 9001 in the university libraries

ISO 9004:2000, despite forming a consistent pair with ISO 9001:2000, does not currently seem to have a high profile. This could be due in part to the fact that it is not a certifiable standard and its actual implementation to help improving organizations on the path to excellence in quality systems that previously have already implemented the ISO 9001 therefore is deeply opaque.

The valuation of the existence of other models for managing quality that could lower the prominence of ISO 9001 in libraries led to lower values, of 2.5, which shows that there is no consensus among libraries on what this future will be like.

Does the outlook for the globalization of higher education in which libraries exist and where they have to balance national positions and supranational foreshadow a "multicertified" future in libraries to enable them to meet the expectations and commitments of their institutions? This is likely, since greater convergence of views is clear when this issue is assessed, and at 3.7 (between quite enough and strongly agree).

4 Conclusions

4.1 The geographical distribution and characteristics of certified libraries of institutions of higher education:

- Libraries are located everywhere in the world with the exception of Africa and an important introduction in the libraries of public institutions of this standard, traditionally associated with the world of industry, business and the market in general, has been noted, especially in countries where — at a governmental level

— a clear commitment has been made to promoting the use of ISO 9001 (for example in Mexico or several Southeast Asian countries).

- Both by the structure and number of service points and the people working in these library systems show that the ISO 9001 allows adequate adaptation to the structure, size and complexity of each library system.

- Depending on the scope of the certification there are different settings for quality management systems of libraries:

    - Library systems that manage quality within the broader context of their entire institution, which has chosen to implement a single quality management system.
    - Library systems that have taken the decision to certify their processes independently from the rest of the institution.
    - A single library in a larger library system that has been certified as unique case within the system.
    - Libraries with a quality system linked to the quality system of its faculty or college.
    - Libraries that only have some specific processes certified.

- There is a tendency to spread the use of the standard with the publication of ISO 9001:2000, especially in the libraries of public institutions, where certifications have become more numerous since 2002.

4.2 The reasons leading the libraries to certify their quality systems:

- In about 50% of cases the initiative to seek certification emerged from the senior management of the university, as a result of a holistic vision and inclusive vocation of all initiatives within the institution in quality matters.

- The factors with most weight in making the decision to start a process of certification are a desire to improve the quality of library services and a wish to monitor the strategy of the university in the quality field.

- External factors such as the existence of other libraries that have the certification or the prestige of the standard, although highly valued, are not determinant and are secondary term when it comes to deciding on certification. Instead, factors aimed at improving the organization prevail. Ultimately, libraries are being certified to have an accurate and complete management system, not just a marketing tool.

- A quarter of certified libraries have other awards or certificates related to quality. In some cases, these awards were obtained as a result of the effect of an improvement caused by the implementation of the quality management system. In other cases, the award was presented as a proactive action taken by the libraries to consolidate their image of excellence.

4.3 The difficulties that appear in implementing the ISO 9001:

- Libraries receive a significant level of support from their institutions to consolidate quality systems, which show a real institutional commitment to the implementation of ISO 9001 in the library.

- The 2000 edition alleviates most of the terminological problems of the previous ISO 9001 editions. The standard becomes more understandable and begins to increase the number of certified libraries. However, support from the consultants remains an item with a lot of weight.

- There are many variables that can influence the length of implementation (the scope and complexity of the quality system to be implemented, the initial situation, the resources available, etc.) but the literature on the processes of implementation of the standard mentions an average of one year between the start of the establishment of the quality system and the obtaining of the certification. The libraries consulted fall within this estimate. Although there are no significant differences, the comparison between public and private institutions shows a slightly shorter certification process in libraries in the private sector than in publicly funded libraries.

- The appraisal of the degree of difficulty in interpreting the standard correlates with the degree of difficulty in implementing the standard:

    - The chapters with fewest difficulties in interpretation are 4, 5 and 6, which are also those with minor difficulties of implementation.
    - The chapters with the most difficulties of interpretation are 7 and 8, which are also those that present the greatest difficulties of implementation.

4.4 The advantages of having the certification of the quality management system:

- The five main contributions of the quality management systems ISO 9001, in the opinion of the directors of the certified libraries are :

    - promotion of the dynamics of continuous improvement
    - facilitation of data gathering for management
    - clear definition of responsibilities
    - standardization of work procedures
    - improvement of the documentation of processes.

- These five factors (continuous improvement, decision-making based on data, definition of responsibilities, standardizing procedures and documentation processes) are, to a large extent, the essence of ISO 9001 and do not differ substantially from the benefits reported by the literature on the standard in all types of implementations outside the library field.

- The effort to certify and implement a quality system ISO 9001 generally met the expectations of libraries consulted and the quality systems meet the expectations that led to its implementation.

4.5 The future of ISO 9001 in the libraries of institutions of higher education:

- Some of the limitations and criticisms that restricted the use of the standard have disappeared with the publication of the ISO 9001:2000 and as a result, more organizations are now interested in applying it. Most of the library directors were quite or very much in agreement with the idea that the number of university libraries that will be certified will continue to increase in the coming years. However, the appraisal related to quality management models that could reduce the prominence of the ISO 9001 standard in libraries shows that there is no

consensus on how this future will be.

- Organizational self-assessment is on the front line in the development of quality management and is proposed by all models that are the "direct competitors" of ISO 9001. ISO 9004:2000 is further step in this direction and can be useful to libraries in reflecting on their journey in search of continuous improvement.

- Processes are fundamentally important in all models and approaches to quality management and the implementation of ISO 9001 is an important first step in implementing other more holistic quality initiatives that libraries should consider. The future of ISO 9001 in libraries does not lie with a restrictive "only ISO 9001 and nothing else" attitude, but instead with an integrative approach in a framework of total quality management techniques which is open to other models.

Among the thousands and thousands of libraries of institutions of higher education around the world, there are few certified with ISO 9001. This study has tried to show what led libraries to certify their quality systems, the advantages that have been found, the problems that have been faced and the possible future of the ISO 9001 standard in this sector.

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Notes

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