INFORMATION TECHNOLOGY AND KNOWLEDGE MANAGEMENT IN BRAZILIAN AND PORTUGUESE UNIVERSITY LIBRARIES

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Higher Education

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SUMMARY

How do University Libraries in Brazil and Portugal employ Knowledge Management (KM) and Information Technology (IT) in order to improve the quality of its services and the productivity of their institutions? The KM represents a new vision of management of organizations, since information and knowledge are the main factors of competitiveness today of individuals, organizations and nations. The University plays a key role, alongside with the government and industry in the generation of technological innovations that can help with the progress, having the University Library (UL) as an important disseminator of scientific information. The main challenges of organizations involved in KM are concentrated in the management of cultural and behavioral changes and in creating an environment conducive to create, use and share information and knowledge. We developed a descriptive-analytic research, using the method of comparative study, analyzing 69 organizations. According to the survey results, IT issues were better evaluated in relation to other aspects of KM, showing a wide spread of these practices in the UL of Brazil and Portugal. Nonetheless, this is an industry constantly evolving that always needs planning and investment to keep up.

Keywords: knowledge management, information technology, university library

1. Introduction

Knowledge management (KM) means a new vision at management of organizations in the knowledge era. This approach derives from the understanding that information and knowledge are the main factors of competitiveness nowadays among individuals, organizations and nations. The main challenges of the organizations committed to knowledge management are focused in the management of cultural and behavioral changes and in the creation of an organizational context conducive to create, use and share information and knowledge.

Another important aspect is presented by the author of the triple helix concept, Etzkowitz [1], which supports the synergy between universities, industry and government to establish new standards of innovation, in order to make the industrial society migrate to the knowledge society. In Etzkowitz [1] point of view, universities must leave the secondary position they occupy in society and try to be as important as industry and government. The author suggests the transfer of knowledge of professors to companies and of executives to universities, encouraged by the government.

To Bastos [2], the organization of information in digital libraries is an important global movement connected to the storage, preservation, access and dissemination of scientific production. Within this context, the University Libraries (UL) play a key role as providers of information services, besides being a center for storage and distribution of scientific and technical information vital to the other organizations.

To Dziekaniak [3], since the University Library subscribes to a Higher Education Institution (HEI); issues related to the operation of the UL need to be in full agreement with the motives, needs and expectations, as well as the mission, objectives, strategies, goals and policies of the institution. Thus, the integration between the UL and the HEI is now a basic requirement to the development of a management system, mainly for the administrative excellence of the UL.

In this way, since they are knowledge and learning organizations by

nature, universities should strengthen their libraries and encourage them to develop knowledge management systems that involve the entire campuses. Therefore, it seems appropriate that libraries are positioned in this field and are presented as leaders in the field of knowledge management.

This work attempts to answer the following research question:

How do the University Libraries in Brazil and Portugal use IT and KM to improve the quality of its services and the productivity of their institutions?

2. Basics

According to Muniz Júnior et al [4], Knowledge Management is the systematic, formal and deliberate work, in order to capture, preserve, share and use explicit and tacit knowledge created and used by people during routine tasks and productive process improvement tasks, to generate measurable results for organizations and people. For Albino [5], there are several knowledge management projects being implemented in several organizations seeking to increase the efficiency and productive effectiveness.

The university has been a major source of generation of technology and training of human resources able to develop organizations with quality. In this challenging scenario, the library has a key role within universities, especially in the knowledge and information management area to facilitate the control and retrieval of essential information in an efficient and safe way for its users.

Universities today are faced with the challenge of managing their human and financial resources in a dynamic environment where the quality of services provided by libraries is an important factor for the productivity and effectiveness of researchers and teachers.

As noted in recent research [6], one of the knowledge management applications is to do an analysis and characterization of knowledge within organizations, differentiating the explicit and tacit knowledge so that they can use knowledge to promote strategies and operational actions. In this type of application, the goal is to determine how to acquire, integrate, store and share knowledge to develop abilities and skills in problem solving and the generation of innovations.

Information Technology (IT) underpins the processes of data management, information and knowledge generated by an organization, Figure-1 shows the relationship of IT to support the KM.
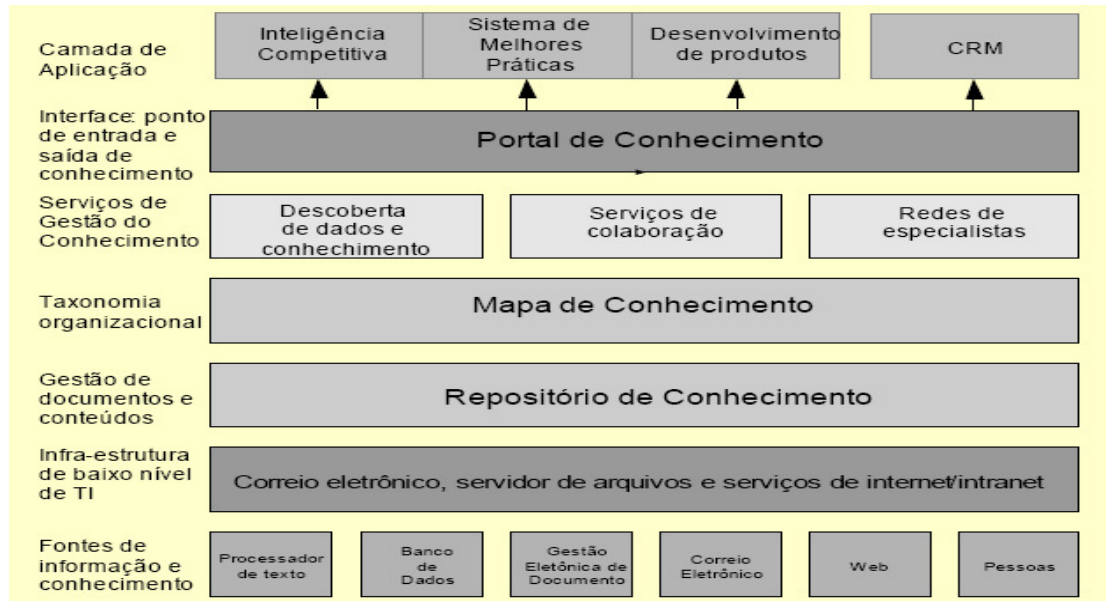

Figure 1. Level of use of IT as support to KM.
Source: Albino (p. 14) [5].

According to Teixeira Filho (p.105) [7], "the role played by IT is strategic: help the development of collective knowledge and continuous learning, making it easier for people in the organization to share problems, perspectives, ideas and solutions ".

Table 1 presents the main requirements for the identification and consideration of the IT issue to the process of KM in UL.

REQUIREMENTS
1. Identify the needs and characteristics of the university library in relation to IT.
2. Analyze the existing IT tools in use in the university library.
3. Establish an IT project along with the university library, compatible with its structure and the KM model.
4. Set IT tools that support the KM processes.

Table 1. Information technology requirements for the KM process.
Source: Castro (p. 121) [8].

3. Survey

Marques Junior [6] developed a quantitative survey of the descriptive-analytical research method using the comparative study, where a sample of organizations from both countries was studied. Data collection was made in November and December of 2009 through the use of questionnaires in an online survey, aimed to Directors of UL. In the same way as the CAPES Periodicals Portal in Brazil; the eU Virtual Campus brings together the most important educational and research institutions of Portugal and offers to the ULs digital access to scientific knowledge. From this connection, was selected, through voluntary responses, a sample of 44 respondents from Brazil and 25 respondents from Portugal.

In the surveyed UL, approximately one third are central, and the others are sectoral. Among all, 59% have 10 or fewer employees and 84% have no more than 20 employees. Therefore, it was verified that the teams are lean, demanding a flexible and multidisciplinary performance of each of its members, and possibly living with professional contractors, interns and trainees, as well as cooperation with officials from other libraries of the organization or from other institutions. This scenario also suggests the inclusion of the library user as responsible for meeting some demands, previously performed by employees.

The questionnaire had 80 questions related to the diagnosis of KM at UL, covering several areas. This article focuses on issues related to IT.

In the instrument used in this study it was used a Likert scale ranging from 1 to 5, with the following instructions: "The following statements are about knowledge management practices in your organization. Please indicate your level of agreement in relation to it. Level of Concordance - From: (1) - Disagree - By: (5) - I totally agree. "

None of the questions were prepared with reverse logic, so number 5 (five) always represents the highest level of compliance with technical functionality, attribute, or management practice that is being evaluated, in the opinion of the UL Director.

The survey sought to group the questions by sectors or categories. The sector that presented the lowest average was "People Management" followed

by "Identification of Knowledge." This fact seems to indicate the need for greater attention to these areas, primarily to the development of KM in the UL of Brazil and Portugal. The sectors with the highest values were "Sharing Knowledge" and "Information Technology", indicating that these areas are already more consolidated than the other, as shown in Figure 2. Despite this, the average of these two sectors shows that there is still the possibility of further progress in developing these areas.
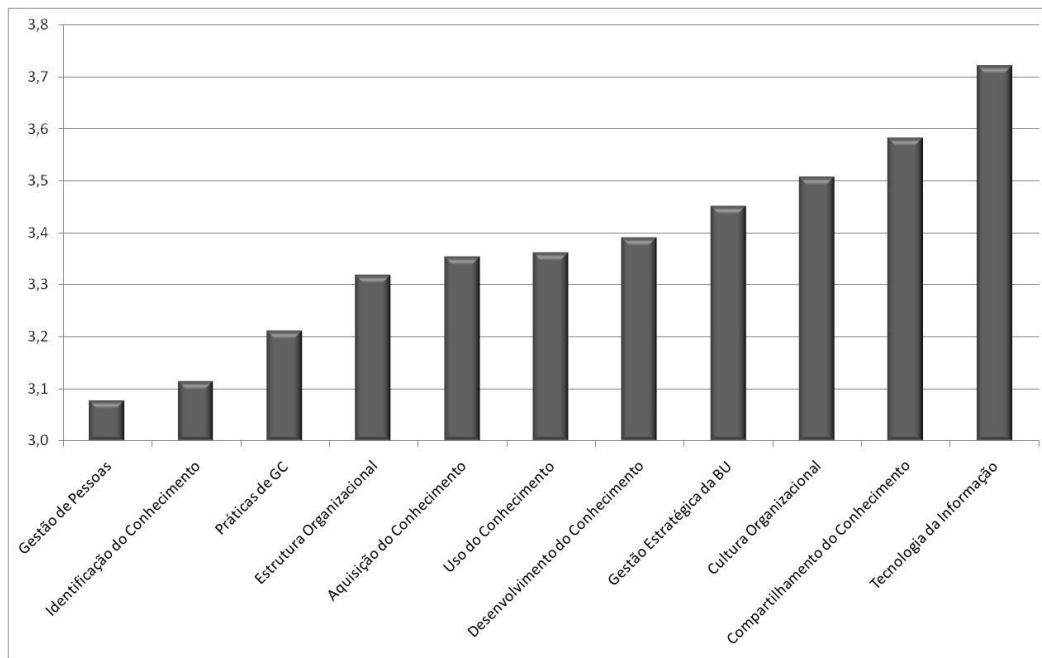

Figure 2. Overall average value of samples, by sector.
Source: Marques Junior [6]

The next section discusses the presentation and analysis of results from the survey.

4. Information Technology - IT

Figure 3 allows the display of search results obtained by characterizing the information technology, through their respective requirements. Compared to the other questions of the survey, the libraries surveyed in Brazil and Portugal stand out by identifying (and meeting) their needs and particularities in relation

to IT (question 77) and analyze their existing IT tools in use (question 78).
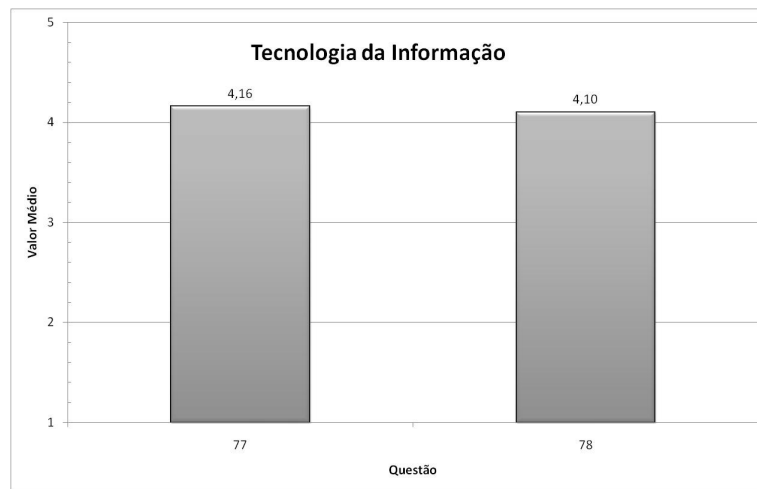

Figure 3. Information Technology.
Source: Marques Junior [6]

Statistically there was a significant difference between the average of Brazil and Portugal to questions 79 and 80, demonstrating that the ULs in Portugal have a more developed practice in these requirements, than the ULs in Brazil.

As shown in Figure 4, the libraries in Portugal set the IT project along with its structure and in a compatible manner with the KM model (question 79), more often than in Brazil. 68% of Portuguese respondents fully or partially agreed, with the existence of this practice in their ULs, while only 34% did the same in Brazil. The average for sample question 79 of the Portuguese was 3.80 while the average of the Brazilian sample was 2.98 on a scale of one to five.
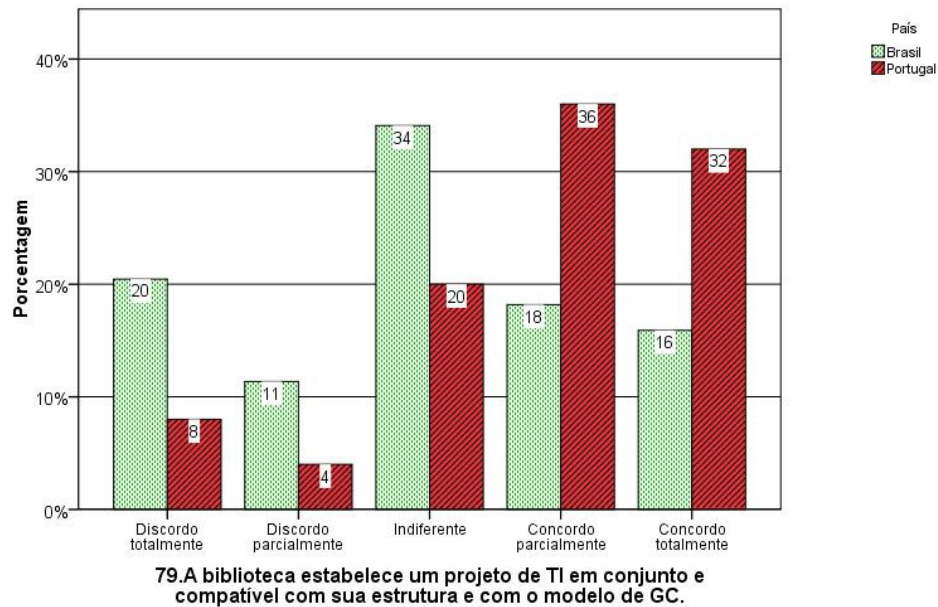
Figure 4. Comparison of responses of UL Brazilian and Portuguese to question 79.
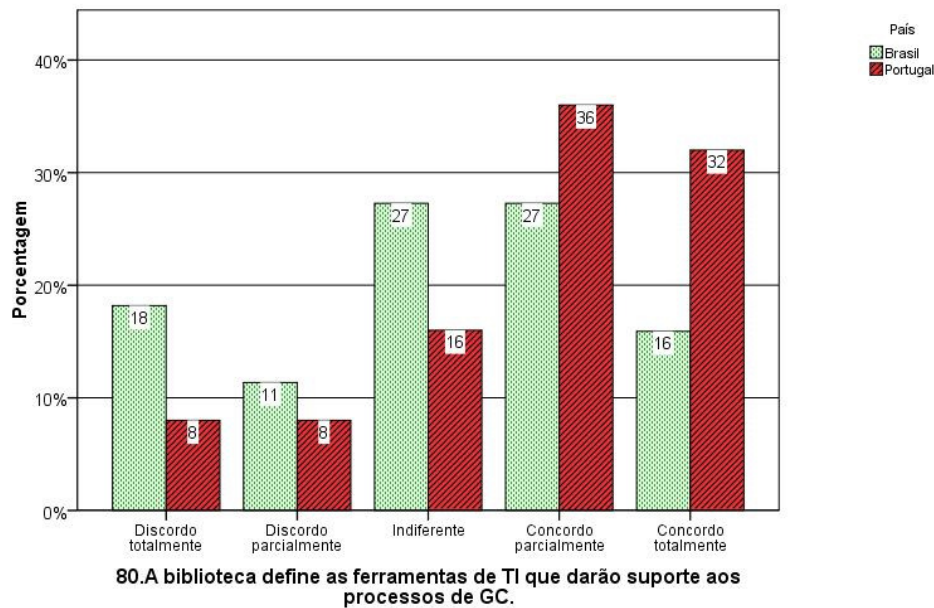Source: Marques Junior [6]

Figure 5. Comparison of responses of UL Brazilian and Portuguese to question 80.
Source: Marques Junior [6]

According to Figure 5, Portuguese libraries define the IT tools that will support the KM processes, more often than those in Brazil. 68% of Portuguese respondents fully or partially agreed, with the existence of this practice in their

ULs, while only 43% did the same in Brazil. The average of sample question 80 in Portugal was 3.76 while the average in Brazi was 3.11.

In the next section, are presented conclusions and some final remarks about knowledge management in Brazilian and Portuguese academic libraries.

5. Conclusion

This work characterized 69 UL, identifying the practices used in the IT area related to KM in 44 Brazilian institutions with access to the Portal Capes and 25 Portuguese institutions with access to the eU Virtual Campus, through the application of a research instrument where their directors voluntarily answered an online survey.

The analysis presented in this study show the similarity of the KM level of maturity between the Brazilian and Portuguese ULs studied, despite the small advantage of Portuguese sample on issues related to IT.

On the other hand it was observed through the overall assessment of the data, technical aspects related to IT are already more widespread among the ULs, probably due to investments in the acquisition of equipment and software to support new information and communication technologies, very solid conducted in recent decades. Nonetheless, this is a constantly evolving industry that always need planning and investment to keep up.

Therefore, this work seeks to promote the development of UL to identify and describe the practices associated with IT and KM used by most major UL in Brazil and Portugal, through the elaboration of a comparative analysis of the KM in samples.

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