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INFORMATION SCIENCE OBSERVATORY AT UNIVERSITY OF PORTO

A successful collaborative project

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Abstract

An observatory constitutes an instrument of control, evaluation and spread of information on a given theme that aims at stimulating the collaboration between the receivers and the agents. In this article, the Observatory of Information Science of the University of Porto (OCI.UPORTO) is presented. It was developed by students in the context of the Management of Information Services course of the 3rd year of the Bachelor in Information Science (LCI), through teams constituted annually with the responsibility of its management and continuous improvement.

The OCI.UPORTO was created in the academic year 2006/2007 and results of the confluence of two factors: the exit for the job market of the first graduates in Information Science (IS) from the University of Porto (U.Porto) and the beginning of the implementation of the Bologna Process in Portugal.

By opening the first Bachelor in IS in Portugal in 2001/2002, the U.Porto intended to guarantee an education adapted to the new reality of the Information Society in which the archives and libraries professionals, the data and information systems administrators and, in general, the information managers in the organizations develop their activity. This new model results from an innovative partnership between the Faculty of Arts and the Faculty of Engineering, whose complementary features in this field allowed the building of a study which combines traditional knowledge and uses that mix theory and practice in the fields of information and communication technologies.

As the job market received the first graduates, with a new professional profile and the redefinition of the study cycles with the Bologna Process, there was a need to monitor the professional, research and educational trajectory of each alumnus building a technological and information infrastructure from which it was possible:

- to collect, to record and to make available information about the trajectory of each alumnus;
- to guarantee the continuity of the connection of the *alumni* to the University and to IS in the U.Porto through its participation in the updating of the information and of the application, throughout the years, of questionnaires (professional and research perspectives, training needs, position regarding the changes of Bologna, etc.);
- to promote the communication between *alumni*, students, the faculty and the researchers, the institutions and employing enterprises who receive students for curricular traineeships and, already in Bologna, propose dissertation and doctorate projects;
- to promote and to disseminate the scientific production, the organization and participation in scientific events and the entrepreneurial and business spirit of students and *alumni*.

At the technological level the OCI.UPORTO began with a HTML page, evolving subsequently to the platform TWIKI and, lastly, to the content management system JOOMLA, where the collaborative capacity and the communication through the social networks (Facebook, Twitter and LinkedIn) is enhanced, with a simultaneous evolution at the graphic level that led to the standardization of the image of IS in the U.Porto, the **ci@uporto**.

Regarding the internal structure, the contents are collected in a single and dynamic platform organized in six sections:

- Enable (individual trajectory of the *alumni*);
- Investigate (scientific action);
- Be Professional (academic nature, professional and business activity);
- Cooperate (inter-university cooperation and the internationalization);
- Communicate (connection of IS in U.Porto to the outside);
- Be Entrepreneur (innovative facet and creativity).

Concentrating the information collected throughout seven years, the OCI.UPORTO constitutes at present a source of unique information about IS in U.Porto, its *alumni*, masters and doctors, providing the collection of indicators and diversified statistical analysis.

So, this is a platform of collaboration and communication, the Portal of IS in U.Porto, which quickly integrated, besides the *alumni*, the masters and doctors in IS from U.Porto, a pedagogic component, embodied in the DELTCI – Electronic Dictionary of Terminology in Information Science and of professional direction, with the notebook of Professional Profiles in IS, supporting today a vast online community hosted in the information system of U.Porto and with extensions in several social networks.

Introduction

A new curriculum in Information Science (IS) and the “Bologna Process” are at the core of the Information Science Observatory at University of Porto (OCI.UPORTO).

By opening the first degree in IS in Portugal in 2001/2002, the U.Porto intended to guarantee an education adapted to the new reality of the Information Society in which the archives and libraries professionals, the data and information systems administrators and, in general, the information managers in the organizations develop their activity (SILVA & RIBEIRO, 2012).

This new model results from an innovative partnership between the Faculty of Arts (FLUP) and the Faculty of Engineering (FEUP), whose complementary features in IS field allowed the building of a study which combines traditional knowledge and uses that mix theory and practice in the fields of Information and Communication Technologies (ICT).

Joining Archives, Librarianship and Documentation the Bachelor in IS (LCI) is built on a unitary approach with three IS subareas (Information Organization and Processing, [Technological] Information Systems, and Information Services) complemented with Administration and Management Sciences, Social Sciences and Humanities and Informatics. The focus of this model is preparing information professionals to be able to work in any organizational context (RIBEIRO, 2007).

The education provided jointly by the two faculties aims to make the student rich in his/her capacity of information analysis, in the versatility, in the diversity of knowledge, in the adaptability to new contexts, in its tendency for innovation, in the capacity of interpersonal communication, as well as in the promotion of life long learning, being these basic characteristics for the increase in value of the graduated as professionals and researchers.

The bachelor started in 2001 with a 4 years curriculum, including a six months internship in a work context. The first internships took place in 2005 with proposals

that came either from the private or the public sector. Collected data showed, as early as 2006/2007, that 57% of the students found their first job in private companies with a clear and increasing domain of sectors related to organizational information management (RIBEIRO & PINTO, 2009).

With the Bologna implementation in 2007/2008, while LCI needed to be changed to a 3 years curriculum, it was initiated the Master in IS (MCI), which resulted of adapting the Master in Information Management (MGI), that FEUP has been offering from 1997/98 to 2006/07, to the Bologna Process.

MCI is also a joint initiative of FEUP and FLUP and aims at deepening the knowledge and competences of IS graduates towards a professional specialization as well as envisaging a research career. The Dissertation, a course unit, offers new opportunities because it can be conducted in academic or business environment consisting in an individual project work aiming at the integration and application of knowledge, skills and attitudes obtained along the course. Although the loss of the practicum in the first degree, the IS integrated educational offer in U.Porto was, in fact, enhanced (DAVID et al. 2008; PINTO, 2008).

In 2007 both cycles (1st, LCI, and 2nd, MCI) result from and foster a shift in IS area in Portugal which needed to be kept under observation encompassing students expectations, graduate course, job market needs and research tracking. Collect and build an informational basis supported by a human and collaborative network became the main challenge.

The Observatory of IS in the U.PORTO

The concept “Observatory” raises several definitions and there isn’t a consensus between the proposals that

emerge in several scientific areas. However, it is common to several authors that an “Observatory” is an instrument of control, evaluation and spread of information about a given theme, aiming to combine different strategies that promote the collaboration between different sectors and agents (MARCIAL, 2009).

Husillos (2006) typifies the observatories in three categories:

- Documentation Center, which appears in institutions with specific thematic approaches and whose aim is the storage and classification of information.
- Data Analysis Center, which supports decision taking and which guarantees the recognition, processing and access to information, as well as, the knowledge of a given theme.
- Space of information, exchange and collaboration that is distinguished by the adaptation to the ICT, allowing to collect, to treat and to spread information, to know a subject concretely and to promote the reflection in the network.

The OCI.UPORTO brings the two last typologies together. On one hand, it produces, accumulates and makes available quantitative and qualitative information that allows the monitoring and support to the decision taking by the different participants, adding value to the presented information and, on the other hand, because it is a digital platform that guarantees the increase of the human potential of the collaborative work underlying to this project.

The main objective of OCI.UPORTO is to guarantee the exchange, the communication and the collaboration between students, graduate, postgraduate, teachers, researchers and communities that interact with IS in the U.Porto.

In its origin are two needs. The first one is the need of spreading and developing a new educational offer at the level of the Bachelor course and Master's degree in IS (LCI and MCI) and, later, the Doctorate in Information and Communication in Digital Platforms (ICPD), in the context of an emerging scientific area and that prepares a new professional profile, which the job market still identifies in an inaccurate way. On basis of this is the need to create a platform that connected the IS community of the U.Porto, at the level of the maintenance of the connection of the *Alumni* to the degrees/university and of the development of the interaction between them and the current students.

So, it was important to collect and to manage all the information originating from the academic and professional experience of the *alumni*, as well as from the respective educational trajectory. With this base, a communication

and information network of contacts between the academia and enterprises was created in a natural way, aggregating and presenting the entities/institutions who received the curricular traineeships of the Bachelor and who, nowadays, propose and receive the projects of dissertation of the MCI, as well as the employers of *alumni*.

Therefore, the OCI.UPORTO appears in the 2006/2007 academic year and presents itself as a technological and information infrastructure conceived and managed by students, in the context of the Management of Information Services course of the 3rd year of the LCI. It is a project of development of a service with a collaborative base and with foundations in the communication via Internet and that favors the use and development of competences acquired in the course, namely at the level of Information Management and Project Management.

Like any digital platform, the OCI.UPORTO evolved through the collaborative potential present in the teams of students in charge of the project that, in spite of being renewed each academic year, contribute successively to the fixed objective, implementing and enhancing the technological innovation. Consequently, the monitoring of the evolution of the IS field in the U.Porto benefits of the know-how acquired and developed by the several teams and that is transmitted from “generation to generation”, forming a collaborative network of information people and contacts at the heart of a community united around the IS and of the university that houses it.

The OCI.UPORTO collects contributes from the crowdsourcing implicit in the collaborative work, aims at transparency and reliability of the information that it transmits, promotes its diffusion via instruments of web marketing, namely through the social networks that allow a practically instantaneous feedback between the community and the management team of the platform, also promoting the interaction needed for the continuous improvement in its different perspectives.

Evolution of the OCI.UPORTO

In the first year of existence, 2006/2007, the driving force consisted in “creating a dynamic space to the image of and for the students and *alumni* of the LCI, diffusing an innovative bachelor” and it resulted in a website in HTML from which there were made available the first *alumni* forms and the list of entities that received curricular traineeships and of employers. To strengthen the image

of the new degree, it was also developed to first version of a logo of IS in the U.Porto.

As it was necessary to guarantee the continued updating of the data, the interaction between students and *alumni* and the promotion of the discussion on themes that were concerning the IS community, the team 2007/2008 developed the technological base of the OCI.UPORTO as a Twiki.

In 2008/2009, the goal was the internationalization in terms of scientific field, of the students who arrived from other countries in order that they carried out their learning programmes in the U.Porto, namely through the protocols PL/LA (Portuguese speaking countries and Latin America) and the ERASMUS program, and of the students from the U.Porto who went to foreign universities. In this context, it was developed an English version of the Observatory, the Cooperation area was created and it was prepared the Observatory Administration Manual to support the community in the carrying out of tasks in the Twiki platform.

The team of 2009/2010 developed the graphic interface and, with the collaboration of other students, the first questionnaire was applied to all the *alumni*, in order to validate and to complete the existing information in the Observatory and to produce the first study on the professional trajectory of the *alumni* in IS and the perception that employers and colleagues had of the new profile and of the respective performance. This study was presented in BOBCATSSS 2011 (SILVA et al., 2011).

With the collaborative base and the simplicity of use of the Twiki platform the functionality of updating the data of the OCI.UPORTO was opened to the *alumni*. However, this opening demanded that in 2010/2011 a fundamental work was developed regarding the structure of data and permissions of access to the OCIUP, enabling the users, properly authenticated, to the edition of the respective professional and educational trajectory, as well as to share experiences and ideas connected with IS through a Forum. Still in that year, and when 10 years of existence of the course were celebrated, the publication of the book "The Bachelor Degree course in Information Science: ten years of pedagogic and scientific activity" (CASTRO et al., 2001) benefited from the contribute of the information made available by the Observatory and the support of the team in charge of its management.

In 2011/2012 the focus was centered in the Master's degree having carried out a questionnaire to the Masters in IS by the U.Porto in order to collect contributes for the reformulation of the Study Plan that was being prepared for 1st and 2nd cycles.

The year of 2012/2013 marks the transformation of the OCI.UPORTO in the "IS Portal of the U.Porto". This period is marked by deep changes in the technological platform that supports the functioning of the University and the OCI.UPORTO, appearing the need/ opportunity to make it evolve of the Wiki into the Joomla. An alteration that involved the directions of the degrees, the teachers in charge of the project, the collaborators of the Computer Science Center (CICA) of FEUP and the management team.

Corresponding to the recognition of the area of IS in the U.Porto and externally, the new image of the CI@Uporto and the graphic interface of the OCI.UPORTO were developed, now supported in a systemic and integrating vision represented by six pieces of a puzzle that, identifying the areas treated by the Observatory show the importance of the aggregation of this information in a single and dynamic platform and the connection of the academia to the community. The IS logo was also rejuvenated putting the focus in the information dynamics with the colors of FLUP and FEUP.

Reflecting the bigger complexity of the work to be developed in the context of the Observatory, its management model was modified in 2013/2014 with the managing team integrating elements of the previous and of the current year, in order to guarantee the transmission of the knowledge and the continuous functioning of the OCI.UPORTO.

In this year its presence was reinforced in the social networks, particularly in LinkedIn, Facebook and Twitter. This bet made the communication of contents of the area of the IS, diffusion of events, job opportunities, as well as the promotion of a bigger proximity with institutions, enterprises and other organizations easy. The optimization of the retrieval included the creation of contents metadata and to speed the communication up with the *alumni* there were introduced in the individual profile buttons of access so that each *alumnus* asked via electronic mail the updating of his/her profile and for the disposal and access to the respective Curriculum Vitae. Given the information volume a database was developed by students (ALMEIDA & MOREIRA, 2014), in the context of the Databases course of the 3rd year of LCI, to support the management of the information of the *alumni*, aggregating their professional and academic trajectories, as well as the relations with entities and respective contacts. Lastly, it was improved the image of the Observatory. This process included the improvement of the interface and the creation of the logo symbolized in a magnifying glass that completes the idea of the puzzle and emphasizes the components of observation, search and retrieval of information. New

communication media were also conceived to promote the study cycles such as the representative brochures.

Structure of the OCI.

UPORTO

The development of the OCI.UPORTO, its technological evolution and the maturing of the result of a project that began with a structure in HTML evolving to Twiki and from Twiki to Joomla. The first reformulation appeared with the intention of increasing the network collaboration and the communication between the IS community from a discussion forum. The change for Joomla represents the formalization of the OCI.UPORTO at the heart of the University and the consolidation of the structure of access to the information.

As a system is constituted by interconnected and interdependent elements, the structuring of the OCI.UPORTO is supported, today, in six sections represented like pieces of a puzzle, which express the domains in focus: **Empower, Investigate, Be Professional, Cooperate, Communicate** and **Be Entrepreneur**.

The section “Empower” reflects through individual forms the trajectory of the IS *alumni* in the U.Porto – Bachelor, Master and Doctorate. As the degree is not focused only in the development of curricular skills and competences the Follow-Up Commissions of the Degree, which include both teachers and students, are also present in this area, as well as the individual portfolios developed by the students in the Preservation and Conservation course, of the 3rd year of the LCI, presenting individual profiles, trajectory in LCI and expectations.

In the section “Investigate” the scientific production of students, masters and doctors is made available, containing articles and communications of the area of IS, master’s dissertations and doctorate thesis susceptible to being diffused, as well as participation in national and international events and the connection to the R&D Units (CETAC.MEDIA and INESC). It also includes the component of pedagogic and investigative support through the Electronic Dictionary of Terminology in Information Science (DeltCI), a partnership of FLUP with the Universidade Federal do Espírito Santo, Brazil.

“Be Professional” is the section that connects the academic reality to the job market. It contains testimonials of *alumni* and the list of entities who received curricular traineeships and dissertation projects, as well as of entities that employ graduates, masters and doctors and relevant associations for the area. The professional pro-

files in IS are also available here, as a result from a study developed by students in the Management of Information Services course, of the 3rd year of LCI (BUSCHBECK & SOUSA, 2013).

With internationalization being a particularly important requisite for the IS community, not only the contents were translated as the section “Cooperate” was developed, showing the connections of the U.Porto, in the IS area, with other institutions, national and international. The Erasmus students who studied in foreign universities and students from foreign universities who studied in the U.Porto are identified here, as well as the respective protocols and the protocols with Portuguese speaking countries and Latin-American countries.

The section “Communicate” comprises the IS community, students, *alumni* and teachers, in its connection with the outside. It is presented here a brief history of IS, statistical analysis connected with the area and with the degrees, whether they were developed in the context of the Observatory or by the University and external entities. It is also established the connection to the social networks to promote a more continuous and direct contact, highlighting hyperlinks of particular importance and the history of the IS Newsletter, published between 2009 and 2010 and of the IS Journeys, a national reference event promoted annually by the students going into its 13th edition, were made available.

In IS there is also a place for entrepreneurship. In the section “Be Entrepreneur” it is possible to recover information on the *alumni* that created their own enterprises, as well as on the extracurricular activity developed in the context of the StartUP@U.Porto. This is an entrepreneurship programme directed to university students, that results from a partnership of the U.Porto with Junior Achievement Portugal and it involves teachers and students of the LCI and of the MCI, whose participation and national and international prizes earned have a special emphasis here.

Conclusion

Today the OCI.UPORTO is associated to the pages of the degrees in the SIGARRA (Information System for the Aggregated Management of Resources and Academic Records) through an intermediate page that acts as a connection between this platform of information about the IS in the U.Porto and the platform of information of the University.

In each academic year, a renewed team takes over its management, development and continuous improvement

thinking about the current students, in former students and in the challenges that the evolution of the scientific area, of the university, of the job market and of the society in general places in an environment marked by the quick changes.

Aggregating diverse resources and contributes that go beyond the two faculties directly involved with the IS, it constitutes a catalytic project of the collaborative work in the U.Porto, having reached, at present, a phase of maturity that makes it a reference and gives it a propelling capacity regarding similar projects in other Universities.

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