Public Libraries: techno trends and collective memory*

Alexandra de Brito Mariano & Miguel Dias
Universidade do Algarve, Faro, Portugal

ABSTRACT: By public library I mean here a library providing some kind of universal access to its assets, one whose readership isn't exclusively tied and restricted to a particular organization – including the generally called public libraries, but also many specialized libraries, such as the academic of the open kind.
Despite all efforts, public libraries continue to face strong barriers to their participation in the information society. Participants of the World Meeting on the Future of the ISIS Software recognized that "the ISIS Software Family has a unique technological concept and developmental mission to cope with Information Storage and Retrieval Systems (ISRS), particularly for developing countries where the technology is widely known and used; that the ISIS Software Family has now fully embraced the Free and Open Source Software approach and the support of UNICODE structures to be fully open and multilingual" (*Rio Declaration* 2008), restating thus the persistent relevance of this software family.
OSS (Coar 2006) is defined as software whose source code is freely available, therefore allowing for free inspection and/or utilization, i.e., it is available for study and use by everyone without any payment or any other barrier to access. the lack of technical skill in libraries, a situation that libraries share with much of the public and cultural sectors.
The study of OSS ILS, and of the their adaptation to the needs of specific public libraries may be the solution to this. Library Management Systems) that enhances digital archive interoperability between a diverse range of libraries.

1 INTRODUCTION

Western societies, allegedly democratic, can't be conceived without the foundation provided by an educated, informed, and engaged population. Since the Classical Ages, it was the debate amongst equals and participation in the decision making process concerning the common good that constituted the most characteristic elements of the democracy concept throughout its development. The capital importance of citizen education in this context gets highly stressed in the increasing complexity of modern societies, whether in the more immediate plan of productive activity, supporting their subsistence and well being, or at the level of political activity and participation, the basic cement of social cohesion and foundation of the legitimacy its institutions claim for individuals.
It was to meet such necessities that western societies endowed themselves through the ages with a full array of resources, of which school (university being a mere derivative) has been the prevailing one. Nevertheless there are others that must be evoked, such as the press (the mass me-

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dia in general), theatre, cinema, public art display, research centers, museums, archives, and of course the public library. By public library I mean here a library providing some kind of universal access to its assets, one whose readership isn't exclusively tied and restricted to a particular organization – including the generally called public libraries, but also many specialized libraries, such as the academic of the open kind.

Despite all efforts, public libraries continue to face strong barriers to their participation in the information society. Building upon a working definition of Open Source Software (OSS, also known by the FOSS or FLOSS acronyms) and a brief overview of the main milestones of the movement supporting it, I'll attempt here to better understand advantages offered to public libraries, as previously defined.

Indeed, looking at the panorama of Portuguese public libraries, the impact of the free software movement can be considered virtually non-existent with occasional exceptions, which only serve to confirm the rule. However, it should not be forgotten that at the root of their automation is an application – better yet, a family of applications – that despite its global diffusion, only recently became OSS, in the wake of the third world meeting on ISIS that took place last year in Rio de Janeiro (14-16 of September 2008). What I'm referring to here is the CDS/ISIS software family, developed by a group of heterogeneous entities under the aegis of UNESCO.

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Already in 1997, the *Green Book for the Information Society in Portugal* included a chapter challenging "What will the role of the public library be in the future?", before concluding that traditional modes of access to information and readership promotion initiatives continue to be paramount in the new information environment, they now have to be extended to include newer media and formats. A similar challenge was already included in 1994 IFLA/UNESCO's *Public Library Manifesto* where it was posited that "collections and services have to include all types of appropriate media and modern technologies as well as traditional materials" in order to maintain relevance in a changing cultural environment. So, protection of the cultural heritage still is and will continue to be one of the central roles of the libraries; nonetheless, in an Knowledge Society, libraries (as well as archives and museums, the LAM triumvirate) must adopt the novel role of mediators and producers of knowledge: to help people in learning, to foster active citizens and, finally, to create new knowledge resources, librarians have now been invested with a new mission which is to act as guides of their users, and if possible, of the entire community in which they place themselves, during the transition to this new era.

2 OSS AND PUBLIC LIBRARIES

Nowadays it isn't too bold to assume that anyone dealing with the field of Information Technology (IT), independently of functions, area of activity or level of proficiency has certainly crossed path with references to OSS. From the mere user to the IT professional, one way or the other, everybody all have come across this designation or its acronym at least once when associated with user programs that are characterized as common, especially due to its gratuitousness, as is the case of Firefox, a popular web page browser.

As for Portugal, it has been trying to recover from its notorious delay in technological development, with measures to promote this kind of technology dating from October of 2004, at which time the local Parliament, through resolution 66/2004, recommended to the Executive action in favour of free software. Use of OSS is increasing rapidly both within the Public Administration and in the private sector. Nevertheless, the number of professionals in the area is still relatively scarce.

OSS (Coar 2006) is defined as software whose source code is freely available, therefore allowing for free inspection and/or utilization, i.e., it is available for study and use by everyone without any payment or any other barrier to access. Although the designation is not devoid of con-

troversy – and the opinion of GNU Foundation founder Stallman (2009) is rather relevant here – it has at least the benefit of being the most divulged and was here adopted by its currency. Meanwhile, it's important to stress that there are other relevant definitions and denominations of the open code software, based upon diverging notions. Besides OSS, a designation which dates back to the end of 1997 or beginning of 1998 there are others, such as free software (GNU Project 2008) or the acronyms FOSS and FLOSS (Free/Libre Open Source Software), alternatives that aim to emphasize the freedoms granted to users have an importance far beyond its gratuitousness. Currently, Open Source accepted definition includes all software which simultaneously permits: a) its use for any purpose, without any restrictions; b) non restricted distribution of its copies; c) access to the source code, for study of its workings and functionalities; d) the possibility of adaptation to individual demands and e) provisions for making available to third parties any alterations made upon it.

To reduce this to a working principle, OSS cristalyzes four primary freedoms as they were defined by the GNU Foundation – the pioneering institution in the field of free software – when it stated that computer users should be entitled to: 1. The freedom to run a program for any purpose; 2. The freedom to study how a program works and to adapt it to one's own needs; 3. The freedom to distribute copies, as a way to grant this liberties to others; 4. The freedom to improve a program and to publicly release this improvements, so that the whole community may benefit.

In this context, it is important to highlight that free access to the source code of any program is a necessary requisite for the full enjoyment of the liberties referred in 2, 3 and 4. But said liberties do not compose a formula so restrictive as the so-called GNU General Public License, usually abbreviated simply as the GPL, which came out of its third revision recently and which is the most widely used licence for OSS. It must be said, however, that not all open source programs are released under this license or abide by the fundamental liberties that underlie it. Before this latest revision of the GPL, for instance, one of the best know and pervasive free software package, the Apache webserver, was distributed under a specific license that was incompatible with GPL.

Historically, the genesis of the free software movement takes place after Richard Stallman launched an alert in several Internet forums in 1983; this at that time Massachusetts Institute of Technology (MIT) researcher was confronted with what he viewed as the rapid demise of the culture of free access and free code sharing amidst the programmers' global community, and decided to call upon those who shared his point of view; his call was successful and in 1984 the GNU Project was started; this would later lead to the establishment of the Free Software Foundation, an entity that still represents the most aggressive faction of the free software movement.

In September 1991, another crucial event took place when a Finnish student, Linus Torvalds, divulged on the Internet the first version of an operating system that he himself developed, based upon the MINIX code pool, which in turn had been based on the weel documented UNIX code. Linux was hence born, later to be placed under the GPL license, progressively developed and utilized by a worldwide community of programmers and users, whose expansion accompanied and mirrored that of the Internet itself. Torvalds' initiative demonstrated an axiom that Raymond (2001) would later formulateand call the Law of Linus, postulating that once the inspected by a large enough number of people, all coding problems become evident – "Given enough eyeballs, all bugs are shallow". That undoubtedly sums up the the development paradigm of free software, reflecting procedures that determine that code is always available for scrutiny of programmers and users that wish to inspect it, allowing for the swift correction of flaws that may eventually be detected and at the same time, contributing to the stability and reputation of the programs.

The third founding moment of this (r)evolution happened following the January 1998 announcement of Netscape's liberation of the source code of its world famous navigation application. Use of a free software license to divulge a program with such reputation was unheard of up to then and the enormous impact of the event urged Eric Raymond to join Bruce Perens less than two months later to start the Open Source Initiative (OSI), an association with a declared objective to be the official representative of the free software community, engaged in the promotion of OSS and monitoring compliance with its principles, a fact that immediately earned an unprecedented visibility and success.

These events coalesced over time to enhable public libraries to commit to and profit from OSS software development and use; the current use of OSS Integrated Library Systems (ILS), in the US and in non-European countries is manifestly increasing. There are now many active projects based on or with their genesis in library organizations, such as well-known examples as Evergreen, Koha, OPALS, OLE and xCatalog (Schneider 2009); resource discovery services like as LibraryFind, Blacklight, VuFind, Fish4Info, Scriblio and SOPAC; and diverse component projects such as Umlaut, the OpenURL resolver and iVia, a search engine/portal [referências/links???].

The acceptance and utilization of OSS in several small developing countries (as diverse as, for example, Nepal and Cape Verde) is a major contribution to capacitation of this nations with a technological infrastructure and knowledge management potential on par with more developed countries (Colford 2009).

On the other hand, despite all the news and enthusiasm surrounding OSS, Europe still largely approaches it with a rather conservative stance; Portugal is no exception on this. The aspect aspects that crystallize this outlook can be quickly laid out: 1. the perceived inexistence of accountable counterparts (interlocutors); 2. the absence of centralized sources for technical support, which constitutes and unsurpassable obstacle for established procurement procedures; 3. the fact that free and open source software application users must rely on development communities for support – users and developers produce documentation, write installation guides and answer specific support questions in forums, not because they are bound by contract, but because they can learn more about the software that they, too, are using; and 4. the lack of technical skill in libraries, a situation that libraries share with much of the public and cultural sectors [fontes???].

Looking at an overall image of Portuguese libraries (Figueiredo 2004; Runkel 2000; Gomes 1992) the impact of the free software movement can be considered virtually null, with occasional exceptions that merely confirm the rule. It cannot be forgotten however, that at the base of the computerization process of the majority of the libraries there is an application, or better yet, a family of applications that, except for OSS, always had an analogous status [Repetição???].

To characterize further the CDS/ISIS software family (Smet 1999), it can be said that it was developed by an informal group of entities under the shield of UNESCO (2007). Of special interest in the context of the present work, is the Mini Micro CDS/ISIS for Microsoft's DOS environment, whose evolution to more modern graphic environments is known as Winisis, a solution for library catalogue automation that has been available free of charge on a global scale, through UNESCO and its local representatives.

A Portuguese version of CDS/ISIS, undertaken by the National Library (BN, for Biblioteca Nacional), was responsible for the computerization of most significant part of Portuguese libraries. Nonetheless, it's necessary to observe that our BN never fully accomplished its mission as UNESCO's local partner and as its free software distribution point, which rather explains the invisibility of ISIS software at the national level (excepting the commercial products derived from it, namely "Porbase 5" and "Bibliobase"). Furthermore, current interest in these programs is visibly on the vane, firstly due to the fact that they are not really integrated library management solutions and similar documentation services, and secondly because they are anchored in a dated paradigm of librarianship. As it is none of the local solutions already mentioned easily adapts itself to the service demands of the new library reality.

The study of OSS ILS, and of the their adaptation to the needs of specific public libraries may be the solution to this. There are many OSS propositions, I will be refering only three here: 1. Koha, one of the oldest ILS, developed and launched in 2000 by the library consortium of Horowhenua (New Zealand), somewhat demanding in terms of implementation; 2. PMB, a french alternative, shows great concern to the current normalization practices of small scale libraries, adhering to the UNIMARC format and with light technical requirements; and 3. the new ABCD, the ISIS family newborn, a refreshing new approach to the old ISIS data architecture, a solution to ponder in a country with diminishing economic leeway such as Portugal.

ISIS was born to satisfy a need felt by many institutions throughout the world for an application that would enhable them to streamline their data processing activities by using inexpensive technology. Now that the library lost its centrality amidst available information resources, this is

not a matter of secondary interest; it can be linked to my main theme by accounting for the weight and significance the scientific modus operandi represents in the constitution and functioning of OSS. In fact, it can be said that OSS applies to programming the same validation model which has guided scientific research, i.e., the system of peer review. However, this influence can now be seen as reciprocal, if we take into consideration the establishment of a analogous movement among the scientific community, intent on legitimating the principle of universal access to knowledge, particularly in what concerns results of scientific inquiry – it is known as Open Access, or briefly as OA, the acronym we shall adopt here (v. Prosser 2005, Down 2009).

Out of the various definitions of OA, I feel it is important single out the one put forth by the Budapest Open Access Initiative (2002), due to its relevance to our present context: "By "open access" […] we mean […] free availability [of peer-reviewed journal articles] on the public internet, permitting any users to read, download, copy, distribute, print, search, or link to the full texts of these articles, crawl them for indexing, pass them as data to software, or use them for any other lawful purpose, without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself. The only constraint on reproduction and distribution, and the only role for copyright in this domain, should be to give authors control over the integrity of their work and the right to be properly acknowledged and cited."

Corrado (2005) characterizes the urgency of this movement as a reaction by the scientific and librarian communities to the unsustainable increase of the costs associated with access to this information. As he states, "with traditional journal publication methods it is not uncommon for an institution to have to pay for an article twice. First they pay scholars to produce the work and then the institution's library pays to purchase the work back from the journal publisher. However, with the advent of new technologies and software programs, it is becoming increasingly less expensive to compile and distribute scholarly information. By using different funding methods and electronic delivery of journals, the costs can be absorbed by alternative means to subscription fees. One of the great benefits to open access is that libraries in smaller institutions or in economically disadvantaged areas around the world can have greater access to these scholarly resources." This author also states that Open Access is a long-term guarantee for access to scientific documentation, by allowing the constitution of Open Access document repositories, as opposed to the controlled and perishable access to traditional databases, allowed only in terms and for the duration of a license contract. At the individual level, the benefits of access to knowledge resulting form implementation of OA policies are priceless, and are merely being delayed by the slow progress of institutional uptake of the idea (Swan 2007).

Advantages of Open Access in the academic realm are manifold, but fit mostly into the following seven categories: 1) swift access due to the absence of cost barriers; 2) rapid diffusion of academic production; 3) significant increase of the citation indexes; 4) reinforcement of the cooperation between scientists and researchers; 5) greater general visibility of outcomes; 6) resource economy; 7) quantitative measures of comparison between organizations.

Other initiatives supporting OA include the *Bethesda Statement on Open Access Publishing* (2003), the *Washington DC Principles For Free Access to Science* (2004), the *Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities* (2003) – the last one was subscribed by the Portuguese Council of University Deans (CRUP). In order to support this commitment, CRUP is upholding and encouraging creation of institutional Open Access repositories for the scientific documentation issued by the universities they represent. These political and institutional commitments have a definitive impact on public libraries, which besides their traditional role of offering free access to local resources, now see themselves invested with the novel mission of converting themselves into repositories of digital information.

Prior to providing public value, OA represents an additional obligation biting into the already stressed resources Portuguese documental institutions already have, imposing further difficulty to their now chronic state of financial strangulation. This is possibly the reason why the matter of OSS has been brought up with special intensity lately, becuase it proposes a solution for this dilemma, without exhausting the scarce available resources, all the while contributing in the long-term to the local technological development, adding the value, as well as the know-how the current policies are demanding.

Having presented this rather short overview on matters pertaining to public library automation and transition to digital services, bringing out the best that OSS adoption can bring, it is immediately visible an emergent general characteristic, that is the need to quickly train the human resources which will be dealing with new IT systems; another issue is the concrete possibility of rapid obsolescence of adopted solutions due to unforeseeable circumstances. That issue alone would justify resistance to adoption of OSS in production environments. It is therefore important to clarify briefly some of arguments sustaining an opposing view.

For a majority of decision makers acquisition cost is not the only important factor in the selection of a technology solution. A full cost/benefit analysis should be performed, taking in account all of factors mentioned before, encopassing both proprietary and open source alternatives, including the following: a) efficiency in resource use of and interoperability; b) independence of a specific providers; c) feasibility; d) safety; e) quality; f) overall efficiency of the software.

Nevertheless, the existence of licensing costs must be considered simultaneously with the inherent costs of professional development, support and maintenance. Besides this, OSS presents other advantages in relation to proprietary closed source packages, that be put into the following main categories: a) functionality/flexibility; b) stability; c) safety; d) support; e) real cost (TCO, the designated Total Cost of Ownership); f) locally generated increases in value and know-how.

3 CONCLUSION

It is impossible to deny that convergence amongst open systems, free access to information and open source code characterize tendencies and impacts, both of the technological evolution of recent years, and on the actual public attitude towards public libraries, while attempting to escape obsolescence and/or irrelevance (West 2007). Concerns about insufficiently trained staff to deal with Open Source solutions affect the prudence of any decision maker. It is also true that most companies offering professional services and development in the IT field in Portugal are only now starting to delve into OSS. Notwithstanding, there are already a few consulting firms able to provide structured professional units to deal with various aspects of OSS, supporting development of projects based on OSS products. Furthermore, the majority of Portuguese universities have students who are being taught a deeper understanding of OSS, before entering the job market.

I believe this rather short sketch provides a sufficiently defined overview of the critical importance the acceptance of OSS and opportunities it offers to Portuguese public libraries, cementing a favourable approach, yet aware of the challenges that need to be overcome, not the least of which is the tiny dimension of our internal market, if considered on a global scale, which has served in the past to justify non-critical adoption of foreign proprietary technological solutions.

Free software, if properly understood, without exaggerated return expectations, can provide a way to rapid technological advancement, without massive investments from the information organizations, providing a much needed opportunity to further qualify their human resources (Wunsch-Vincent 2007).

The World Library and Information Congress: 75th IFLA General Conference and Council, that will take place in Milan, next August, thought it would be beneficial to include a session named *New repositories: architectures interoperability and data exchange* that in keeping with the theme of the [75th World Library and Information] Congress, "Libraries create futures: Building on cultural heritage" will promote, amongst other issues, discussion about development of open source solutions which helps to facilitate advanced services based on metadata from various types of collections and organisations and also case studies in open source application deployment (eg. Library Management Systems) that enhances digital archive interoperability between a diverse range of libraries.

Public libraries are unquestionable guardians of cultural heritage – that comprehends also living expressions and traditions (the so call living/intangible heritage) of distinct communities worldwide. They attempt to preserve these manifestations, enrich education, promote research, share the learning of the rich with the poor and the poor with the rich, and contribute for uniting people in a common quest for knowledge. The option for open source software, in an integrated systemic perspective, can guarantee a good approach to facing future of this field which can be foretold as being hardly auspicious.

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