

# Library Portals and Information Architecture: Librarians emerging Info- architects

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## Abstract

The paper highlights the concept of library portals and information architecture and the relationship that exists between the two concepts. Further, it imports the functions of librarians in the traditional setting into the webometric setting, elucidating the roles librarians can play as Information Architects whereby they are seen as content creators, copyright experts, digital reference service personnel, metadata creators, portal specifiers and creators. Questions regarding the imported concepts of Information Architects and librarians' roles are raised. Problems facing librarians as Information Architects are raised and solutions proffered. The paper concludes by making a submission that librarians become Info-architects in the present digital information environment.

**Keywords:** Library portals, Information Architecture, Librarians, Info-architects

## 1. Introduction

The library portal arena offers clients opportunity to browse and sieve resources which promise to be useful for their research



work and other things they may need the information for.

Clients stumble upon a myriad of information while on the library portal and some of the information are not useful to them due to the manner in which the resources are linked and made available on the portal. Sometimes, priorities are misplaced and information is uploaded on some library portals which are not meant to serve the immediate needs of the library clients. Library portals are meant to bridge the gap between the clients and the cumbersome method the traditional setting of information location offers. Sadeh and Walker (2003)<sup>1</sup>, writing on 'library portals: towards the semantic web', commented that 'Researchers are likely to find material relevant to their subject in a variety of Web-based resources: their own library's catalogue; catalogues outside their own library, such as a national or union catalogue or a catalogue of another institution that specializes in similar subjects; reference databases, such as an abstracting and indexing database or citation database; full-text resources; digital repositories; and Web pages. The current process of accessing several resources for the sake of seeking information is cumbersome and requires some knowledge of the various resources, their access mechanisms, the query interface they provide, and the type of results they return.' Library portals have tremendous

roles to play in the present age and here comes in the information architecture aspect and who plays the role. Information architecture is the arrangement of information in classes which they belong; classification of information in an orderly manner. Librarians are trained classifiers of information – they catalogue and classify, in which case they are termed ‘cataloguer librarians’. The role of librarians as Information Architects cannot be overemphasized, more so relating it to library portals design. These and more are discussed in this paper.

## 2. What are Library Portals?

Library portals are a sub-set of web portals (Miller, 2001)<sup>2</sup> which are organized gateways that help to structure access to information found on the Internet (<http://www.wisegeek.com/what-is-a-web-portal.htm>). Sadeh and Walker (2003) noted that one of the many useful applications of the Web is Web portals, often referred to simply as portals and that Web portals include wide-reaching online services such as AOL or MSN, as well as services targeted at very specific communities – for example, a community interested in cancer research. Portal in itself is a Web site or Web service that provides information content to serve a specific community. In the Information Technology (IT) World, a portal is used to describe a browser experience that has an entry point (or gateway) that is intended to be the starting point for any journey or user experience. As such in IT, a portal can be described as an 'anchor' or starting point that makes all the types of information (destinations) available to a designated

audience by passing through the one point (<http://www.contentmanager.eu.com/portal.htm>)<sup>3</sup>. A portal is only one possible component to a library’s Web presence. A library website can be made up of three types of content:

1. Information about the library - staff directories, departmental descriptions, maps of the building, hours, etc.
2. Electronic versions of traditional library services - online tutorials, book renewals, interlibrary loan requests and status reports, requests for purchase, online chat/reference, virtual tours of the building(s), etc.
3. Access to library content - catalogs, indexes, full-text magazines and journals, digitized special collections, free and commercial ebooks, government documents, freely accessible Internet resources, electronic encyclopedias and dictionaries, licensed content from vendors, etc. (<http://infomotions.com/musings/portals/portal.pdf>)<sup>4</sup>

Looney and Lyman (2001)<sup>5</sup> defined the web portal as systems which gather a variety of useful information resources into a single, ‘one stop’ web page, helping the user to avoid being overwhelmed by ‘infoglut’ or feeling lost on the web. Boss (2002a)<sup>6</sup> gave an overview of portals. He defined a portal as a single user interface for access to many electronic resources. Boss added that portals may include:

- A library’s own catalog
- The catalogs of other libraries
- Online reference services to which the library subscribes

- Selected websites
- Even the Internet as a whole

All these boil down to information access and how fast it could be achieved. Library clients are information seekers and Boss (2002b)<sup>7</sup> remarked that most library clients want information regardless of where they find it and that they don't want to limit themselves to their library's collection. Therefore, a portal offers them one-stop shopping that takes them from the initial need for information through its delivery—without having to use several different tools.

According to Boss (2002b), Library portals are important vehicles to support the information needs and uses of library clients; they have less emphasis on communication and collaboration because libraries emphasize access to information, rather than providing chat, e-mail, and so on. As stated by Carden (2004)<sup>8</sup>, a defining moment in the evolution of library automation systems was the development of the Web OPAC. The ability to search a library's catalogue remotely, through an easy-to-use and nontechnical interface has opened up the resources of many libraries in a way that could not have been envisaged only 20 years ago. Carden went further to state that:

The second stage in this development has been the extension of this OPAC to allow it to search remote metadata (primarily through Z39.50) and, more recently, local & remote digital information, allowing primitive 'interoperability' between the library system and these other resources.

Librarians and library automation companies have started to call this combination of OPAC and broader discovery capability a 'library portal' (p.1).

A portal according to Zemon (2001)<sup>9</sup>, allows its clients to customize information sources by selecting and viewing only those they find useful. For many, the portal is the epicenter of the Web experience, a “home base,” a place to return to when you get lost, a place to keep your information, a place from which to communicate with others, “a security blanket or a safety net, and a trusty guide to all things ‘Web.’” Looney and Lyman (2001).

### 3. Library Portals: Components

Boss (2002a) listed four major components of library portals as:

3.1 A single-search interface: simultaneous search across multiple electronic sources and the return of results in a consistent library customizable format—but identified by source. Multiprotocol searching is involved because some resources

3.2 Are Z39.50- conforming, some are HTTP, some SQL, some XML, and still others are in native (proprietary) mode. Various formats and metadata standards must be supported, including MARC, EAD, Dublin Core, TEI, and XML.

3.3 User authentication: Also known as patron authentication, determines whether clients are eligible for service by checking the clients against a library database. This authentication is usually done with a proxy server to limit access to resources the patron is authorized to use. For example, a library

may allow anyone to access its patron access catalog, its community information file, and other.

3.4 Locally created files on its Web server.

3.5 Resource linking: linking allows a library to seamlessly tie electronic resources together. For example, an index or abstract can be linked to a full-text database, or a local bibliographic record can be linked to a review or to an e-book. Most portal products require a library to create the links to electronic sources of information. That task can be time-consuming. Endeavor Information Systems was the first firm to extend basic portal capabilities by licensing (from a vendor) software and a database with already created links. It is using JournalSeek, a knowledge database developed by Openly Informatics, Inc., to link to more than 7,700 electronic journals in the sciences and humanities, and Link.Openly, a system for generating links from bibliographic citation data. The offering, known as LinkFinderPlus, became available early in 2002.

3.6 Content enhancement: providing links to tables of contents, book jacket images, author biographies, and reviews.

#### **4. The Concept of Information Architecture**

The library is the heart of any institution and every institution has a mission, vision and content to be communicated to the outside world. This content talks about information to be released to the institution's visitors and clients. The library aids in the realization of this aim. Librarians therefore, have a role to

play in this scenario. Information architecture, according to Wikipedia (2010)<sup>10</sup> is the art of expressing a model or concept of information used in activities that require explicit details of complex systems. Among these activities are library systems, Content Management Systems, web development, user interactions, database development, programming, technical writing, enterprise architecture, and critical system software design. More in the context of this paper, Information architecture according to Barker (2005)<sup>11</sup> is the term used to describe the structure of a system, i.e the way information is grouped, the navigation methods and terminology used within the system. Barker stated further that effective information architecture enables people to step logically through a system confident that they are getting closer to the information they require. It is believed that the term 'information architecture' was coined by a man trained as an architect, Richard Saul Wurman as noted by (Wyllys, 2000)<sup>12</sup>. Barker (2005) emphasized that 'the term "information architecture" was first coined by Richard Saul Wurman in 1975. Wurman was trained as an architect, but became interested in the way information is gathered, organised and presented to convey meaning. Wurman's initial definition of information architecture was "organising the patterns in data, making the complex clear". Wurman, as quoted by Wyllys (2000) writes:

There is a tsunami of data that is crashing onto the beaches of the civilized world. This is a tidal wave of unrelated, growing data formed in bits and bytes, coming in an unorganized, uncontrolled, incoherent cacophony of foam. It's filled with flotsam

and jetsam. It's filled with the sticks and bones and shells of inanimate and animate life. None of it is easily related, none of it comes with any organizational methodology.

(<http://www.ischool.utexas.edu/~l38613dw/readings/InfoArchitecture.html>)

In the context of organizational methodology, the Information Architecture Institute (2007)<sup>13</sup> defines information architecture as the art and science of organizing and labeling websites, intranets, online communities and software to support usability. The Information Architecture Institute is an international organization committed to advancing and promoting the practice of information architecture. It is the view of the institute that as information proliferates exponentially, usability is becoming the critical success factor for websites and software applications. Good Information Architecture lays the necessary groundwork for an information system that makes sense to clients. Information architecture is all about looking at the big picture, then breaking it down into manageable bits of information for your clients (Subramanian, 2004)<sup>14</sup>. Definitions of Information Architecture from Polar Bear 3.0, cited in <http://semanticstudios.com/publications/semantics/000149.php><sup>15</sup> are the following:

The structural design of shared information environments.

1. The combination of organization, labeling, search, and navigation systems within web sites and intranets.
2. An emerging discipline and community of practice focused on bringing principles of

design and architecture to the digital landscape.

3. The art and science of shaping information products and experiences to support usability and find ability.

## 5. Why Information Architecture (IA)?

This question was adopted from the question raised and tackled by the Institute of Information Architecture. The Institute noted that:

Today, every business has an information problem. Whether an organization is wrestling with how to handle myriad legacy data, or how to create taxonomies within a new product, information architecture is an important part of the solution. Some organizations have clearly defined positions for Information Architects, who play leading roles in development processes for everything from file systems to product architecture. Other organizations have no formalized positions, but count IA as a critical competency for many, such as internet strategists, interaction designers, and knowledge architects. In both types of organizations, best practices in information architecture support the development of interfaces that facilitate the flow of useful and relevant information to the user (p.1)

Information Architecture is necessary because of information explosion. Info.design (2010)<sup>16</sup> noted that '50 percent of all managers feel they are unable to handle the vast amount of information they receive. 65 percent report diminished job satisfaction because of the stress that comes with information overload'. Information organization comes in to play when there is

need for sieving of information. Here, selected information are structured and put in proper places where library clients would consult them. Information architecture brings in improved performance which matters to organizations and clients.

Info.design (2010) wrote on why information architecture matters. Here, it is stated that 'With information architecture comes improved performance, and improved performance matters to clients, organizations, and society as a whole'. Organizations care about information architecture due to the state in which they find their portals. The portal is the gateway through which such organizations sell themselves online. This is the reason why Information Architects are highly needed in organizations such as libraries. According to Info.design (2010),

Researchers estimate that for most Web sites, 80% of the cost goes toward maintenance. Changes to poorly architected sites take a long time to implement and often seem arbitrary and haphazard. Sites without solid, expandable information architecture constantly require new decisions, approvals, and political battles. Typically, organizations build Intranet sites to address performance problems. They want to reduce the time it takes employees to complete administrative tasks. With Intranet (and Internet) sites that work well, organizations have the potential to save huge sums of money (<http://www.infodn.com/whyia.shtml>).

## **6. Library Portals and Information Architecture**

Information architecture can be simply seen as organization of information just as in architecture where it could be seen as the organization of structures. Relating this to the library, information architecture becomes organization of information using the tool of catalogs. Relating this description with library portals, information architecture becomes the organization and structuring of information on the web. The process of information architecture begins by answering questions about your institution's purpose, your user's needs and desires, and the types of content you have to communicate. Keeping the answers to these questions in mind, information architecture is then about organizing your content, labeling it effectively, providing the means for browsing and searching the content, and maintaining metadata used to describe it (<http://infomotions.com/musings/portals/portal.pdf>)<sup>17</sup>.

## **7. Questions Raised**

The issue of library portals and information architecture cannot be overemphasized especially in this digital era where libraries are transcending into the virtual realm. The question now is:

1. Who organizes and manages the library portal for libraries?
2. Who becomes the information architect of library portals?

These questions are hereby answered in the following essay where the roles of librarians as information organizers and architects are revealed.

## **8. Librarians' Roles Revealed**

## ***8.1 Information Architects***

Librarians are organizers of knowledge and they are seen as Information Architects. Davis (2001)<sup>18</sup> wrote in his blog post at suite101.com that ‘a librarian’s training in developing information classification schemes, the creation of hierarchies, thesauri and databases, and concentration on information navigation and access are directly applicable to Information Architecture..

Librarians are practically responsible for the organization of content in their libraries, thereby enhancing the easy location and retrieval of information by the clients. Benson (2001)<sup>19</sup> described librarians as information organizers where he noted that traditional library catalogs contain only surrogate records describing books and serials, the Web enables librarians to provide deeper access-access to chapters in electronic or paragraphs within hypertext documents. Benson listed examples of how librarians have put their talents to work as information organizers making Internet resources easier to locate and access:

InterCAT: A Catalog of Internet Resources is an Internet cataloging project headed up by OCLC (Online Computer Library Center, Inc.) Benson described an InterCAT as a searchable index of Internet-accessible resources selected and cataloged by volunteer librarians nationwide. InterCAT utilizes USMARC-formatted bibliographic records with Field 856 being used to describe how the electronic resource can be accessed.

This goal is achieved only when librarians realize it is of paramount importance to transcend into information organization and architecture. This is necessary in this issue of library portals and creating access to contents. Cataloguing librarians are now transcending into OPAC experts, whereby they learn how to create portals and design websites for their libraries instead of involving external hands. How information should be structured on the library website becomes the responsibility of librarians. This was supported by (Subramanian, 2004) who noted that ‘it is the role of the information architect to decide how a site should be structured, what kind of content it should host, and how to accommodate future growth’. According to Zemon (2001), ‘as educators who organize and evaluate information resources, academic librarians bring unique perspectives and skills to the development of portals in their colleges and universities. To campus portal planning and implementation, they bring their expertise with content, their knowledge of copyright, their commitment to customer service, and their experience in creating customized Web-based information delivery systems’. Librarians act as Information Architects via the following ways:

## ***8.2 Content Creators***

Librarians are agents that harbor information for clients. They read the mind of readers, anticipate what they need and make provisions. That is why we have ready-reference questions when it comes to reference services. This situation offers librarians the opportunity to read the minds of the clients, anticipate what they need and

produce questions which the readers could ask if they arrive at the library. Librarians are proactive. In the field of portal design, the librarian provides contents that will be uploaded on the library portal. Papers, newspapers, theses, dissertations and many other ephemerals are digitized and uploaded and linked to the library portal where clients can easily make reference to. Contents are being created in University of Nigeria Nsukka, where such materials are being digitized by librarians and uploaded to the university website and linked to the library portal.

### ***8.3 Copyright Experts***

Librarians are very much knowledgeable in copyright matters. As a matter of fact, some library schools teach this at undergraduate level as one of the courses. According to Zemon (2001), librarians' knowledge of current copyright policy is being called upon now more than ever in setting up electronic reserves and online information for learning portals created using Blackboard and other Web-based course management systems. Zemon went further to state that Librarians provide guidance in determining which Web-based materials are under copyright and seek permission for use of these works with the Copyright Clearance Center and other agencies. Librarians inform faculty about the fair use guidelines and library-related provisions of the 1976 Copyright Act and the 1997 CONFU (Conference on Fair Use) Guidelines, which place time, copying/distribution, and portion limitations on the use of educational multimedia works not in the public domain. Librarian's knowledge of current copyright policy is

being called upon now more than ever in setting up electronic reserves and online information for learning portals created using blackboard and other web-based course management systems (Konnur and Kacherki, 2010)<sup>20</sup>.

### ***8.4 Digital Reference Service Personnel***

We hear of online chats, Ask-the-librarian, chat with a librarian, etc. All these are services offered by librarians on the web to clients who are naïve about how to get about the library. These services could be useful to both indigenous and foreign students who may not be physically present at the library site. According to Kasowitz, Bennett and Lankes, (2000)<sup>21</sup>, digital reference services (DRS) offer quality service at any time to clients outside the library.

### ***8.5 Metadata creators***

Metadata is data about data (Milstead and Feldman, 1999)<sup>22</sup>. It describes the attributes and contents of an original document or work. The DESIRE project ([http://www.ukoln.ac.uk/metadata/desire/overview/rev\\_ti.htm](http://www.ukoln.ac.uk/metadata/desire/overview/rev_ti.htm))<sup>23</sup> describes metadata as "data associated with objects which relieves their potential clients of having full advance knowledge of their existence and characteristics." In other words, standard bibliographic information, summaries, indexing terms, and abstracts are all surrogates for the original material, hence metadata. The information architecture is based on three simple concepts: data types, structural metadata, and meta-objects. A meta-object is an object that provides

references to a set of digital objects. In its simplest form, a meta-object is a list of handles of other digital objects. For example, a poetry anthology might be represented by one digital object per poem. A meta-object for the anthology is a digital object that lists all the poems. An important example of a meta-object is a digital object that lists all converted versions of a specific physical item (Arms, and Blanche, and Overly, 1997)<sup>24</sup>. In the information business, metadata has become a buzzword. For information professionals metadata could be referred to as cataloguing or indexing. Metadata creates room for labeling of contents. According to Milstead and Feldman (1999), metadata makes information accessible by labeling its contents consistently. Metadata leaves a pathway for clients to follow to find the information they need--all in one place. In invisible cyberspace, this is even more important than in a library where desperate clients at least have shelves to browse. Hodge (2001)<sup>25</sup> stated that Librarians as metadata creators for library portals provide keywords to objects online. For instance, in the digitization of exercise in University of Nigeria Nsukka, keywords to digitized resources are provided and imputed into the computer. These are search terms which clients can use to locate such materials easily on the library portal. Talking about who creates metadata, Hodge (2001) submitted that it is more efficient to have cataloguers or other information professionals create the descriptive metadata, because the authors or creators of the data do not have the time or the skills. And so, the librarian as an Information

Architect (IA) according to McManus (2009)<sup>26</sup>, will define the meta-patterns that don't change over the long run.

### ***8.6 Portal Specifiers***

Librarians as Portal specifiers talks about purchase of platforms for portal designs. This is in a situation where the librarian is not the portal designer. According to Boss (2002a), a library interested in purchasing a portal product from the vendor of its automated library system, or from another vendor, should develop requirements and submit them to the vendor(s). As a portal specifier, the librarian should bear the following in mind (Boss, 2002a):

- a. The portal shall be web-based
- b. The portal shall accommodate multiple protocols and formats like Z39.50, HTML, SQL, Open URL, MARC format and others that could emerge.
- c. TCP/IP shall be supported
- d. Linkages to other library portals
- e. Access to the online databases to which the library subscribes.
- f. Access to records for all material types
- g. Search features provision, etc.

### ***8.7 Portal Educators:***

Here, the librarians as Information Architects teach the clients how to navigate the library portal and make use of the various features offered by such portals.

## **9. Challenges Faced**

Before visiting the library portal, most clients perceive a whole lot of issues which they might need to be solved and attended to. A standard library portal should be able to provide clients with all they need even when they do not visit the physical library. A student on holiday should be able to locate materials in the library while online. These and more are services the librarians are meant to offer to their clients. Despite all efforts which these librarians may put to satisfy their clients, there still exist some critical issues which stand as an enigma to librarians. These pose challenges to librarians as Information Architects such as the under mentioned:

#### ***9.1 Lack of training in IT-related matters***

Librarians, especially in developing countries have little or no knowledge of usage of computers to carry out their routine jobs let alone using them for portal designs. This poses a threat to the duty of librarians as information architects.

***9.2 Classification troubles:*** Before a librarian can become a metadata creator, there is need for such librarian to master the rudiments of cataloging and classification. This would make it easier for application in portal platform where there is need for metadata creation.

***9.3 Lack of Interest:*** Some librarians may not have the interest of becoming Information Architects, thereby selling the job out to business tycoons who claim to know everything about library portal even when they do not know the rudiments of librarianship.

#### ***9.4 Proliferation of duties by librarians***

In a situation where there exist few librarians in an organization, the existing ones have myriads of duties to perform. In such a case, librarians would be faced with core traditional library services like traditional cataloguing, reference services, teaching of courses, circulation duties, and others.

### **10. Solutions Proffered**

Following the challenges raised, the following are the solutions proffered by the authors in a bid to promote Information Architecture Services in libraries:

#### ***10.1 IT-related Training of library personnel:***

Librarians should be trained on Information and Technology issues; new trends in library services. This will offer them opportunities to compete with their colleagues who are into utilization of IT in reaching their clients. It should be made a matter of necessity for improved library services.

#### ***10.2 Training of Librarians as metadata creators:***

This will widen the horizon of cataloger librarians.

#### ***10.3 Teaching of Information Architecture***

***in Library Schools:*** Information Architecture should be an added course in Library and Information Science Curriculum whereby students are taught the rudiments of Information Architecture and Library Portal Designs. If Library and Information Science Students are taught this as a course, it will inculcate in them the responsibility of becoming their own library portal designers and therefore, leverage the burden on

libraries that could employ them in future, of paying contractors heavily for the same job.

#### ***10.4 Employment opportunities for Librarian Information Architects:***

information architecture, they will be in a proper position to handle such responsibilities.

### **11. Conclusion**

Librarians are changing roles, or rather increasing their roles and becoming information architects. This term 'Information Architect' describes librarians as individuals that structure information on library portals where clients can easily locate such information. As Information Architects, librarians are trained to be user

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Information Architects who studied Library and Information Science should be employed in libraries so that they handle the creation of library portals. As they already had been taught the fundamentals of advocates; reading the mind of the users or clients and being able to provide answers to their queries. Info.Design (2010) noted that 'thinking like the user/client is the essence of information architecture'. The Information Architect should therefore, put the client first. They therefore could be referred to as 'Info-architects'. This therefore becomes the submission of this paper – that librarians should henceforth, think along the line of Information Architecture and envisage what immediate services they could offer clients using the portal platform.

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