

Information architecture : a brief tour

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Let me start with a quotation:

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. None of it is easily related, none of it comes with any organization methodology.

...The tsunami is a wall of data – data produced at greater and greater speed, greater and greater amounts to store in memory, amounts that double, it seems, with each sunset. ... Faster, more and more and more.

Now for the good news: There is a dune on the beach. There is a breakwater in the ocean that is clearly emerging The breakwater is indeed breaking up the tsunami of data and focusing it in a more organized way to answer our questions and concerns. There is a new breed of graphic designers, exhibition designers, illustrators and photographers, whose passion it is to make the complex clear

... this new breed of talented thinkers [are] Information Architects ... [and their work] inspires hope that as we expand our capabilities to inform and communicate that we will value, with equal enthusiasm, the design of understanding. (Wurman, 1996, dustjacket)

Introduction and background

So, information architecture is something to do with the ways in which we organise information and the ways in which we make it clear. The quotation above is from a book about information architects, and it makes prominent certain professions. But there are many other professions that can and should help with this ‘tsunami of data’ and librarians should be heavily involved. I hope to explain a little about what information architecture is, and how it is relevant to us as librarians - and as cataloguing librarians.

The quotation I started with emphasises the growth of information in the late 20th and 21st centuries. Eric Morrogh writes of the ‘*unintended consequences of the information age*’: *information overload, information anxiety, and junk information.* (Morrogh, 2003) We’re all conscious of this massive growth of information – and that this growth is likely to continue and probably increase. This has probably had a greater effect on us as a profession than any other single thing. It’s closely linked to technology developments, of course, but it’s not the same thing. Technology is the thing that enables the easy creation of information – and it’s also the thing that helps us to manage that information. But it’s not the information itself. More people, with better facilities, create more information, and make that information more widely available. The amount of information, the number of resources that we must deal with increases exponentially and like Alice in Wonderland, we run just to stay in the same place.

We are a profession that manages information in two main ways:

- by managing physical objects (books, magazines, dvds, posters) and electronic objects (web pages, e-books and articles, databases);
- and by providing access to the resources that contain it, creating relationships between parts of it, interpreting it, repackaging it, distributing it, ordering and organising it.

The more information there is, the more critical it becomes to provide organisation and structure. This goes way beyond just cataloguing resources (important in its own right) and focuses on the links and relationships between information at a broader level. Whereas once cataloguing was a backwater, now it's a vital part of the profession with changes to many of the tools we use on a daily basis (as we have seen with RDA); increasing interest in metadata; discussion about the role of the catalogue, the role of cataloguing and the role of the major providers of catalogue records and standards; new ways of including information in catalogues; new types of resources.

And now, there's information architecture as well to consider. So, what is information architecture, and why should we care about it?

Information architecture (IA) is not a new term, but has only recently become relatively widely known. The concept and the term were coined by Richard Saul Wurman in 1975 (Wurman, 2001, p. 23) but were not widely used until the late 1990s, although there has been discussion through this time of the design of information systems and databases indicating the physical architecture of the technology rather than the conceptual approach.

Wurman is an architect by profession, and he became interested in the parallels between the way physical space is organised - to be both useful and aesthetically pleasing - and the way information was organised - to the same ends. In his books, and especially in one entitled *Information anxiety*, he writes about the problems of too much information, too much data and also about the problems of lack of meaning and lack of organisation - and about the ways to solve this through better communication of information in all formats and media. He says:

Today, most information isn't presented in the detailed form of a map to direct and guide us to new lands where we can find wealth or a wealth of information. Rather, it's fired at us like buckshot, with the hope that some might hit a target. (Wurman, 2001, p. 99)

In order to understand this information, we must find better ways of understanding and clarifying this. "*Effective information architects make the complex clear; they make the information understandable to other human beings.*" (Wurman, 2001, p. 23.) He's also very clear that this is an extremely important thing that needs to happen.

Definitions

So, how do we define IA? The discipline of information architecture is full of definitions - and there is endless debate on listservs, the IAWiki and in face to face situations. Let's start with architecture itself (and I'm going to chicken out and NOT define information)

Encyclopaedia Britannica defines architecture as:

the art and technique of designing and building, ...The practice of architecture is employed to fulfill both practical and expressive requirements of civilized people and thus embraces both utilitarian [useful] and aesthetic [beautiful] ends. Although these two ends may be distinguished, they cannot be separated. (architecture, 2007)

These criteria apply to IA as well, to a greater or lesser degree: there needs to be a structure, and it needs to be both useful and beautiful (or at least, satisfying and meaningful).

Moving on to information architecture, I have selected a range of definitions. Kimen says:

At its most basic, information architecture is the construction of a structure or the organization of information. In a library, for example, information architecture is a combination of the catalog system and the physical design of the building that holds the books. On the Web, information architecture is a combination of organizing a site's content into categories and creating an interface to support those categories. It stems from traditional architecture, which is made up of architectural programming and architectural planning. (Kimen, nd, 1. What is information architecture?)

So according to this, it's both the organisation of the information AND the construction of the structure to maintain that organisation.

Christina Wodtke identifies another layer that sits around these two: Experience design (layout, brand, writing, customer service, colour) – how the user relates to the way the information is presented. (Wodtke, 2001). Now we have three layers or aspects:

- the information and how it's organised,
- the structure that maintains that organisation, and
- the way the user experiences the information in its structure.

Rosenfeld puts it another way: information architecture is the intersection of three things:

- users: (who they are, what their information-seeking behaviors and needs are)
- content: (volume, formats, metadata, structure, organization)
- context: (business model, business value, politics, culture, resources and resource constraints) (DefiningTheDamnThing, 2006, section 1.2)

I hope this sounds familiar to you all: we think about our users, we think about content, and we think about the contexts in which we work. But, do we bring it all together? I suspect, not as often as we should.

The IA Community maintains a wiki and it's an excellent place to go for information about the many different aspects of IA and the individuals involved in it. Current definitions on the *IAwiki* identify several broad areas:

- *the organisation of information through thesaurus design, taxonomy creation and label design*
[the process of giving effective coherent labels to parts of your website]
- *interaction design and information design*
[Interaction design: building experiences for others to interact in – contrast with creating experiences for them to experience, like a party]

- [Information design: the defining, planning, and shaping of the contents of a message and the environments it is presented in] – both Defining the damn thing *user experience or experience design* - and more. [how users react to, use, and move through the website] (DefiningTheDamnThing, 2006, section 1.1)

Prominent writers in the field Lou Rosenfeld and Peter Morville identify four – different – areas. These include:

1. *The combination of organizing, labelling and navigation schemes within an information system*
2. *The structural design of an information space to facilitate task completion and intuitive access to content*
3. *the art and science of structuring and classifying web sites and intranets to help people find and manage information*
4. *an emerging discipline and community practice focused on bringing principles of design and architecture to the digital landscape.* (Rosenfeld, Morville, 2002, p.4)

On the other hand, some think that IA is nothing more than what print editors do: “*The discipline of managing the organization and layout of web content. In print, editors have managed information architecture-type challenges for centuries.*” (Gerry McGovern in DefiningTheDamnThing, 2006, section 3.3) We’ll touch on this below – although in practice I think this is somewhat limiting.

The IA profession is characterised by robust debate on what exactly IA actually means. This is partly due to the range of different backgrounds of those practicing IA. These backgrounds include graphic design, info and lib science, journalism, usability engineering, marketing, computer science, technical writing, project management, architecture – and many more, including records management. There are close relationships with web design, experience design, graphic design, software development, usability engineering, content management, knowledge management – and they may all feature in the work of an information architect.

More and more, IA is moving beyond how you present bits of information. Now it is in the context of the design and presentation of information in complex electronic systems including websites – and there’s clearly a huge role for this application of it; this is the future of information architecture. It has moved beyond its origins in print, but that it doesn’t negate the importance for cataloguing librarians of thinking about information architecture in both areas: print and WWW. Information architecture can usefully be applied to the presentation of information in just about any information context you care to select: guide books, museum exhibits, transport timetables, charts, city plans, maps, statistical information, technical manuals, encyclopaedias, indexes, geographic information, weather charts, sports events, and so on.

If information architecture is a profession, as Morrogh suggests in his book *Information architecture : an emerging 21st century profession*, then there isn’t really any reason why there shouldn’t be different types of information architect and different definitions of what is being done. A reference librarian is not the same as a cataloguing librarian, and a sole charge librarian in a primary school may have little in common with a sole charge librarian in a law firm, even though they all fit into the same profession, carry the title librarian, and may agree on broadest principles. So, there are different types and aspects of information architecture and multiple definitions, all contributing to the overall

discipline.

I'd like you to take away the following:

- information needs to be organised and structured, and at a level beyond the individual resources that libraries own or access
- there are many different ways of organising this information, and many ways of structuring it.

The information we're talking about can be information **about** your library and its resources, information on the **websites** of the library, and information **owned or accessed** via library systems. As you will realise, there can be considerable overlaps in these types of information, but you can apply information architecture thinking or principles to each of them.

Organising the information

Society has a pressing need to organise the incredibly large amounts of information that are being generated. Wurman considers that there are only five ways of organising information and these are:

- Location
- Alphabetic
- Time
- Category
- Hierarchy

or L A T C H.

I thought when I first read that, that there **MUST** be other ways, but I cannot think of any.

These possibilities apply to everything –

- from the clothes in your wardrobe (trousers / skirts / coats / shirts)
- to the books in the library (fiction alphabetically, and often categorised first into sci-fi, romance, mystery etc, and non-fiction by classification (category) and location in the building,
- to the webpages on the library's site – which if they are good will give several possible ways of getting to the same information.

The people in this room could be organised

- by time (age, or the date upon which they registered for the seminar),
- by location (where they live),
- by category (the type of library in which they work),
- in alphabetical order by surname or first name,
- in a hierarchy (their job, their qualifications, their experience).

I think our instinct as librarians is to go for the familiar, but what difference might it make if we didn't? For example, DDC organises by category, but also sub-organises by location (eg 900s), by time, and by hierarchy (most general to most specific). Is this really how users think? How else could they be considering information, and how much should we work to provide lots of different ways for them to get to it? "*order is no guarantee of understanding*", according to Wurman (Wurman, 2001, p. 21) and perhaps the best way of organising something is not the most traditional. We should think outside conventional ways of doing things.

There has been discussion on listservs recently about a library in the USA which is doing away with Dewey, and arranging their resources like a bookshop. Would this actually provide our users with better results if they were browsing? Do they HAVE to use the catalogue? (personally, I think the answers are, No, and Yes, but I could be wrong – I am a cataloguer by background, after all and as tied to one way of thinking as the next person!)

Examples of new ways of looking at information

I'll now provide you with some examples of different ways of looking at information in different contexts.

Access guide books. These are designed by Richard Saul Wurman – the chap who coined the term ‘information architecture’ - and his approach was somewhat radical at the time he first developed it.

The traditional format for guidebooks calls for chapters divided into neat categories – restaurants, museums, hotels, stories, each with its own chapter. In the Access guidebooks, all are jumbled together. They are divided by neighbourhoods. That is the way that cities are laid out and experienced.” (Wurman, 2001, p. 21)

Categories of information are coloured, for easy reference in the text and on diagrams. Deciding how to break down the information was a very important step, as this determines how effective the books are too. Landmarks were important – as they are the wayfinding points that enable people to move from one part of the city to another.

It's fascinating seeing the difference these guidebooks make to your perspective of a city – and how sensible they are! Most of us, staying somewhere different, want to be able to walk out and go somewhere, see something close to where we are staying – even if we've also identified key attractions in other parts of the city. (although as my husband pointed out, the maps in the London guidebook are not as good as they could be – but then, we're both keen on good maps.)

In the same way, when Wurman redesigned the *Yellow Pages for California* (print editions), he considered how people would approach the books and how alternative ways of locating the information could be designed to help them. He didn't stick with the standard arrangement, because he didn't think that this enabled the users sufficiently. And that's the important point – **he wanted to enable the users**, so that they could find the information more easily – or at all.

What he did was to cluster the topical headings used into general groupings (for example, everything to do with cars, car maintenance and repair) and added subject pages as well. This enabled users to drill down into the information from a broad grouping to the more specific. You can see this approach on many websites these days.

The *Vietnam Veterans' Memorial* in Washington DC is a large black granite wall, with the names of more than 58,000 soldiers who died there engraved on it. You may have seen pictures of it – polished black granite, reaching 3 metres high with each side (east and west) more than 70 metres long. It's imposing, and sombre - frightening to see how many individual names there are – each a person. The designer, an undergraduate student from Yale university, proposed that the names be listed chronologically by date of death, or by date reported missing, and they run from the centre to the east, and then back to the

centre from the west.

Now, when I read that I was puzzled as to why they were not listed alphabetically: it would be hard to find a given name, it's not logical, what difference does it make when they died – surely finding someone on the wall would be important?

But then I read of the designer's reason: To give more meaning to each name. War veterans would see the story of the war as it had unfolded; they would see companions who had died and remember the locations at which those things had happened. There would not be a telephone book-listing, a dry straightforward arrangement - there are 600 Smith's, and many individuals with the same name. An alphabetical list would reduce the importance of each individual to 'just another name', rather than showing how whole platoons of soldiers of many ranks were killed. There is, however, an alphabetical finding aid as well, and now also a website (<http://thewall-usa.com/>).

So what does this tell us? It says that the architecture of the information – the way it is presented - enables us to gain additional meaning, gives context and weight, *shows* what happened.

And finally, the National Institute of Cancer. When Morville was hired to redo the information architecture for this he discovered that although it came high up on search results lists and always on the first page of results when the search was 'cancer', it was almost unfindable when a particular type of cancer was selected. BUT, what people mostly searched on was a particular type of cancer – and so they missed the site. The reason, he identified, was because the design team worked with a top down approach -

*Can the user find their way round the site from the home page? It's an important question, but then, users don't always **start** from the home page. Powerful search tools directories, blogs, social bookmarks, and syndication services are moving deep linking and content sampling from exception to rule. Many of your users will never visit your homepage. ... Can users find what they need from where they are.?"*(Morville, p. 10)

Relevance for librarians

Both the original information architecture approach (heavily focusing on print materials and the presentation of information in a graphical form), and the newer approach (heavily focusing on the WWW and navigation through it), have huge relevance for librarians. We have always considered whether the resources we purchased were useful – accurate, authoritative, relevant, easy to use, consistent. We have always organised those resources physically in our libraries, using systems that categorise the information contained within them – and provided other points of access via the catalogue records. We have grappled with using databases of various sorts, and with locating information in those databases.

Now, we're well and truly in the internet age, and a library of any size without a webpage, and preferably web access to catalogue and databases is becoming a rarity. We are grappling with new ways of presenting the information to our customers, new ways of explaining to them how much information we can put them in touch with, new forms and formats of document that are not always accessible in traditional ways via the catalogue. We're thinking more about how to link all the resources through federated searching across all our databases; about the pros and cons of cataloguing websites and e-resources versus listing them in subject directories on our web pages; about the difficulties of ensuring the users understand what they're seeing in the catalogue and the difference

between electronic and print versions of the same resources; about providing access to the ever-increasing volume of information so that users get not just something, but the best thing for their needs at the time.

Every individual looks at things in a different way: while some relate well to images and diagrams, others prefer text. Some like a straightforward “keywords in a single search box”, while others prefer to navigate through links or sitemaps. We cannot assume others will think the same way that we do when it comes to locating and using information, and what we think is straightforward (either personally, or professionally) can leave our users bewildered and grasping to understand. We are tied to what users SHOULD be doing, rather than what they WANT to do.

The challenge for us is to think about how best to organise all the information we need to make available – and best is a relative term, depending on audience and the information itself. Peter Morville quotes Calvin Mooers’ law (1959):

An information retrieval system will tend not to be used whenever it is more painful and troublesome for a customer to have information than for him not to have it. (Morville, 2005, p. 44) and *We cannot assume people will want our information, even if we know they need our information.* (Morville, 2005, p. 45) We need to provide ways that will make it easy for the user to get that information – whether this be the ‘portal’, or the webpage, or the catalogue record, or the ease of use of the catalogue itself, or the internet-accessible PC that links to the web resource they’ve located in our subject pages.

We are information management professionals, but we are not experts at its presentation or at information navigation. We rely on structures and systems that are ‘tried and true’, but there are other ways, and better ways, now available to us. We can look outwards, and explore other ways of designing information – information architecture.

A good example of a new perspective is FRBR - the functional requirements of bibliographic records. FRBR also takes us beyond how we think information should be organised, and presents it in a whole new structure that has complex theories behind it but which ultimately provides a better access for both users and librarians to the resources that libraries hold.

What’s the next step?

Edward Tufte has a book entitled: *Envisioning information* (Tufte, 1991). It illustrates many ways of presenting information that go outside the conventional or the expected – and it is an inspirational eye opener. It is a broad ranging evaluation of the best way of presenting information – not only in terms of ‘can this information be understood and used’ but ‘does it look good, and is it appealing, and does the design of the presentation enhance the usability?’ In reading this I realised how conventional and boring we so frequently are – and I include myself as much as anyone else – and how we fail to draw on or use the skills and techniques of other professions to enhance what we are doing.

We have so much expertise with information that we frequently overlook the fact that there are other professions out there who have far greater expertise than we do in its presentation and navigation – and we should be making use of their experience, rather than having it ‘half right’. For example, We become web designers without really understanding what it is that we’re designing, how to make that design the most usable it can be, how to enhance users’ experience of our websites.

In his book *Ambient findability*, Peter Morville looks at the concept of wayfinding – how we locate things in physical space – and he applies that to electronic space. He discusses how maps record the physical landmarks, but how they don't need to express the reality, they just need to make it possible to find the way. Think of the Tube map – London's underground. As I'm sure you know, the map does not bear much relation to the geography of London itself. What it expresses is the relationship between each of the stations and enables the user to navigate from one place to the other. It's a classic example of great design.

We could use this idea to help us think about new ways of presenting information. We don't need to reflect the reality exactly (and for us, perhaps, that reality is a MARC record in all its complexity). Rather, we need to provide a way for users to get the information they need, or to get where they want to go that is as clear and well structured as possible.

The web does not have a fixed structure in the same way as the streets of a suburb are fixed. there are multiple paths, multiple links. BUT, these are established by someone, they are not inherent. Links are created; contexts are made. We need to focus on those links, on creating context, on thinking about our users and how they need to be enabled by the organisation and structure of and around information.

To conclude

So, is information architecture just about web design, about how a website looks?

No, it's not. It's not just 'giving the user what they think they want', either. Information architecture **is** about how to make something look good; but it is also about how to make something function better, how to enable the user to locate the best, the right information; how to improve the meaning of that information, setting it in a context that enhances it, helps the user evaluate it, and filter it. Good design incorporates the idea of functionality.

A well designed library is pleasing to look at, but also easy to use, efficient to work in, and effective at storing its books and other resources. From that perspective, design is hugely significant. But information architecture goes beyond design, beyond good labelling and a nice environment, beyond attractive presentation of information on a computer screen or ease of navigation of a website. It encompasses how we provide meaning and context for information – when there is so much information out there to be managed.

The characteristics that distinguish a work of architecture ... are
(1) the suitability of the work to use by human beings in general and the adaptability of it to particular human activities,
(2) the stability and permanence of the work's construction, and
(3) the communication of experience and ideas through its form. (architecture, 2007)

So, a work of architecture must be suitable to human beings and adaptable to their needs, and it must communicate ideas through its form. Information architecture is the same (although the second characteristic of architecture – stability and permanence – does not apply in an electronic or print environment in quite the same way!)

Information needs to be presented in the most suitable way, so it can be used, and used in a variety of ways. Information needs to be communicated effectively, efficiently and

clearly through its form.

The challenge is to establish a structure that has meaning, that provides context; that ensures users know where they are, where they are going, and where they've been. The complex made clear.

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Appendix

Key sources of information – a brief list

As with many professions, the latest information is available electronically. Unlike many others, much IA information is only available electronically, and they practise what they preach: it is very well organised. There are some print publications, but many of these seem to have started life on listservs or blogs, and accidentally ended up in print. There are web-based resource pages which enable the newcomer to get a grasp on the oeuvre quickly.

These include the Argus Center for Information Architecture, which still maintains a website of resources, despite having closed down in 2001. No longer updated, it nevertheless provides a valuable starting point for investigation into IA, with an excellent *ia guide* (Argus Centre, 2000). An equally useful, and more up to date, list is *Web design references: Information architecture* created by the University of

Minnesota Duluth, with a very wide range of resources, from overviews to online tutorials - one of the best comprehensive lists available. (Web design references, 2007)

There are also tutorials and syllabus outlines on the internet for those who want to go a bit further. Semantic Studios' *Information architecture syllabus* is a good place to begin working out what IA is all about. It doesn't have the complete course, but it does provide a useful framework, and list the readings for each part. (Semantic Studios, 2004) It uses The Polar bear book (see below) as its main course text, as do many other university courses. For a quick "how to" tutorial, there's John Shiple's *Information architecture tutorial*. (Shiple, 2007) Shiple takes you through, step by step, and provides an outline of how to create a website. Lesson 3 is strongly reminiscent of the process of creating a records classification structure.

Louis Rosenfeld and Peter Morville, both originally librarians, have written the main text on information architecture: *Information architecture for the World wide web*; commonly known as The Polar Bear book, due to the illustration on the cover. The third edition of this has just been published – and although it focuses on large scale websites for business, it's a great introduction to the principles. They discuss the concept of granularity in relation to web-based information.

Structure, organizing and labelling. It's what information architects do best. Structuring involves determining the appropriate levels of granularity for the information 'atoms' in your site, and deciding how to relate them to one another. Organizing involves grouping those components into meaning full and distinctive categories. Labelling means figuring out what to call those categories ...".(Rosenfeld, Morville, 2002, p. 5)

They note that "A website might present articles and journals and journal databases side by side. Links might lead to pages, sections of pages, or other web sites." (2002, p. 53) This is contrasted with library card catalogues which provided access to books, not chapters or sections. They go on to evaluate how you might order and arrange an organisation's information – partly in terms of the external website, but also in terms of intranets. They point to the variety of ways in which organisations are structured, and the variety of (sometimes maddeningly illogical) ways in which these structures are defined, determined and labelled by those working in them, and the need for both granularity and for multiple levels of access. (2002, p. 54)

Wodtke's *Information architecture: blueprints for the web* (Wodtke, 2003) provides other interesting perspectives on how to organise and arrange the web. Wodtke, who also creates *Elegant Hack* (Wodtke, nd), is the founder and publisher of *Boxes and arrows* an e-journal which describes itself as:

the definitive source for the complex task of bringing architecture and design to the digital landscape. There are various titles and professions associated with this undertaking—information architecture, information design, interaction design, interface design—but when we looked at the work that we were actually doing, we found a "community of practice" with similarities in outlook and approach that far outweighed our differences (Boxes and arrows, 2001-2007, About boxes and arrows).

Weinberger's *Journal of the hyperlinked organization* covers many of these issues, with, for example, an excerpt on taxonomies, tags, faceted classification, folksonomies in the March 2005 issue (Weinberger, 2005), while his book *Small pieces loosely joined : how the web shows us who we really are* (Weinberger, 2002). provides new ways of viewing

the wider electronic environment and shows how the internet is changing the way we view ourselves and social institutions.

The main place to go for the latest discussions and developments is the IA listserv, a very busy and thought provoking list which is subscribed to by a number of those mentioned in this article. This list also provides information about meetings of information architects round the world, including in Australia.

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