CHAPTER 2
Practicing Information Architecture

What we'll cover:
- Information architecture is everywhere
- Whether the world needs information architects
- Qualifications and source disciplines for information architects
- Information ecologies and their impact on the practice of information architecture

What is information architecture? Is it an art, a science, or a craft? Who should do this work? What qualifications are required? These are the questions we grapple with as a community of information architects. We write articles and publish books. We debate on discussion lists and argue passionately at conferences. We pull out our hair. We lose sleep. This is serious stuff.

And yet, independent of our intellectual theories and existential agonies, something very powerful is taking place. We are being surrounded, quite literally, by information architecture.

Have you ever walked through Times Square in New York City at night? It's quite a spectacle. You're on the corner of 42nd and Broadway. The glassy facades of buildings are pulsing with real-time information, courtesy of the latest in flat-panel display and projection technologies. Business news, financial data, corporate logos, and URLs are lit up in neon. Taxicabs sport billboards on their roofs as they honk their way through traffic. Pedestrians (or shall we say "users") hustle past one another, chattering into their cell phones or stopping on the corner to check email or get directions on their wireless PDAs. This is William Gibson's cyberspace turned inside out, physical architecture meets information architecture, a world of content, labels, and metadata all competing for your attention.'

* See the Flickr photo pool "Everyday Information Architecture": http://www.flickr.com/groups/everyday-information-architecture/pool.
And that’s nothing compared to the real cyberspace, a new reality where we spend increasing amounts of time. How many hours do you spend staring at a computer monitor each day? How often do you check email or pop open your web browser? When your Internet connection is broken, how do you feel?

The World Wide Web has lived up to its name. It has connected and transformed the world. Want to know what’s going on? Check out nytimes.com, bbc.co.uk, or your favorite blogs. Planning a trip? orbitz.com and kayak.com will meet your every need. Having trouble with your green iguana? No need to leave the house. You’ll find the answer at iguana.com.

Billions of web pages have sprung up since the Web began. And guess what? Information architects played no role in designing most of them. This has been an emergent, bottom-up, grass-roots phenomenon. But every single web site that exists does have an information architecture. They’re riddled with labels and taxonomies, vocabularies and metadata, sitemaps and indexes. There are portals linking to portals linking to search engines. Pure navigation. Some is good. Much of it isn’t. We can critique it and we can make fun of it, but we can’t stop it. Information architecture happens!

**Do We Need Information Architects?**

Since information architecture happens anyway, does the world really need information architects? If you’ve attended any of the IA Summits in recent years, you know this has been a hot topic. A few speakers in particular have stirred the pot. Andrew Dillon is fond of saying, “I know we need information architecture. I’m not so sure we need information architects.” And Peter Merholz suggests that “we need to teach everyone to do information architecture, rather than isolating the practice to a handful of professionals.”

We have to give credit to the information architecture community for having the guts to ask these questions in public. But we’d like to respond with a firm assertion that we absolutely do need information architects. We’re not too particular about the specific job title; if you prefer to call them user-experience designers, knowledge managers, or findability engineers, that’s fine with us. What we’re focused on is the need for professionals with specialized skills and experience, who know how to create useful, usable information systems within massively complex environments.

Programmers and graphic designers are great at what they do. They’re not great at what we do. And information architecture design is not a skill you can pick up by taking a half-day seminar. There’s real depth to the discipline. Information architecture resembles the games of Othello and Go. A minute to learn, a lifetime to master.

* Sponsored by the American Society for Information Science & Technology, the Information Architecture Summit is held in February or March each year. Learn more on the IA Summit web site: [http://iasmunity.org](http://iasmunity.org)
Does this mean that all web developers will need a licensed information architect on board before they write their first line of code? Of course not. Information architecture happens, with or without information architects, and that's just fine with us. That's why Peter Merholz is right to emphasize the vital role information architects must play in education. We can have a major positive impact on the world by sharing what we know with all those people who do information architecture in the course of doing something else.

But the most important and complex information environments already rely on professional information architects. Large organizations like IBM, Microsoft, and Vanguard already have teams of information architects dedicated to the long-term strategy and design of their web sites and intranets. Smaller organizations tend to involve information architects in a consulting capacity during a site redesign. This allows the information architect to make a major contribution without breaking the bank.

This selective use of expertise is not isolated to the field of information architecture; in fact, it is quite common. Consider, for example, the practice of law. A huge percentage of legal decisions are made every day by business managers rather than by their lawyers.

Manager #1: “Should we approve this nondisclosure agreement?”
Manager #2: “Yes, that’s fine. It’s no big deal. Let’s move on.”

Most companies don’t have lawyers on staff. They get lawyers involved when the situation is particularly messy, complex, or important. The same happens and will continue to happen with information architects.

In fact, as web sites and intranets become more sophisticated and mission-critical, the demand for information architects will only rise. This demand will be partly offset as other professionals learn the basics of information architecture. Our responsibility as information architects will be to continue to push the envelope, to learn how to do what we do faster and better, and then to share our knowledge and experience with those around us. We all have so much to learn and so much to do. We fully expect information architects to be very busy for at least the next few hundred years.

**Who’s Qualified to Practice Information Architecture?**

Unlike medicine and law, the field of information architecture has no official certification process. There are no university consortia, boards, or exams that can prevent you from practicing information architecture. As we explain in Chapter 13, a number of academic programs are emerging to serve the needs of prospective information architects, but for now very few people have a degree in information architecture.
Disciplinary Backgrounds

As you look over this list, you might not find your home discipline listed. Don’t be daunted: any field focused on information and its use is a good source of information architects. And the field is still young enough that just about anyone will have to rely on experience from the School of Hard Knocks to practice IA effectively and confidently.

If you’re looking for IA talent, keep in mind that, because the field is relatively new and because demand for information architects continues to explode, you can’t just post a job description and expect a flock of competent and experienced candidates to show up on your doorstep. Instead, you’ll need to actively recruit, outsource, or perhaps become the information architect for your organization.

Of course, if you are looking for someone else to fill this role, you might consider the following disciplines as sources for information architects. If you’re on your own, it might not be a bad thing to learn a little bit about each of these disciplines yourself. In either case, remember that no single discipline is the obvious source for information architects. Each presents its own strengths and weaknesses.

OK, on to the list:

**Graphic design and information design**

Many of the people who have written about and practice information architecture are graphic designers by training. This is not surprising, as both graphic design and information design involve much more than creating pretty pictures. These professions are geared more toward creating relationships between visual elements and determining how those elements can be integrated as a whole to communicate more effectively.

**Information and library science**

Our backgrounds in information science and librarianship have proven very useful in dealing with the relationships between pages and other elements that make up a whole site. Librarians have a long history of organizing and providing access to information and are trained to work with searching, browsing, and indexing technologies. Forward-looking librarians understand that their expertise applies in new arenas far beyond the library walls.

**Journalism**

Journalists, like librarians, are trained at organizing information, but in a setting that places special emphasis on timeliness. If your web site is geared toward delivering dynamic information, such as a news service or online magazine, someone with a background in journalism might have a great sense of how this information could be best organized and delivered. Because of their writing experience, journalists are also good candidates for architecting sites that will have high levels of edited content.
Usability engineering

Usability engineers are experts at testing and evaluating how people work with systems. These human–computer interaction professionals measure such criteria as how long it takes users to learn how to use a system, how long it takes them to complete tasks and find answers, and how many errors they make along the way. Of all the disciplines we list, usability engineering is probably the most scientific in its view of users and the quality of their experiences.

Marketing

Marketing specialists are expert at understanding audiences and communicating messages effectively. They are particularly valuable in the design of customer-facing websites, where product sales and brand are critical to success. Marketing expertise can ensure that the message is presented in the language of the target audience. We’ve run into a number of “online merchandisers” who have become expert information architects.

Computer science

Programmers and software developers bring important skills and sensitivities to information architecture, especially to “bottom-up” processes. For example, developers are often excellent at modeling content and metadata for inclusion in a database or content management system. They’re also great at figuring out how all of the component systems and technologies of an information architecture fit together.

Technical writing

Professionals who have spent time writing technical documentation or developing online help systems are often well-sensitized to both the needs of users and the potential for structuring, labeling, and describing textual content.

Architecture

While the transition from bricks and mortar to bits and bytes is obviously a big move, we actually know quite a few building architects turned information architects. These folks tend to have a great deal of experience studying people’s needs and seeking behaviors, and an excellent foundation in the concepts and challenges surrounding strategy and design.

Product management

Many information architects play the role of “orchestra conductor.” They understand how to tap the motivations and talents of a diverse group of professionals, creating a whole that’s greater than the sum of its parts. People with a background in product, program, or project management can become very effective information architects, particularly in the areas of strategy formation and interdisciplinary team management.

...And many more

This list is far from comprehensive. There are dozens of established fields from which we can learn (see Figure 2.1). No list or picture will ever capture the true diversity of practicing information architects.
Innies and Outies

When staffing an information architecture project, it’s also worth considering tradeoffs between insider and outsider perspectives. On one hand, there’s value in having an information architect who can think as an “outsider,” take a fresh look at the site, and be sensitive to the needs of users without being weighed down by internal political baggage. On the other hand, an “insider” can really understand the organization’s goals, content, and audiences, and will also be around for the long haul, helping to design, implement, and manage the solution.

Because it’s difficult to choose between these two perspectives, many intelligent organizations put together a balanced team of consultants and employees. The consultants often help with major strategy and design initiatives, and provide highly specialized varieties of IA consulting, while the employees provide continuity as projects transition into programs. Even if you’re the lone in-house information architect, you should seek to work with outies—whether by convincing management to hire consultants or specialists for you to collaborate with, or simply by hanging out with and learning from other IAs at local meetups and conferences.

Really, the fact that both innies and outies are flourishing is a sign of the field’s maturation: in IA’s early years (coinciding with this book’s first edition), most practitioners were outies, working at agencies and consultancies. After the bubble burst (see the second edition), many of us ran for cover in the security of working in-house, often assisting with the implementation and customization of large applications like CMS and search engines. And now, as our third edition comes out, the field is in balance—there
is room for both innies and outies, and a symbiotic relationship exists between them. It’s truly indicative of a healthy profession, and good insurance against the vagaries of the next sudden economic downturn. We’re not going away.

**Gap Fillers and Trench Warriors**

IA’s early practitioners got their jobs by taking on work that no one else wanted or realized existed. Structuring information? Indexing it? Making it findable? Even if these tasks sounded appealing, few had the vocabulary, much less the skills, to address them. So stone-age information architects were, by definition, natural gap fillers who often tackled these tasks out of opportunism or simply because someone had to.

Over the past five or seven years, the field has matured and the practice of IA has solidified. What an information architect does is now much better understood and documented; you’ll even detect a whiff of standardization among job descriptions. In effect, IA has moved from the exotic to the everyday, and more and more the people filling those roles are heads-down crack experts in the nuts-and-bolts of IA practices. These are the information architects that you’ll want and need down in the trenches, grinding out an information architecture amid the guts and gore of your organization’s users, content, and context. These trench warriors aren’t pioneers, but providers of an important commodity service.

Of course, as trench warriors began to take over, gap fillers didn’t disappear. They saw other opportunities that needed filling—only this time, the gaps popped up in the field of IA itself, rather than within specific teams or organizations. Information architects are now making livings as independent consultants, often working in such specialized areas as taxonomy development, or as user experience team leaders, or as teachers and trainers for in-house IAs. Increasingly, many of us have become independent entrepreneurs who are developing own IA-infused products and services; there are always new gaps to be filled.

As the field continues its healthy evolution, gap fillers and trench warriors will continue to fill changing roles. Whether you’re looking to staff your team, hire a consultant, or determine if IA is in your future, it’s important to know that the field is now large and healthy enough to accommodate many personality types.

**Putting It All Together**

Whether you’re looking to become an information architect or hire one, keep this in mind: everyone (including the authors) is biased by their disciplinary perspective. If at all possible, try to ensure that various disciplines are represented on your web site development team to guarantee a balanced architecture.

Additionally, no matter what your perspective, the information architect ideally should be responsible solely for the site’s architecture, not for its other aspects. It can be overly distracting to have to deal with other, more tangible aspects of the site, such as its graphic identity or programming. In that case, the site’s architecture can
easily, if unintentionally, get relegated to second-class status because you’ll be concentrating, naturally, on the more visible and tangible stuff.

However, in the case of smaller organizations, limited resources mean that all or most aspects of the site’s development—design, editorial, technical, architecture, and production—are likely to be the responsibility of one person. Our best advice for someone in this position is obvious but still worth considering. First, find a group of friends and colleagues who are willing to be a sounding board for your ideas. Second, practice a sort of controlled schizophrenia in which you make a point to look at your site from different perspectives: first from the architect’s, then from the designer’s, and so on. And look for company among others who are suffering similar psychoses; consider joining the Information Architecture Institute* and attending the annual ASIS&T Information Architecture Summit.

**Information Architecture Specialists**

These general discussions about the role, value, and qualifications of information architects are worthwhile but incomplete. The community of information architects is experiencing what evolutionary biologists call a period of “punctuated equilibrium,” marked by rapid change and specialization.

Particularly in large organizations, people who began as all-purpose information architects are gravitating towards specialized niches that match their strengths to their organization’s needs. Here are just a few of the titles that already exist:

- Thesaurus Designer
- Search Schema Content Editor
- Metadata Specialist
- Content Manager
- Information Architecture Strategist
- Manager, Information Architecture
- Director, User Experience

There are so many possible variations and so many different facets. For example, information architects can specialize by:

- Industry lines (e.g., financial services, automotive)
- Functional department (e.g., human resources, engineering, marketing)
- Type of system (e.g., intranets, web sites, extranets, online magazines, digital libraries, software, online communities)
- Audience (e.g., small business owners, elementary school teachers, rocket scientists, teenagers, grandparents)

* Information Architecture Institute: [http://www.ia institute.org](http://www.ia institute.org)
Finally, much IA work is centered on making large-scale applications work as advertised. So many information architects find their specializations centered on a variety of tools, most commonly:

- Content management systems
- Search engines
- Portals

As our use of networked information environments grows, the possibilities for specialization are unlimited and unpredictable. We're watching evolution in fast-forward. This is part of what makes it so much fun to be part of the information architecture community.

Practicing Information Architecture in the Real World

Users. Content. Context. You'll hear these three words again and again throughout this book. They form the basis of our model for practicing effective information architecture design. Underlying this model is a recognition that you can't design useful information architectures in a vacuum. An architect can't huddle in a dark room with a bunch of content, organize it, and emerge with a grand solution. It simply won't hold up against the light of day.

Web sites and intranets are not lifeless, static constructs. Rather, there is a dynamic, organic nature to both the information systems and the broader environments in which they exist. This is not the old world of yellowing cards in a library card catalog. We're talking complex, adaptive systems with emergent qualities. We're talking rich streams of information flowing within and beyond the borders of departments, business units, institutions, and countries. We're talking messiness and mistakes, trial and error, survival of the fittest.

We use the concept of an "information ecology" composed of users, content, and context to address the complex dependencies that exist. And we draw upon our trusty Venn diagram (see Figure 2-2) to help people visualize and understand these relationships. The three circles illustrate the interdependent nature of users, content, and context within a complex, adaptive information ecology.

In short, we need to understand the business goals behind the web site and the resources available for design and implementation. We need to be aware of the nature and volume of content that exists today and how that might change a year from now. And we must learn about the needs and information-seeking behaviors of our major audiences. Good information architecture design is informed by all three areas.

* For more about information ecologies, read Information Ecology by Thomas Davenport and Lawrence Prusk (Oxford University Press, USA) and Information Ecologies by Bonnie Nardi and Vicki O'Day (MIT Press). Nardi and O'Day define an information ecology as "a system of people, practices, values, and technologies in a particular local environment."

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Figure 2-2. The infamous three circles of information architecture

Is this an oversimplified view of reality? Yes. Is it still useful? Absolutely. We’ve been using this model for over 10 years. It’s held up well in all sorts of environments, from global web sites of Fortune 100 corporations to standalone intranet applications within small nonprofits. More importantly, we find these three circles incredibly helpful whenever we’re confronted by a difficult question. After mouthing the trusly phrase “It depends”—as all smart information architects do—we develop our answer by deconstructing the question into three parts that coincide with our three circles. For example, when asked what are the most important qualities that an information architect should have, the answer becomes quite simple: some knowledge of users and their needs (which might come from exposure to human–computer interaction and a variety of other fields), content (think technical communication and journalism), and context (read a book on organizational psychology).

The three circles help with other tough questions, too, such as:

- What research and evaluation methods should information architects be familiar with?
- What’s the ideal education for an information architect?
- What kinds of people should be part of an information architecture team?
- What kinds of books and blogs should I read to keep up with the field and its practice?
- What should go into the IA strategy that I propose to my new prospect?

The answer to each starts with a balance among the three areas: users, content, and context.

Should technology have its own circle? Maybe. But we find that technology usually gets too much attention—and it would look silly to add a fourth circle.

Incidentally, we think it’s important for information architects to have a good sense of humor. Perhaps you’ve already figured this out. The work we do involves high levels of abstraction, ambiguity, and occasionally absurdity, and to some degree we’re all still making it up as we go along. A good information architect knows how to get the work done while having some fun along the way.
If there’s one thing that many years of information architecture consulting has taught us, it’s that every situation is unique. We don’t just mean that web sites are different from intranets or that extranets should vary by industry. We mean that, like fingerprints and snowflakes, every information ecology is unique.

The DaimlerChrysler intranet is vastly different from that of Ford or GM. Fidelity, Vanguard, Schwab, and Etrade have each created unique online financial-service experiences. Despite all the copycatting, benchmarking, and definitions of industry best practices that have surged throughout the business world in recent years, each of these information systems has emerged as quite distinctive.

That’s where our model comes in handy. It’s an excellent tool for learning about the specific needs and opportunities presented by a particular web site or intranet. Let’s take a look at how each of our three circles contributes to the emergence of a totally unique information ecology.

**Context**

All web sites and intranets exist within a particular business or organizational context. Whether explicit or implicit, each organization has a mission, goals, strategy, staff, processes and procedures, physical and technology infrastructure, budget, and culture. This collective mix of capabilities, aspirations, and resources is unique to each organization.

Does it then follow that the information architecture of each organization must be unique? After all, companies buy generic office furniture. They invest in standard technology platforms. They even outsource important activities to vendors that service their competitors.

Still, the answer is a resounding yes. Information architectures must be uniquely matched to their contexts. The vocabulary and structure of your web site and your intranet is a major component of the evolving conversation between your business and your customers and employees. It influences how they think about your products and services. It tells them what to expect from you in the future. It invites or limits interaction between customers and employees. Your information architecture provides perhaps the most tangible snapshot of your organization’s mission, vision, values, strategy, and culture. Do you really want that snapshot to look like that of your competitor?

As we’ll explain later in more detail, the key to success is understanding and alignment. First, you need to understand the business context. What makes it unique? Where is the business today and where does it want to be tomorrow? In many cases, you’re dealing with tacit knowledge. It’s not written down anywhere; it’s in people’s heads and has never been put into words. We’ll discuss a variety of methods for extracting and organizing this understanding of context. Then, you need to find ways to align the information architecture with the goals, strategy, and culture of the business. We’ll discuss the approaches and tools that enable this custom configuration.
Content

We define “content” very broadly to include the documents, applications, services, schema, and metadata that people need to use or find on your site. To employ a technical term, it’s the stuff that makes up your site. Our library backgrounds will be evident here in our bias toward textual information, and that’s not such a bad thing, given the heavily textual nature of many web sites and intranets. Among other things, the Web is a wonderful communication tool, and communication is built upon words and sentences trying to convey meaning. Of course, we also recognize the Web as a tool for tasks and transactions, a flexible technology platform that supports buying and selling, calculating and configuring, sorting and simulating. But even the most task-oriented e-commerce web site has “content” that customers must be able to find.

As you survey content across a variety of sites, the following facets bubble to the surface as distinguishing factors of each information ecology.

Ownership

Who creates and owns the content? Is ownership centralized within a content authoring group or distributed among functional departments? How much content is licensed from external information vendors? The answers to these questions play a huge role in influencing the level of control you have over all the other dimensions.

Format

Web sites and intranets are becoming the unifying means of access to all digital formats within the organization. Oracle databases, product catalogs, Lotus Notes discussion archives, technical reports in MS Word, annual reports in PDF, office-supply purchasing applications, and video clips of the CEO are just a few of the types of documents, databases, and applications you’ll find on a given site.

Structure

All documents are not created equal. An important memo may be fewer than 100 words. A technical manual may be more than 1,000 pages. Some information systems are built around the document paradigm, with the fully integrated document as the smallest discrete unit. Other systems take a content component or digital asset approach, leveraging some form of structural markup (XML or SGML, for example) to allow management and access at a finer level of granularity.

Metadata

To what extent has metadata that describes the content and objects within your site already been created? Have documents been tagged manually or automatically? What’s the level of quality and consistency? Is there a controlled vocabulary in place? Or have users been allowed to supply their own “folksonomic” tags to the content? These factors determine how much you’re starting from scratch with respect to both information retrieval and content management.
Volume

How much content are we talking about? A hundred applications? A thousand pages? A million documents? How big is your web site?

Dynamism

What is the rate of growth or turnover? How much new content will be added next year? And how quickly will it go stale?

All of these dimensions make for a unique mix of content and applications, which in turn suggests the need for a customized information architecture.

Users

When we worked on the first corporate web site for Borders Books & Music, back in the mid-90s before Amazon became a household name, we learned a lot about how customer research and analysis was applied towards the design and architecture of physical bookstores.

Borders had a clear understanding of how the demographics, aesthetic preferences, and purchasing behaviors of their customers differed from those of Barnes & Noble. It is no mistake that the physical layout and the selection of books differ significantly between these two stores, even within the same town. They are different by design. And that difference is built upon an understanding of their unique customer or market segments.

Differences in customer preferences and behaviors within the physical world translate into different information needs and information-seeking behaviors in the context of websites and intranets. For example, senior executives may need to find a few good documents on a particular topic very quickly. Research analysts may need to find all the relevant documents and may be willing to spend several hours on the hunt. Managers may have a high level of industry knowledge but low navigation and searching proficiency. Teenagers may be new to the subject area but really know how to handle a search engine.

Do you know who’s using your web site? Do you know how they’re using it? And perhaps most importantly, do you know what information they want from your site? These are not questions you can answer in brainstorming meetings or focus groups. As our friend and fellow information architect Chris Farnum likes to say, you need to get out there in the real world and study your “users in the mist.”

What Lies Ahead

So, information architecture happens. Information architectures are being created every day by generalists and specialists, by innies and outies, risk takers and people who get things done, and by people who’ve never heard the term “information architecture.” They’re being created inside all manner of information ecologies with unique combinations of users, content, and context.
Herein lies the dual challenge to the information architecture discipline. As professionals, we must advance our own understanding and our ability to perform this very difficult work inside massively complex environments. We still have so much to learn! And as a community, we must strive to advance the practice of information architecture by educating those around us who create or influence information architectures while they’re focused on doing something else. We still have so much to teach!

In any case, we hope we’ve done a good job of setting the stage. Now it’s time to delve into the guts of information architecture, so roll up your sleeves and dig in.