

A Case For Designing Information Architecture Around Business Goals & Strategies

Ellen Zaroff, (E-mail: fridayzaroff@fridayzaroff.com), Friday Zaroff LLC

ABSTRACT

Enterprises that have a presence on the web can approach the user in a variety of ways. However, beyond a flashy splash page, a site needs to provide the e-commerce user with an experience that is meaningful and successful with regard to completing the user's intended mission. At the same time, a site needs to fulfill the business requirements of the company by providing a profitable center for transacting business. To illustrate the correlation between what the user sees and the structure that propels that vision forward, Morville's iceberg analogy parallels real life in suggesting that the tip is the part that people tend to deal with (Morville 2002); the user interface and the graphics with which it is comprised. Largely ignored is the support below the surface that is the immense skeletal structure of the beast; the Information Architecture and wireframes that will support the branding and web positioning. This structure, which when done successfully, is invisible to the user and ultimately plays an important role in providing the road map to each of the participant's end needs.

INTRODUCTION

Prior to the Telecommunications Act of 1999, whose passage made possible profits driven by the use of Internet Technology components, the standard model for driving profits was to market, advertise, get face to face time with the client, walk the client through whatever paces were specific to your industry and close the sale. This model has changed as various modalities of e-commerce implementations has made inroads in both retail and wholesale markets. Companies need to achieve a tighter cohesion between the potential customer and the role of marketing and IT specialists. They further need to define the value of their Internet presence and what this service can provide within an e-market space.

This enlarged role for marketers has demonstrated the need for an information architecture that is guided by and structured around a business strategy. This strategy in turn needs to be aligned with the user's expectations and requirements as it has become paramount to provide users with personalized information trails to complete a successful business transaction. The following questions become manifest:

1. Why should a company bother to consider information architecture when creating a web site?
2. Why should they examine their existing strategy in terms of their web presence?
3. How could a web site's information architecture dovetail with the firm's strategy?

Rosenfeld makes a compelling argument that the site's information architecture should actually drive a business's Internet strategy (Rosenfeld January 2002); let the form lead the function, arguing that the definition and meaning of the content in fact belies a business's strategy. In fact, as the case study provided herein will demonstrate, the opposite is not only true, but essential.

There are multiple factors that can affect the success or failure of an e-commerce endeavor yet it can be said with certainty that when the user cannot negotiate through or obtain information he seeks the user will abandon the site. To paraphrase Peter Morville, you can't buy what you can't see. (Morville, August 2002).

In the early 1990's many businesses became involved with the Internet as another marketing venue. As time quickly went by, there came the realization that the Internet was not simply a vehicle for marketing but that it was rapidly becoming a channel for consumers to obtain information, make decisions and have a personalized experience. As security was enhanced online, e-commerce became the modus operandi and the target shifted from passive marketing to obtaining a competitive edge and utilizing state-of-the-art-technology.

Starting in 1998 the description of Information Architect became a distinct job title and discipline. Companies began to see that just as one would need to have a blueprint in order to design a building that rested on a firm structure, a site must have an architecture in order to hold up under the assiduity of users. What was not always self-evident was the form in which this structure would dovetail with the visual presentation. Enterprises needed to readjust their existing strategies to fit in with the media available on the Internet.

Companies need to have a clear outlook as to what their e-commerce goals are and how they align with the company's larger goals (Christensen, 2000). While the end-result may be the same, the means of getting there may be vastly different. While it might seem to be a foregone conclusion that this type of alignment ought to be done, as the case study resented herein will show, there is a learning curve to exacting the process and the effects that are accomplished by doing so.

WHAT IS INFORMATION ARCHITECTURE?

An inclination to sort and categorize partially defines us as human, while the need for structure and organization is essential in order to achieve progress and further innovation.

Information Architecture is the study of and application of structuring data and information and defining user interactions based on the flow of this data. (Rosenfeld, 2002) Information architecture exists to help the user retrieve, in the most efficient manner possible, the information which he seeks while allowing the Internet presence to achieve its business goals. As users' expectations of how to seek information differs, the Information Architect must try to incorporate as much differential thinking as he can into this predictive model.

Architecture, in terms of being defined by the planning and organization required to construct a building, the planning of and systematic classification of materials that are necessary to construct the structural support and physical layout, lends itself as a metaphor for the construction and navigation of virtual spaces as well. Architecture is the combining of visual pleasure with functional structure, and this applies to both physical constructions as well as 'virtual' ones. A good architect must:

1. ascertain client needs
2. organize those needs into a coherent pattern that clarifies their nature and interactions, and
3. design a space that will meet the occupants' specific needs. (Wyllys, 2002)

Analogously, the science of planning navigation, anticipating the way in which different users interact with the information logically and determining the best layout for the needs of the user, also prevails within the world of information. As the layout and floor plan of a church would have different specifications than that of a marketplace, so today's information and 'floor plan' of web sites should be specific to meet the needs of the user and the 'floor plan' of the owner.

While much of Information Architecture is based on the Library and Information Science school, Ranganathan's 5 Laws of Library Science should have particular meaning for anyone practicing Information Architecture. The 5 Laws are:

1. Books are for use.
2. Every reader his or her book.
3. Every book its reader.
4. Save the time of the reader.
5. The Library is a growing organism. (Steckel, 2002)

These can be applied to the Internet by substituting ‘web site’ for books and ‘user’ for reader. The “library” is, of course, the World Wide Web itself.

Ranganathan believed that information should be classified depending on its facets, and the fact that “faceted navigation” and “faceted search” have become parts of the web lexicon, substantiate this belief. The facets he declared were:

1. Personality—what the object is primarily “about.” This is considered the “main facet.”
2. Matter—the material of the object
3. Energy—the processes or activities that take place in relation to the object
4. Space—where the object happens or exists
5. Time—when the object occurs (Steckel, 2002)

From this he developed a system of colon classification wherein each facet was separated from another facet by the colon. If applied to information objects on the web, one can better refine classifications at the same time as allowing for further flexibility. This occurs because the nature of the information or ‘object’, where it exists and when it occurs all become relevant to the classification of that object through its facets and its juxtaposition to other information in the ‘library’.

What is the relevance between faceted classification and library science? Circling back to the metaphor of building architecture, the layout of the structure must be based on a functional schema that represents not only the individual ‘rooms’ but the flow and framework which will hold together those individual units. There is no one classification system, which can be applied to every web site on the Internet; each architecture must be customized to best enhance the business strategy of that enterprise. Yet, the systematic discovery of the layout of this architecture should be based on some generic principles so that eventually this analysis becomes a uniform structure that enables ‘readers’ to find their ‘book’ and save their time. This discovery process and its principles are being molded under the umbrella of Information Architecture.

Two of the foremost accredited architects of this practice are Peter Morville and Louis Rosenfeld who, in conjunction with the firm Argus Associates, began espousing the organization and the importance of information structure and popularized the term Information Architecture (Morville, Rosenfeld 1998 “Information Architecture of the World Wide Web”). They began by delineating schemes and structures for systems of organization. They put into practice the Library and Information Science school of Information Architecture, which is based on establishing categories and breaking them down further into hierarchies of sub categories for the efficient retrieval of relevant information.

Over time, the definition and parameters for what defines Information Architecture has become at the same time larger and yet more refined. The amounts of data that became available exploded. The difference between sites that have scalable information architecture and those that can not grow with the firm’s expanding definitions separate success from failure for a business concern.

There may be a question for the need for a separate Information Architecture discipline yet, when you go to a site whose architecture fails, it is immediately apparent. To coin a phrase, ‘Faulty Information Architecture may be hard to define, but I know it when I see it.’ Often the user has had to ‘bail out’ of a process because it was too convoluted or pertinent information was not given until the final step, or that they don’t have the means to pay in the mode required (e.g. a PayPal account). Research shows that most people fail to complete the shopping experience not due to product disinterest but after a failure to successfully navigate through the site. (Barker, 2005)

It is the job of the Information Architect to plan out the grouping of information and the categorizing of content, the levels of these hierarchies and how the user interacts with them. The display of these components, as well as the manner of this display, will effect how the user interprets the information and is educated by it. The two major subsets of site users are those who come to the site with familiarity of the labels, products or information and

those who come to the site anew needing education regarding those same components. Good architecture will accommodate these 2 groups without alienating either.

Informational paths need to make sense regardless of the direction from which they are approached. Navigational schemes need to be dynamic enough to provide the user with a path not only to what they are looking for, but also a path back.

Navigation also needs to provide clues as to where the user is being taken and if they have already been there.

Sites which have a high redundancy of links have a higher success rate in regards to their users remaining on the site, than those with more linear navigational schemes – one way in, one way out. (Kimen, 2003) As users interpret data in a variety of ways a site should provide each user with multiple routes of getting to information.

One such method is faceted classification which is when a resource is classified under one heading from each facet that applies to it. If one reflects back on Ranganathan's principles of library classification, breaking down an element into 5 properties and describing them from this viewpoint, one can see that in this sense any product or idea can be classified by a series of its properties or by omitting parameters if that particular resource does not contain a given property. Today seventy-seven per cent of sites use faceted navigation to provide their users with a variety of ways to complete their task.¹

Information Architecture encompasses many facets: design, labeling, placement, metaphors, flow, usability and findability to name a few. Part of the job of an architect is to anticipate and provide a smooth path for the user moving through the site. In an ideal world, user testing, functional requirements, wireframes delineating global and localized navigational schemes and flow charts are all produced before a design is created and pages are coded. Likewise, taxonomy and ensuing nomenclature are established and used consistently throughout the content portions. Sites which fail to include Information Architecture as one of the steps during development run the risk of losing the user within the experience and having him abandon the site as well as the product or brand for the long term. (Lager, 2006)

WHAT IS BUSINESS STRATEGY?

A business concern needs to have a business plan that encompasses specifying the organization's goals and policies as well as a strategy for achieving that end. (Moore, 2002) A good business strategy will provide an overlying direction for the entire organization while taking into account resources, logistics and objectives. It must also consider its competitive advantages and place itself in a position to complete its vision in a manner that is efficient and seamless while lending itself to the greatest possible return on its investments. The real test of its ability to survive is the adaptation from a traditional business design to a business designed for a market environment largely dominated by e-commerce.

To compete and succeed in the e-commerce sphere, a company needs to structurally change its internal supports, like repositioning the framework of a building. This foundational shift means that a company must develop an innovative e-business strategy, focusing on speed to market and an implementation of services which are par excellence. (Alter, 2006) Firms seeking to compete in the e-commerce world must also develop a strong e-business infrastructure focused on continual adjustments and never-ending innovation, allowing customers to have the latest online technology without losing sight of the cost of change and whether these modifications are really strategically enhancing. (Christensen, 2003)

Navigating from the broadest high level business strategy to a route which can be translated to an actionable path is a task that is neither self-evident nor painless. A successful company needs to make informed choices about its own goals, strengths/weaknesses and its market position with regards to consumers, competitors,

¹ <http://www.webdesignpractices.com/navigation/facets.html>

investors and stakeholders. The options that these companies ultimately choose will determine how the company tailors its activities to get customers to the products and information that they need, in real time and at the right price. The combination of incorporating these choices while providing customers with a set of parameters that fulfill their expectations is a balance that must be achieved in order to succeed on both the corporate and client sides of the equation.

The development of the Internet has exponentially increased the breadth of choices for moving from a strategic platform to direct action with immediate results. Through websites, online marketing, search engine optimization and marketing, companies can reach a much broader range of people and must be able to accommodate an extremely diverse market. Through personalization and targeted marketing, companies can identify precisely what customers want, who they are, how they go about finding it and what problems they may encounter either during the process or after it. By using this knowledge to customize these choices and expand the opportunities involved in these interactions, consumers' online experiences will not only impact their immediate purchase but how they view the company and whether or not they will return. (Lager, 2006) Unless the experience reflects the company's long range online business goals it cannot be considered a success for either the consumer or the enterprise.

E-commerce plays an essential part of any business strategy. Forrester Research predicted American firms alone would sell US \$316 billion in goods and services via the Web by 2010. That figure would more than double 2004's online spending to account for some 12 percent of all retail sales, up from about 7 percent today. (LeClaire, 2005).

E-commerce is not different at the heart of the equation, exchange of goods or services for compensation, and yet the electronic medium forces companies to re-examine how they attend to their business strategy within this channel while still achieving their specific goals. Some of the changing parameters to consider are how the customer drives the process by tilting the equation to the demand side, the way in which people purchase via online and mobile communications, and the exponential changes in the development of technological innovations and devices.

Organizations need to account for the information that is purveyed online as the customer does much of their own research and going through a portion of the decision making process before getting to the actual product. This informational model has radically changed the way a business must approach and expect to do business with each new and existing customer. Many consumers now arrive at the decision point armed with knowledge of the product, a more precise idea of what they want, how much they want to pay for it and in what fashion it will be delivered.

As customers' expectations have risen due in part to the many avenues by which to access information, successful companies will raise the service levels to meet these expectations. Therefore a positive customer experience has become a company's most highly sought after asset. This relationship is worth more than the company's products itself, not just in terms of establishing the customer-to-company bond but the process of retaining and maintaining that loyalty has become paramount. A company's strategy needs to encompass finding and retaining the most profitable and loyal customers and doing that in real time.

One reason that the task of maintaining a good customer relationship is so daunting is that one of the greatest unknown factors in an online experience is the customer's interactivity with the site. As the company has limited control over the each step of the consumer's responses, it has to try to foresee the user's responses and guide them toward the company's end goal. The job of the information architect is to provide enough data for a wide breadth of users to navigate through the site, each with their own agenda in hand, and yet steer them towards the company's goals.

A conflict arises between the ability to sustain traditional business goals and maintain a business environment that has become increasingly subject to the e-business paradigm. Companies can make the mistake of first developing an e-commerce application and then retrofitting it to force their existing business strategy into this model, neglecting not only their own objectives but simultaneously forfeiting the needs of the user. Thirty-eight

percent of the home pages recently reviewed by Forrester failed to provide adequate evidence that they supported user goals. (Dorsey, 2005) If a user fails to find their goals or a self-evident path to those goals on the landing page, the likelihood of them continuing to search for their objective drops dramatically. (Bodine, 2005)

In order to address the need to present a meaningful path for user goals, a hierarchy must be established within the information itself. The architecture of this hierarchy should be concise and directly linked to the company's e-business strategy.

There are 2 main types of Information Architecture: top-down and bottom-up. Top-down structure reveals how an organization is structured and affects the navigational schemes at the uppermost levels². Bottom-up architecture starts at the most granular levels and looks at how to describe information. Top-down is a methodology that asks the questions, bottom-up is the process of how to organize the answers. Architecting an entire site from a bottom-up approach would be self-defeating. To present the answers before you know what the questions are only serves to force you to ask specific questions. The questions asked should fulfill the business goals and the answers should be specific enough to capture the myriad interpretations of the questions that the user may have as well as the intended answer the company may have pre-conceived.

Aside from simply answering a set of 'questions', once a firm decides to go forward with an e-presence it not only needs to address its business strategy but also to address who its customers are, what form their online needs will take and how best to fulfill those needs. The use of Information Architecture is essential in presenting that information. Web sites need to focus on the questions because a consumer comes to a site with a specific set of questions in mind and the ability to answer them defines the success of that site.

Information architects should apply the business strategy, as defined by the business leaders and managers, as the end point and address who the user is, how he will voyage through the site to reach that end point and how best to use the information provided. At times putting together a cohesive information architecture can expose gaps in informational structures by finding pockets where information is not satisfactory or available or by exposing user paths which lead to dead ends or unsatisfactory experiences. However, in order to avoid the chicken and the egg problem, the information architecture must follow the online strategy and be available to highlight deficits; it should not be relied upon for developing these strategies around the given content.

REDESIGN CASE STUDY

Redesign Advantage: macromedia.com

What worked:

In March of 2003 Macromedia redesigned their existing website. Macromedia was on the cusp of launching a new product version, Flash MX 2004, had recently merged with Allaire and was able to recognize that their site was dated and stale. As Penny Wilson at Macromedia.com puts it, "Brochureware' sites with lots of content and little functionality had given way to sites where visitors could use web applications to conduct actual business." The merging of the two information centers did not proceed smoothly from a user standpoint nor did the backend architecture process the information in a way which was efficient, vis-à-vis the technical level of the user community and the technical advances that had been made in the preceding few years. Macromedia takes pride in and is adept at listening to their users; upgrading of products and interfaces as well as website revisions is based largely on user feedback. Customers were trying to use content and services across the two partially merged sites and the perception was not one of a unified experience. Applications had been introduced in piecemeal portions, so that the navigation and interactivity weren't familiar or homogeneous. Despite the 250,000 a day download rate of

² However an organization's structure is often not the best outline to follow for a navigational scheme. In fact following a company's internal classifications may not only be meaningless for the user but actually confounding. A case where this might be an exception is on an intranet site where the structure of the organization is knowledge brought by most users to the site.

Macromedia Flash, Macromedia wanted a better return on their investment in the web as defined by an increase in the number of Flash upgrades to MX as well as increasing their daily download rate for first time users.

Macromedia proceeded with the mantra “We believe that great experiences build great businesses” (Wilson, 2002) in a true marriage of business goals (great business) and Information Architecture (great experiences). Ultimately, their success would be established by finding the balance between business and user goals. In recognizing that their web experience needed to be improved in order to further their business objectives, Macromedia proceeded with a face-lift, back-end redesign and architectural web restructure focused around their users. They assessed, at each turn, how the changes to be implemented would not only enable the company to achieve their goals but how and where it would enhance the user experience. For their efforts they were scored the highest-ever ranking by Forrester Research’s Site Review. (Manning, 2003) The site redesign and re-architecting also helped achieve the critical business goal of driving trial downloads.

Using two major metrics, conversion to sales and conversions to downloads of trials, Macromedia realized that roughly half their site’s pages received little or no usage as delineated by these metrics. Eliminating this content, allowed them to effort a better user experience with cleaner paths through the remaining pages which drove users to click through to the appropriate content which had a higher return on the measured metric. Statistics on views per page was also used as an indicator that customers were locating and using the information.

First they recognized that the new design should enhance the targets of the company; to directly further the purchase and download of both the (former) Allaire products and their own products, predominantly the new Flash MX. Bearing also in mind their customers’ targets they developed different customer ‘personae’ and worked to target each role through their architecture bringing that persona to a desired goal of product downloads.

They broke consumers into buckets such as the HTML developer who might inquire if DreamWeaver will meet his development needs, while another might be the technology manager who searches for a tool that allows the commercial user to maintain his Web pages. (Manning, 2003)

They further refined their targets by asking:

1. Who are we targeting? - clients who had already purchased the Flash MX product and to upgrade those users to the most current version.
2. What do you want your users to come away from the experience with? - the value of the improvements of the new features and benefits of the MX 2004 rollout.
3. What task is the user trying to complete by coming to the site? - upgrade users were particularly interested in testing new software, therefore the site was littered with links to easily access trials and demos.
4. And, of course, in linking the e-commerce goals to the business strategy the final assessment was what were the main goals of the site? Having this parameter in mind allowed the redesign team, Architects and visual Designers, to have an objective criterion against which directions taken could be measured. The key was to get into alignment both the business and user goals. The other important question for any architect to ask is what problem is being solved by implementing this change? It became fundamental to ask if the change being made was really going to make a significant positive impact or detract from an existing beneficial aspect of the site.

By first identifying who their users were and targeting what their needs were, as well as a strategy to satisfy those needs, Macromedia was able to hone in on the best possible ways for users to use navigational paths, drill down to information, receive the data they needed, and continue on to make a purchase around that information.

Macromedia then proceeded to implement this strategy to the site by improving the design, navigation, content, and application: improvement as was measured by making the user experience more robust and successful. They changed the look and feel of the site, de-cluttered the look of the home page, re-categorized and added new content areas which could expand and encompass the changing needs of the business, and modified the global navigation to make the path to services and information more direct and easier to follow.

Macromedia found that their statistics bore out their initial hunches about users and effective usage of the site:

1. Home page churn went down -11%. This was the result of reorganizing and renaming menu categories. Subcategories were created to better expose lower level site content so that users were aware of the breadth and depth of information and how to find a user path to it.
2. Store conversions went up +29.7%. The new product rollout was enhanced by streamlined paths from the home page to actual product information. The information path was then streamlined to the product checkout process.
3. Units sold per visit increased +67%. This increase was largely credited to cross selling, achieved through better navigational and content systems as well as call-outs to action (“Upgrade Today!”) which were placed prominently on the page and repeated with regular redundancy throughout the site.
4. Searches enacted on the site went down -29%. This reflects the user being able to locate their goal from the information provided directly on the page without having to resort to the search engine to locate items for them. Users may go to Google or a comparable search engine to find a given site, without trying a URL first, but resort to the search engines on a site when all other hopes of finding their target have otherwise failed. Improved navigation was credited for the decrease in search after the site redesign.

The chart below (figure 1) is a snapshot statistic of Macromedia’s site performance overall in March 2003, but captures the direct correlation between user performance and their satisfaction in using the site. Performance is measured by the business goals for the site and satisfaction as being a reflection of the Information Architecture that provided ease of use, ‘findability’ and general facilitation for the user throughout his journey. (Ramadan, 2006)

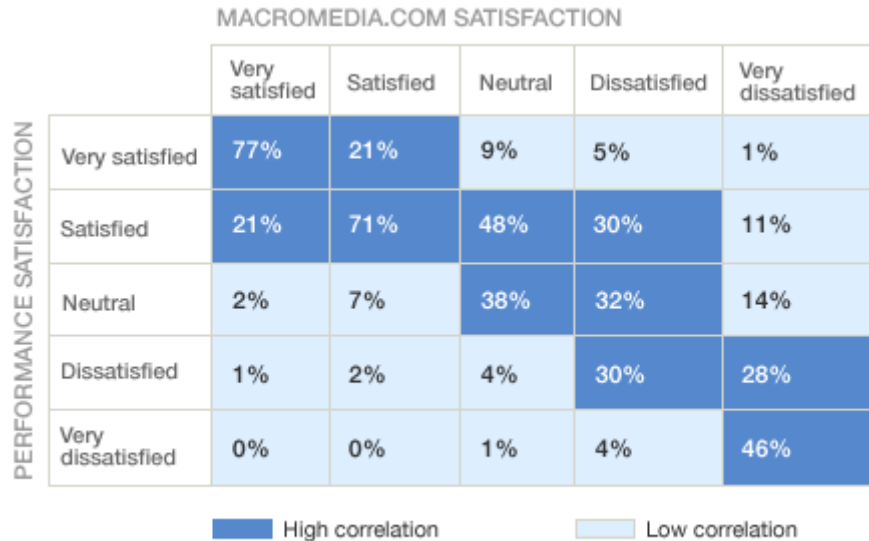


Figure 1

What did not work:

The first attempt at redesign for Macromedia, while proving highly successful against metrics that the company sought to improve, proved largely inadequate against a measure that seemingly no one had considered.

As Macromedia makes many tools for all aspects of web design, it needed to consider not only who their target audience was but what the level of expertise and existing tools those users would have at their disposal. Particularly, as this redesign was intended to push the Flash MX upgrade, it was important that the design community have the best experience. While their testing showed that their logged on users were 91% IE or Netscape users, in January just before the redesign, MAC released its Safari version, which large numbers of people in the design community had begun using. (Ramadan, 2006) Macromedia had not considered this community in their development and this became a major issue. In a similar faux pas the performance of the site itself was very slow on the Opera browser which was just gaining popularity around that time. Not surprisingly, therefore, Macromedia's most vocal critics of the site were MAC users: while only 11% of Macromedia's users were MAC based, a hefty 41% of respondents who turned in surveys came directly from this user community. (Ramadan, 2006)

When Macromedia launched the new site it was built almost entirely in Flash, as a way to showcase Flash's capabilities, and the download times became onerous, particularly for non-Windows developers. As people were (are) still running on dial-up modems, the download time became an issue as navigational components and menu items were the last to load on the page. Macromedia's pitch for Flash, in particular for the new MX update was how Flash could be used to improve these exact elements for both developers and clients and yet on their own home page these elements were not easy or practical to access. Macromedia was in fact alienating a large core user community; core in that these were the very people whose use or non-use of the product could make or break its survival.

Macromedia also tended to overlook the disability guidelines for user accessibility. In an attempt to compensate, the site was mirrored in a flat HTML version, which users who could not navigate a mouse or had other interactive problems accessing Flash, could default to. However, this was also a failure from an architectural standpoint in that the link to this alternate site, which apparently appeared on each page, was small and difficult to find.

Macromedia rushed to remedy these problems, wisely calling the redesign a 'beta release' allowing them the flexibility (from a public relations standpoint) to return to the drawing board. In true Macromedia fashion, they received input from the user community and made the appropriate changes. Within 10 days the site had been reverted to a primarily HTML driven site, replacing the overarching umbrella.swf file that had been at the heart of driving the site. This was fundamental in that the company needed to, and recognized the need to, put aside their goal of using their site as an exhibit for the product and prioritized instead the user's need to access information via the pre-existing technology.

In response to user dissatisfaction, Macromedia cleaned up the home page, reducing the promotional space and creating 6 panels of information. They had implemented a 'tray' system of navigation (basically a pull down area) which at first users missed or disliked, but once removed clamored for its reinstatement. This exemplifies the behaviour that users are resistant to change but can quickly scale a learning curve to incorporate new enhancements.

Similarly, the users expressed a desire for a direct deeper path into the site from the home page. In order to accommodate this request, as well as the needs of the user who wanted/needed the mid-level information (returning to the model of basically 2 types of user), became a challenge for the Information Architect. This was resolved in part by creating a smaller area for detailed instructional messaging and adding more informational links which went directly deep into the site. In providing these informational links they created a better balance between marketing messages, requested content and the flexibility to add any popular site items like updates or particular promotional buckets.

If one had looked only at the measure of success as indicated from the business metrics, one would assume that there was no more to be done. "Unique visitors, total page views, and time per visit all remained stable. The trend of increased store conversion, which measures the number of people visiting the store compared with the number of people purchasing from the store, continued to rise above pre-Beta 1 levels. Also, as reported last week, the number of Exchange downloads continues to break pre-Beta 1 records, and the number of membership registrations remains at four times." (Ramadan, 2006) Yet, by looking beyond the initial metrics laid out

Macromedia not only increased their business opportunities but enhanced their users' experience. In resolving their user's issues Macromedia retained its existing base and was able to capitalize on new customers.

What this experience reflects from an Information Architectural viewpoint is several things. A highly refined usability testing and audience targeting, not just from the perspective of 'who' but also of 'how', may have fleshed out these rather large issues earlier on. Having once targeted the who, how and why, even if they had decided to proceed against these incompatibilities, a solid navigational architecture could have provided alternatives. In marrying Macromedia's business goals with the needs of their users and providing those users with the tools and means to attain those goals Macromedia created satisfied loyal customers who, in turn, supported Macromedia's business.

CONCLUSION

Users and their interactivity with information on a site is an important process within any electronic transaction. Any site needs to have a comprehensive layout for their users to follow and understand.

A company should first establish its business strategy as it applies to the web and work forward from this strategy in defining their content, flow, user experience; asking first the questions and drilling down to the granular levels of answers. An organization around this process must be laid out in regards to navigation, labeling, user expectations and company structures. An individual, who is capable of logically steering this process, creating visual representations that other participants, such as designers and coders, can use as a guide and who can incorporate both the users' and corporate interests, is essential in today's Internet build process.

E-businesses which neglect to include this process of logical structure and flow for their users will suffer the consequences in terms of lost revenue, site abandonment and attrition of customer loyalty. Without taking into account the particular facets of the media of the web, a pre-existing business strategy can become not only stagnant but inappropriate to the point of rendering itself ineffective. Even successful companies can find that their profit margins may suffer if there is no process by which to dovetail their strategy into their application's information. Refinements attuned to the needs of their users, keeping in mind the company's own goals, can greatly enhance ROI, customer stickiness and revenue, to name but a few metrics of success.

Once a business has laid out an approach for their e-commerce site the information that supports this channel must work to enhance that strategy and bring it to fruition. If the information supports the strategy but the user cannot find it, navigate easily to it or retrieve it at will, then it is in effect useless. The information that the company has must be meaningful and presentable to the user in function as well as form.

No well built site today can avoid including Information Architecture as a process step without severely running the risk of having the site run amok. Likewise, no Information Architecture should be allowed to proceed without first having a clear understanding of what is the e-business strategy for that entity and how it works in relation to the strategy for that business sector; two things which must be considered when attempting to bring into alignment the customer's expectations with the end goal for the site. Information Architecture should not be developed as a means to expose the holes in the business strategy but should work hand in hand in negotiating the landscape that encompasses both theoretical models.

BIBLIOGRAPHY

Books

1. *Customers.com: How to Create a Profitable Business Strategy for the Internet and Beyond* Patricia Seybold, Crown Business; 1st edition (November 15, 1998)
2. *Designing Web Usability: The Practice of Simplicity* by Jakob Nielsen, New Riders Press; 1st edition (December 20, 1999)

3. *Don't Make me Think A Common Sense Approach to Web Usability* Steve Krug, New Riders Press; 2 edition (October 13, 2000)
4. *e-Business 2.0* Marcia Robinson, Don Tapscott, Ravi Kalakota Addison-Wesley Professional; 2 edition (December 15, 2000)
5. *Elements of User Experience: User-Centered Design for the Web* Jesse James Garrett, New Riders Press; 1st edition (October 11, 2002)
6. *Homepage Usability: 50 Websites Deconstructed* Jakob Nielsen, Marie Tahir, New Riders Press; 1st edition (November 5, 2001)
7. *Information Architecture for the World Wide Web: Designing Large-Scale Web Sites* Louis Rosenfeld, O'Reilly Media, Inc.; 2 edition (August 15, 2002)
8. *Information Architecture: Blueprints for the Web* Christina Wodtke, New Riders Press; 1st edition (October 16, 2002)
9. *Information First, First Edition : Integrating Knowledge and Information Architecture for Business Advantage* Roger Evernden, Elaine Evernden, Butterworth-Heinemann (October 15, 2003)
10. *Living on the Fault Line: Managing for Shareholder Value in Any Economy* Geoffrey Moore, Collins; 1st edition (August 20, 2002)
11. *The Inmates Are Running the Asylum : Why High Tech Products Drive Us Crazy and How to Restore the Sanity* by Alan Cooper, Sams; 2 edition (February 24, 2004)
12. *The Innovators Dilemma* Clayton M. Christensen, Collins; Reprint edition (January 2003)
13. *The Visual Display of Quantitative Information* Edward Tufte, Graphics Press; 2nd edition (May 2001)
14. *Web Style Guide: Basic Design Principles for Creating Web Sites, Second Edition* Patrick J. Lynch, Sarah Horton, Yale University Press; 2nd edition (March 2002)

Papers

15. Alegre, Alan. Developing Coherent Information Architectures. Foundation for Media Alternatives (FMA) May 2001
16. Alter, Allan Innovation Makes Emergin Technoliges Pay Off. *eWeek*, June 05, 2066 Supplemental Vol 23, p 8-9,
17. Allen, Brandt R. and Andrew C. Boynton Information Architecture: In Search of Efficient Flexibility. *MIS Quarterly*, Vol. 15, No. 4 (Dec., 1991), pp. 435-445
18. Anders, George. Free for All : Eager to Boost Traffic, More Internet Firms Give Away Services. *The Wall Street Journal*, July 28, 1999 pg. A1
19. Bidigare, Sarah. Information Architecture Of the shopping Cart: Best Practices for the Information Architectures of e-Commerce Ordering Systems. Argus Associates May 2000
20. Brancheau, James C. (University of Colorado at Boulder, Boulder, CO) and Larry Schuster (The Pillsbury Company) and Salvatore T. March (University of Minnesota, Minneapolis, MN). Building and implementing an information architecture. *ACM SIGMIS Database archive* Volume 20 , Issue 2 Summer 1989 pp. 9 - 17
21. Cohen, Scott Jason. The Curse of Information Design. *Information Architecture, Usability, User Interface Design* August 13, 2005
22. Evernden, Roger and Elaine Evernden. Third-generation information architecture. *Communications of the ACM archive* Volume 46, Issue 3 (March 2003) pp. 95 - 98
23. Feldman, Susan and Chris Sherman. The High Cost of Not Finding Information. White Paper for IDC, Framingham MA July 2001
24. Fox, Robert. Cataloging our information architecture. *OCLC Systems & Services* March 2005 Volume: 21 Issue: 1 Page: 23 – 29
25. Gilhooly, Kym. Full Service. *Computerworld*, April 10, 2006. vol. 40, Issue 15, p. 34-35.
26. Haverty, Marsha. Information architecture without internal theory: An inductive design process. *Journal of the American Society for Information Science and Technology* Volume 53, Issue 10, 2002. pp. 839-845
27. Hill, Scott. Interview with Louis Rosenfeld and Peter Morville. O'Reilly and Associates January 01, 2000
28. Keeley, Larry. House of Wurman A report from the Technology, Entertainment, and Design conference (TED). Organized by Richard Saul Wurman v.46 no.3, May 1999 p.92

29. Lager, Marshall. E-Commerce Best Practices Make Perfect. *CRM Magazine*. June 2006, Vol. 10 Issue 6. pg. 22-27.
30. Lash, Jeff. The Age of Information Architecture. *Digital Web Magazine* August 20, 2002
31. Lash, Jeff. Soft Skills for Information Architecture. *Digital Web Magazine* September 24, 2003
32. Mahon, Barry and Alan Gilchrist. Information Architecture: Designing Information Environments for Purpose. *Managing Information for the Knowledge Economy Series* Facet Publishing 2004
33. Maloney, Krisellen and Paul J. Bracke. Beyond Information Architecture: A Systems Integration Approach to Web-site Design. *Information Technology & Libraries*, Dec 2004, Vol. 23 Issue 4, p145-152
34. Miller, Craig S. and Remington, Roger W. Modeling Information Navigation: Implications for Information Architecture. *Human-Computer Interaction*, Sep2004, Vol. 19 Issue 3, p225-271
35. Padmanabhan, Balaji, Zhiqiang, Zheng, Kimbrough, Steven O. An Empirical Analysis of the Value of Complete Information for e-CRM Models. *MIS Quarterly*. June 2006 Vol. 30, Issue 2. pg 247-267.
36. Risden, Kirsten. Toward Usable Browse Hierarchies For The Web. Microsoft Research, *Human-Computer Interaction*, 1999 pp. 1098-1102
37. Roberts-Witt, Sarah L. Practical Taxonomies. *Knowledge Management Magazine* January 1999
38. Roderick, Andrew. Information Architecture. San Francisco State University College of Behavioral & Social Science, 2005
39. Rosenfeld, Louis. Seven Pitfalls to Avoid in Information Architecture. *InternetWorld Magazine*, December 15, 2000
40. Teng, James T. C. and William J. Kettinger College of Business Administration, University of South Carolina. Business process redesign an information architecture: exploring the relationships. *ACM SIGMIS Database archive*, Volume 26 , Issue 1 (February 1995) pp. 30 - 42
41. Toms, Elaine G. Information interaction: Providing a framework for information architecture. *Journal of the American Society for Information Science and Technology* Volume 53, Issue 10, May 2002 pp. 855 – 862 17
42. Toub, Steve. Evaluating Information Architecture: A practical guide to Assessing *Web Site organization*. Argus Associates November 2000
43. Van Name, Mark L., Catchings, Bill, Customer Service: Key to E-commerce Success. *PCWeek* January 18, 1999. Vol. 16 Issue 3, p. 36.
44. Vatariasombut, Bariphot, Stylianou, Aristonis C., Igbaria, Magid. How to Retain Online Customers. *Communications of the ACM*. Jun 2004. Vol 47 Issue 6, pg. 65-69.
45. Weingerger, David. Does Information need Architects? *KMWorld* May 2006. Vol 15 Issue 5. pg 18-30.
46. Wilson, Penny. The Story Behind the New Macromedia.com Beta. Developer Center Article January 2002

Articles Online

47. Barker, Iain. What is information architecture? *KM Column* 2 May 2005
48. Becker, David. Revamped Macromedia site irks customers. [CNET News.com](#) March 10, 2003
49. Benjamin, Geoff. New Markets Business Model. *Red Cottage*, 1999
50. Bodine, Kerry with Harley Manning, Caroline L. Carney, Janelle Johnson. Expose Value On The Home Page. Forrester Research August 30, 2005
51. Cullen, Alex with Laurie M. Orlov and Samuel Bright. Simplifying Information Architecture Creating An IA Program That Works. Forrester Research, September 9, 2005
52. Dorsey, Moira with Harley Manning, Caroline L. Carney. Supporting Site Users Who Don't Start On Your Home Page. Forrester Research September 21, 2005
53. Greenfield, Adam. Information architecture, finite yet unbounded. [V-2.org](#) February 2, 2001
54. Hobbs, Jason. An introduction to user journeys. *Boxes and Arrows* September 06, 2005
55. Hurst, Mark. About Information Architecture. [Goodexperience.com](#) April 3, 2000
56. Kimen, Shel. 10 questions about information architecture. TechRepublic's [Builder.com](#) September 29, 2003
57. K'necht, Alan. Making Cents from Information Architecture. *Digital Web Magazine* January 22, 2003
58. Korman, Jonathan. The Web, Information Architecture, and Interaction Design. [Cooper.com](#)
59. Lash, Jeff. A User-Centered Approach to Selling Information Architecture. *Digital Web Magazine* February 20, 2003

60. LeClaire, Jennifer. The Evolution of E-Commerce. *E-Commerce News* February 07, 2005
61. Lopez, Tony. Lessons Learned — Redesigning [macromedia.com](http://www.macromedia.com). Adobe The Edge Newsletter, December 2003
62. Manning, Harley with Bruce D. Temkin, Michelle Amato. [Macromedia.com](http://www.macromedia.com): A Redesign Done Right. Whole View Tech Research Forrester Research December 17, 2003
63. Maurer, Donna. What is Usability? Step Two Designs 1 November 2004
64. Morville, Peter. The Ethics of Information Architecture. Argus Center for Information Architecture November 29, 2000
65. Morrogh, Earl. Information Architecture: From Craft to Profession. Boxes and Arrows November 4, 2002
66. Morville, Peter. Designing complex, adaptive systems. *NewArchitectMag* December 2002
67. Morville, Peter. Information Architecture and Business Strategy. Argus Center for Information Architecture August 30, 2000
68. Morville, Peter. Lou Rosenfeld and Peter Morville on Information Architecture. *WebReference* August 29, 2002
69. Mun, Tara. Proven ROI from Website Usability. Study PR [Leap.com](http://www.leap.com) September 08, 2005
70. Nielsen, Jakob. Failure of Corporate Websites. Alertbox October 18, 1998
71. Nielsen, Jakob. Top Ten Web Design Mistakes of 2005. Alertbox October 3, 2005
72. Nielsen, Jakob. Usability 101: Introduction to Usability. Alertbox August 25, 2003
73. Pruett, Cheryl. Writing the Book on Marketing. July 29, 2004
74. Rhodes, John S. Information Architecture Revealed! [Webword.com](http://www.webword.com) May 24, 1999
75. Rosenfeld, Lou. The Tail Wags the Dog. *Web Review*, June 1999
76. Saila, Craig. Living Can Kill You. March 14, 2003
77. Shiple, John. Information Architecture Tutorial. Webmonkey Design 2000
78. Steckel, Mike. Ranganathan for Ias. Boxes and Arrows October 07, 2002
79. Thurow, Shari. Effective Information Architecture for Search Engine Visibility. ClickZ Network September 12, 2005
80. Wieners, Brad. Time for a Redesign: Dr. Jakob Nielsen. CIO Insight June 1, 2004
81. Wright, Alex. The Sociobiology of Information Architecture. Boxes and Arrows May 26, 2003
82. Wyllys, Ronald. Information Architecture. University of Texas at Austin, Graduate School of Library and Information Science, 2000

URLs

83. Corfield, Sean The Applications on the New [macromedia.com](http://www.macromedia.com) Under the Hood of [macromedia.com](http://www.macromedia.com): Report 1 http://www.macromedia.com/special/under_the_hood/report1/ (05/01/06)
84. Designing in Public 17 March 2003, <http://www.stopdesign.com/log/2003/03/17/> (05/01/06)
85. Gay, Jonathan The Dawn of Web Animation The History of Flash http://www.macromedia.com/macromedia/events/john_gay/page04.html (05/01/06)
86. How we define information architecture, <http://www.infodn.com/whatia.shtml> (05/01/06)
87. Information architecture, http://www.mywiseowl.com/articles/Information_architecture (05/01/06)
88. Internet | Competitive Analysis, http://www.theusabilitycompany.com/services/platform/Internet/comp_analysis.html (05/01/06)
89. Knight, Jerry The Design of the New [macromedia.com](http://www.macromedia.com) Beta Developer Center Article
90. Lowenstein, Michael Customer loyalty Expert(s): Ask The CRM Expert: Questions & Answers, http://searchcrm.techtarget.com/ateQuestionNResponse/0,289625,sid11_gci1067941_tax285178,00.html, (05/01/06)
91. The Need for Information Architecture, http://www.si9.com/content/ia_overview.html (05/01/06)
92. Online holiday shopping continues to steam along, says new Jupiter report News Stories 20 December 2001 <http://www.Internetretailer.com/dailyNews.asp?id=5785>, (05/01/06)
93. Ramadan, Al “What We Need To Improve” [macromedia.com Beta Progress Report 1](http://www.macromedia.com/special/progress_report/beta1/page2.html) http://www.macromedia.com/special/progress_report/beta1/page2.html, (05/01/06)
94. Strategic management http://en.wikipedia.org/wiki/Business_strategy (05/01/06)

95. Survey, January 2003 Future of Information Architecture January 2003
http://iainstitute.org/pg/future_of_information_architecture.php , (05/01/06)
96. Usability as a Business Strategy Good business reasons
http://www.axance.com/08english/08english_01usab_business.htm (05/01/06)
97. Use of Faceted Classification <http://www.webdesignpractices.com/navigation/facets.html#> (05/01/06)
98. What is Information Architecture? Information Architecture <http://www.klariti.com/information-architecture/what-is-Information-Architecture.shtml> (05/01/06)

NOTES