The Use of Web 2.0 in Business

Abstract

Web 2.0 is a notional concept used to describe second generation web-based communities and hosted services that are available on the World Wide Web. One of the enabling technologies of Web 2.0 is Ajax, a web development technique that transparently exchanges small amounts of data with the server so that an entire web page does not need to be reloaded each time a change is requested by the user. There are several elements that are typically thought of as defining a web site as being Web 2.0 including mashups, real-time data feeds, tags, and user-generated content. These elements are often used in applications such as wikis, podcasts, and blogs. Although these applications have relevance to some businesses, they are not applicable to all. The key to appropriately using Web 2.0 for business purposes is to look at the technology itself rather than the current applications to determine how it can be leveraged into doing something new and relevant for one’s business.

Overview

The last hundred years have been witness to an amazing procession of new technologies that have revolutionized the way that we do business in the 21st century. Letters that were once written by hand were replaced by those written on the typewriter. The same correspondence was later produced on word processors which morphed into the personal computers sitting on our desktops. Cut-and-paste no longer requires scissors and a gluepot but a drag and drop, or a few mouse clicks on a virtual document. The editing process and review cycle that not too long ago was measured in many cases by the march of weeks or even months can be shortened to hours or days by online collaboration and document sharing.

In addition, not only has the technology by which we produce our correspondence changed, the correspondence itself has changed as a result of the opportunities opened by technology. E-mail allows us to dash off messages and have them received almost instantaneously across the office or across the globe. This capability not only allows business to proceed at a faster pace, but also means that people have access to levels of the hierarchy that they previously did not have. However, it is not only written communication that has changed: The virtual meeting in many cases has obviated the travel time and costs associated with in-person meetings.

Not only has technology in many ways improved our lives and the ways that we do business, but also frequently renders those who do not keep up with the times looking backward and inefficient. The volunteer committee meeting that requires one to commute an hour each way to glad hand and have lunch followed by 20 minutes of productive business is much less likely to make it into our schedules than is a similar meeting that is held for 20 minutes over the web in front of our own computers. The organization demanding the in-person meeting may quickly be left in the dust as increasing numbers of people find that they do not have the time and expense to spend on unnecessary tasks to do business in the 24/7 world of today.
Web 2.0

The latest in the continuing stream of changes that has been brought about by advances in information technology is Web 2.0. This is a notional concept that is used to describe second generation web-based communities and hosted services that are available on the World Wide Web. The concept originated with the migration to the Internet as a platform. Although the term Web 2.0 implies that it is a new version of the World Wide Web, there are, in actuality, no updated technical specifications associated with it. Similarly, Web 2.0 is not a new technology: It is the creative use and bundling of existing technologies for use in new ways. Although dismissed by some as a buzz word that is more appropriate to those under 20 than it is to the corporation, Web 2.0 includes many capabilities that have application to business.

Rich Internet Applications

As people invent more and better ways to utilize and leverage Internet technology, an increasing number of applications (also called rich Internet applications or RIAs) run on the Internet or on company intranets rather than on other platforms. There are several characteristics of these applications.

- First, it is important to note that they are not replacements for software applications that run on the desktop, but supplement them.
- In addition, these applications are dynamic; updating content automatically.
- Another characteristic of rich Internet applications is that they are collaborative; drawing on information from multiple sources and depending on the contributions of multiple users.
- In addition, rich Internet applications typically are designed to appeal not only to the majority interests, but are also usable and useful for smaller niches within the community.

Either despite these complexities or because of them, rich Internet applications tend to be simple and intuitive and invite the participation of a wide range of users.

Ajax

One of the enabling technologies of Web 2.0 is Ajax, or asynchronous JavaScript + XML. Ajax is a web development technique that transparently exchanges small amounts of data with the server so that an entire web page does not need to be reloaded each time a change is requested by the user. Ajax helps make the web page more interactive from the user’s perspective.

- Asynchronous refers to the intermittent (as opposed to steady stream) transmission of data that does not require a common clock signal as a timing reference.
- JavaScript (not to be confused with the independently developed Java language) is a scripting language used by web authors in the development of dynamic, interactive web sites. JavaScript enables the development of web pages that automatically change a formatted date, bring up a popup window with a linked web page, or change text or graphics when rolled over by a mouse.
- XML (extensible markup language) was developed by the World Wide Web Consortium – the organization that oversees the development of specification, guidelines, and other tools for the World Wide Web – a computer metalanguage that allows web authors to create their own tags to describe virtually any piece of data in a web-enabled system.

Benefits of Ajax

Ajax enables web designers to develop advanced and interactive designs for several reasons. By introducing an Ajax engine between the user and the server, it is able to eliminate the start-and-stop nature of intersections between the user and the web. This additional layer makes the application more responsive and enables web sites to be more interactive. To do this, the browser loads the Ajax engine which renders the user interface and communicates with the server on behalf of the user. The Ajax engine allows the user to interact with the application asynchronously; independent of communication with the server. If something is needed from the server in order to appropriately respond (e.g., submitting or receiving data, loading additional interface code), the requests are made asynchronously (usually with XML) so that
the user’s interaction with the application is not stalled. Figure one illustrates the differences between the traditional model for Web applications and the Ajax model. Organizations that employ Ajax in their web sites include Google, Amazon, and Flickr.

**Open Application Program Interfaces**

In addition to Ajax, Web 2.0 development uses of open application program interfaces (APIs). These are pieces of system software that allow the programmer to develop various user interface features such as pull-down menus and windows and to route data or programs to local area networks. Application program interfaces provide access to a web site’s data and system dynamics. Together with Ajax, application program interfaces provide the enabling technologies that allow Web 2.0 developers and users to use the Web in new ways.

**Elements of Web 2.0 Sites**

There are several elements that are typically thought of as definitive of a Web 2.0 web site.

**Mashups**

Mashups are the aggregation of data from several online sources into a single web page. For example, a web site that shows the Dow Jones ticker or local weather forecast from another site would be a simple example of a mashup. Typically, however, mashups are more integrated and display relevant data from another site such as the inclusion of satellite map data on a site that shows the location of rental properties in community or a list of demographic data for an area on a website that lists homes for sale. Mashup technology has been available for some time, but under a different name.

**Real-time Data Feeds**

Another element typically associated with Web 2.0 is real-time data feeds. These provide an ongoing stream of information, usually from another source. A headline news ticker is a simple example of a real-time data feed although a feed could include corporate-relevant data such as the number of widgets produced per hour, number of hours left before a contract deadline, or other changing information that is relevant to the users of the site.

**Tags**

Tags are another element that is indicative of a Web 2.0 site. These are key words or terms that are chosen by the site author that are used to describe an item such as a photograph, graphic, blog entry, or video clip. Tags are used for resources including web page, digital images, and Internet bookmarks. Tags allow users to organize data in a way that is convenient for them. Many Web 2.0 sites display tags in a tag cloud that lists all the tags on the site in font sizes that are indicative of their relative popularity among users. Among more obvious uses such as displaying the topics on the site, tag clouds allow one to find new things associated with the site or topic or to track trends. An example of a tag cloud is shown in Figure 2.

**Figure 2: Example of a Tag Cloud with Terms Related to Web 2.0**

(From http://en.wikipedia.org/wiki/Tag_(metadata))

**User-Generated Content**

Another aspect of Web 2.0 sites is user-generated content. Like much of Web 2.0, this is not a new concept: Users have been contributing content on the web through electronic bulletin boards for two decades. However, advances in technology allow this to be done in new ways. For example, wikis (software on a server that enables users to create and edit the content of web pages using any browser) are typically collaborative websites that allow multiple persons to update web content. In another case in point, blogs are achieving increasing popularity on the Web. Blogs (short for web log) are personal journals that are publicly accessible on the World Wide Web. Blogs include personal thoughts of the author in chronological order, just as in a hard copy journal. On the face of it, it is difficult to think of ways that a personal journal can be of interest to a business. For example, the web site for a popular professional journal contains a weekly blog of the editor’s thoughts on a topic of interest to which people are free to reply and comment. This has been of use in helping readers to deal with the problems they are experiencing on the job, and has simultaneously advanced the state of thought and practice in the field.

**Podcasts and RSS Feeds**

Other increasingly popular Web 2.0 applications include podcasts and RSS feeds. A podcast is a digital media file or files that are distributed over the Internet and which are played back on portable media players and personal computers. RSS (“really simple syndication”) is a family of web formats used to publish information that is frequently updated (e.g., blogs, podcasts, news headlines). RSS feeds enable subscribers to automatically download current content from associated web sites. These applications allow users to stay in touch and keep up with the news of a community or the world at their convenience.
Applications

Acceptance of Web 2.0

Web 2.0 applications such as wikis, podcasts, and blogs have relevance to some businesses but not to all. The key is to look at the technology itself rather than the current applications to determine how it can be leveraged into doing something new and appropriate for one’s business. A recent Booz Allen Hamilton study of 2400 consumers in the United States, the United Kingdom, and Germany concluded that businesses need to respond to Web 2.0 or run the risk of being left behind. Specifically, the study found that Web 2.0 is not a phenomenon only embraced by 20-somethings, but is relevance across gender and age. The study also found that lifestyles are changing and the ways that people access information are changing with them, including laptops, personal computers, Blackberries, or Internet cafes. In addition, 39 percent of MySpace users consider recommendations from virtual peers over the Internet (Daniel, 2007).

In many ways, Web 2.0 represents progress in the way that web sites are designed and the way that users interface with them. However, progress requires change and change is almost never easy. Further, not all change is good nor do all trends come to pass. One need only remember the dire predictions of Y2K a few years ago to find an illustration of this point.

Many people dismiss Web 2.0 as mere hype or believe that it is only appropriate to 20-somethings with their iPods, Blackberries, and Bluetooth cell phones and has no place in business. However, these are only tools: Whether or not they work in a business environment depends on many factors including the image the business is trying to convey, who the business is trying to attract, and what the business is trying to achieve through its interactions with its customers.

However, it is important to remember two things about Web 2.0 before dismissing or embracing it.

- First, Web 2.0 is not a new standard or a new technology that is supposed to revolutionize the way we interact with the web. Web 2.0 comprises technology that has been around for some time but that is being bundled together or used in new ways.
- Second, Web 2.0 comprises a set of tools, not a totally new business model. The technology that is used in Web 2.0 sites allows them to be more interactive and user friendly and less artificial. From a human/computer interaction point-of-view, the technology associated with Web 2.0 can help designers create better designs that allow users to more freely and naturally interact with a web page. Depending on the situation, this can enhance the quality of the web page and the kinds of data that can be transmitted between the organization and the customer.

Determining the Applications of Web 2.0

To determine where and how to use Web 2.0 in one’s business, several things should be taken into consideration.

• First, as with any marketing or strategy concept, one should start with a definition of business goals and examine how – and if – Web 2.0 can help to meet these. For example, interaction with customers can help one gather data about what the market needs and wants in new products or how to better design or market current products.
- Second, Web 2.0 vs. more traditional methods is not an either/or proposition. Traditional methods that work should be kept and augmented by Web 2.0 as appropriate.
- Third, although soliciting comments from customers is a good place to start, it is only a starting point. Customer feedback and input needs to be taken into account so that customer trust and loyalty can be built.

Conclusion

Web 2.0 is a notional concept that is used to describe second generation web-based communities and hosted services that are available on the World Wide Web. However, if Web 2.0 is revolutionizing the Web, as some would claim, it is doing so subtilely. It is doubtful that any business website that does not include a blog, for example, within the next ten years will go out of business. On the other hand, it is important to stay current with technology and apply it appropriately if one wants to maintain a public face of being on the leading edge. In some businesses this is important; in some businesses it is not. Inclusion of Web 2.0 capabilities should be based – as with all marketing tools – on a thoughtful analysis of what the market wants and needs. Web 2.0 should not be applied blindly, of course, but it is a concept that should be watched and leveraged as appropriate in the business arena. Otherwise, one might find oneself the Internet equivalent of a business hand-writing correspondence in the age of computers.

Terms & Concepts

Ajax: A web development technique that transparently exchanges small amounts of data with the server so that an entire web page does not need to be reloaded each time a change is requested by the user. Ajax helps make the web page more interactive from the user’s perspective. The term Ajax is an abbreviation for asynchronous JavaScript and XML.

Application Software: A software program that performs functions not related to the running of the computer itself. Application software includes word processing, electronic spreadsheets, computer graphics, and presentation software.

Blog: A personal journal that is publicly accessible on the World Wide Web. Blogs include personal thoughts of the author in chronological order, just as in a hard copy journal. The term blog is short for web log.

Browser: A computer program located on the user’s computer that enables the user to locate and display information on the World Wide Web.
**Information Technology:** The use of computers, communications networks, and knowledge in the creation, storage, and dispersal of data and information. Information technology comprises a wide range of items and abilities for use in the creation, storage, and distribution of information.

**Platform:** The hardware or software framework that enables a computer system to run. Platforms typically include the computer architecture and the operating system for the system.

**Podcast:** A digital media file or files that are distributed over the Internet and which are played back on portable media players and personal computers. The term podcast is short for iPod broadcast.

**RSS Feed:** RSS (“really simple syndication”) is a family of web formats used to publish information that is frequently updated (e.g., blogs, podcasts, news headlines). RSS feeds enable subscribers to automatically download current content from associated web sites.

**Server:** The computer that hosts a network and provides services to the other computers in the network (e.g., a web server serves up web pages). The term server is also used to refer to the software running on the server computer.

**Web 2.0:** A notional second generation of web-based communities and hosted services available on the World Wide Web. The concept originated from the move to the Internet as a platform. There are no updated technical specification associated with Web 2.0.

**Wiki:** A piece of software on a server that enables users to create and edit the content of web pages using any browser. Most wikis are collaborative websites that allow multiple persons to update web content. The term wiki comes from wiki wiki which means “quick” in Hawaiian.

**World Wide Web:** A set of interconnected Internet sites that use the hypertext transfer protocol (HTTP). Electronic pages on the World Wide Web can be viewed and retrieved using the Internet. Also referred to as the Web or WWW.

**Bibliography**


**Suggested Reading**


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