

An Introduction to Web 2.0
Collective Intelligence & Building Community

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COLLECTIVE INTELLIGENCE AND THE BIRTH OF WEB 2.0

The concept of Web 2.0 is often misunderstood. But I think we can all agree that the movement towards this concept is strong and cannot be ignored by any business with a web presence and an eye towards the future.

This whitepaper entitled “Collective Intelligence and Community Building” will attempt to uncover the origins, technology and business practices behind the concept of Web 2.0. This collection of expert analysis, industry data and business commentary, I hope will give you a better understanding of what is required to build community and collaborate with your customers.

In business and technology, Web 2.0, a phrase coined by O'Reilly Media in 2003 and popularized by the first Web 2.0 conference in 2004, refers to a perceived second generation of web-based communities and hosted services — such as social-networking sites, wikis and folksonomies — which facilitate collaboration and sharing between users.

Although the term suggests a new version of the World Wide Web, it does not refer to an update to Web technical specifications, but to changes in the ways software developers and end-users use the web as a platform.

DEFINING WEB 2.0

Just using the phrase Web 2.0 hints at an improved form of the world wide web. Advocates of the concept suggest that technologies such as weblogs, social bookmarking, wikis, podcasts, RSS feeds (and other forms of many-to-many publishing), social software, Web API's, Web standards and online Web services imply a significant change in web usage.

This makes the case that it is the consumers who define Web 2.0, not the publishers. And that the publishers serve only to enable this new way of using the web. In the opening talk of the first Web 2.0 conference, Tim O'Reilly and John Battelle summarized what they saw as key principles of Web 2.0 applications:

- The web as a platform
- Data as the driving force
- Network effects created by an architecture of participation
- Innovation in assembly of systems and sites composed by pulling together features from distributed, independent developers (a kind of "open source" development)
- Lightweight business models enabled by content and service syndication
- The end of the software adoption cycle ("the perpetual beta")
- Software above the level of a single device, leveraging the power of the "Long Tail"
- Ease of picking-up by early adopters

To further his point, Tim O'Reilly provided examples of companies or products that embody these principles in his description of his four levels in the hierarchy of Web 2.0-ness:

Level 3 applications, the most "Web 2.0" oriented, which could only exist on the Internet, deriving their power from the human connections and network effects that Web 2.0 makes possible, and growing in effectiveness the more people who use them. O'Reilly's examples were: eBay, craigslist, Wikipedia, del.icio.us, Skype, dodgeball and AdSense.

Level 2 applications, which can operate offline but which gain advantages from going online. O'Reilly cited Flickr, which benefits from its shared photo-database and from its community-generated tag database.

Level 1 applications, also available offline but which gain features online. O'Reilly pointed to Writely (now part of Google Docs & Spreadsheets) and iTunes (because of its music-store portion).

Level 0 applications, which would work as well offline. O'Reilly gave the examples of MapQuest, Yahoo! Local and Google Maps. Mapping applications using contributions from users to advantage, can rank as "level 2". Non-web applications like email, instant-messaging clients and the telephone would also rank as level 0.

In another interesting take on Web 2.0, Stephen Fry (actor, author and broadcaster) describes Web 2.0 as "an idea in people's heads rather than a reality. It's actually an idea that the reciprocity between the user and the provider is what's emphasized. In other words, genuine interactivity if you like, simply because people can upload as well as download".

Whatever definition you use to describe Web 2.0 and collective intelligence, what is clear is that Web 2.0 can mean any and all of the things described by the experts and pundits cited above, but I think, in the end, the only requirement is that you let your users do the talking.

THE TECHNOLOGY OF WEB 2.0

Another way that we can define the idea of Web 2.0 and community building is by looking at the technology and innovations that have been created out of the concepts of collectivism and user generated content. The complex and evolving technology infrastructure of Web 2.0 includes server-software, content-syndication, messaging-protocols, standards-based browsers with plug-ins and extensions, and various client-applications.

These differing but complementary approaches provide Web 2.0 with information-storage, creation, and dissemination capabilities that go beyond what the public formerly expected of websites.

Although this may not be a completely exhaustive list of features, the Wikipedia community has developed this list of typical features and/or functionality of a Web 2.0 website:

- Rich Internet application techniques, optionally Ajax-based
- CSS
- Semantically valid HTML markup and the use of microformats
- Syndication and aggregation of data in RSS/Atom
- Clean and meaningful URLs
- Extensive use of folksonomies (in the form of tags or tagclouds, for example)
- Use of wiki software either completely or partially (partial use may grow to become the complete platform for the site)
- Use of Open source software either completely or partially, such as the LAMP solution stack
- XACML over SOAP for access control between organizations and domains
- Weblog publishing
- Mashups
- REST or XML Webservice APIs
- Use of user-friendly content management systems (CMS) that are often open source, providing extensive website functionality at very low cost and reducing learning curves.
- Optimized search engine capability for rational and largely used keywords
- Web-based applications and desktops

Several browser-based "operating systems" or "online desktops" have also appeared. They essentially function as application platforms, not as operating systems *per se*. These services mimic the user experience of desktop operating-systems, offering features and applications similar to a PC environment. They have as their distinguishing characteristic the ability to run within any modern browser.

Rich Internet applications

Recently, rich-Internet application techniques such as Ajax, Adobe Flash, Flex, Nexaweb, OpenLaszlo and Silverlight have evolved that can improve the user-experience in browser-based applications. These technologies allow a web-page to request an update for some part of its content, and to alter that part in the browser, without needing to refresh the whole page at the same time.

Server-side software

Functionally, Web 2.0 applications build on the existing Web server architecture, but rely much more heavily on back-end software. Syndication differs only nominally from the methods of publishing using dynamic content management, but web services typically require much more robust database and workflow support, and become very similar to the traditional intranet functionality of an application server. Most vendor approaches all either under a universal server approach (which bundles most of the necessary functionality

in a single server platform) or under a web-server plug-in approach (which uses standard publishing tools enhanced with API interfaces and other tools).

Client-side software

The extra functionality provided by Web 2.0 depends on the ability of users to work with the data stored on servers. This can come about through forms in an HTML page, through a scripting language such as JavaScript, or through Flash, Silverlight or Java. These methods all make use of the client computer to reduce server workloads and to increase the responsiveness of the application. XML and RSS would also be included.

Specialized protocols

Specialized protocols such as FOAF and XFN (both for social networking) extend the functionality of sites or permit end-users to interact without centralized websites. Web communication protocols support the Web 2.0 infrastructure. Major protocols include REST and SOAP.

As more and more users demand a collaborative experience from the websites they visit, it will become increasingly more important for web businesses to add these functionalities and protocols to their web presence. This type of “future proofing” can be difficult and cost prohibitive, requiring additional internal resources to create, manage and stay ahead of the technology. In this respect, the benefits of a full featured, Web 2.0 enabled ecommerce system become readily apparent.

COLLECTIVE INTELLIGENCE AND NETWORK EFFECTS

Many of the new Web 2.0 applications, and in particular the community building aspects are based on the concepts of the "network effect". The term "network effect" was coined by Robert Metcalfe, the founder of Ethernet. In selling the product, Metcalfe argued that customers needed Ethernet cards to grow above a certain critical mass if they were to become useful.

The concept of network effects can be very important to the success of a web business and many web sites feature a network effect. For example, eBay would not be a particularly useful site if auctions were not competitive. Essentially, as the number of users of eBay grows, prices fall and supply increases, and more and more people find the site to be useful.

The collaborative encyclopedia Wikipedia also benefits from a network effect. The theory goes that as the number of editors grows, the quality of information on the website improves, encouraging more users to turn to it as a source of information; some of the new users in turn become editors, continuing the process. Social networking websites are also good examples. The more people register onto a social networking website, the more useful the website is to its registrants.

To take advantage of the network effects on the web, businesses need a system that can scale quickly in both function and bandwidth. Network effects can happen extremely fast, literally going to millions of users in days or weeks. This can cause a tremendous strain on an internal systems or take some hosting solutions offline. In order to fully take advantage of the network effects of the web, a highly scalable, critical mass eCommerce system must be implemented.

COMMUNITY BUILDING WITH USER GENERATED CONTENT

One of the ways to build a strong community is through the use of user generated content. User-generated content (UGC) refers to various kinds of media content that are produced by end-users, (as opposed to traditional media producers such as professional writers, publishers, journalists, licensed broadcasters and production companies).

These include digital video, blogging, podcasting, mobile phone photography and wikis. In addition to these technologies, user-generated content may also employ a combination of open source, free software, and flexible licensing or related agreements to further diminish the barriers to collaboration, skill-building and discovery.

Sometimes UGC can constitute only a portion of a website. For example on Amazon.com the majority of content is prepared by administrators, but numerous user reviews of the products being sold are submitted by regular visitors to the site.

Often UGC is partially or totally monitored by website administrators to avoid offensive content or language, copyright infringement issues, or simply to determine if the content posted is relevant to the site's general theme.

The advent of user-generated content marks a shift among some media organizations from creating on-line content to creating the facilities and framework for non-media professionals (i.e. 'ordinary people') to publish their own content in prominent places.

User-generated content has also been characterized as 'Conversational Media', as opposed to 'Packaged Goods Media' (that is, traditional media). The former is a two-way process in contrast to the one-way distribution of the latter.

Some of the more popular sites based on UGC are:

- Epinions
- Facebook
- MySpace
- TripAdvisor
- Flickr
- YouTube
- Outloud.TV
- Revver
- Friends Reunited
- Wikipedia

User generated content is one of the best ways to connect with your customers. Giving them the ability to rate, review, comment or simply give feedback is a great way to build community, loyalty and build word of mouth. To implement the concept of UGC on a website will require significant resources in your organization and again points to the flexibility and cost-effectiveness of using an eCommerce system to get this functionality to your users quickly and efficiently.

CORPORATE BRANDING IN A WEB 2.0 WORLD

How do you maintain your identity in a Web 2.0 world? This is a question that has many companies, even those with the most recognizable global brands and concerned about. The primary goal of most corporate consumer brands is that the consumer will identify themselves with the brand.

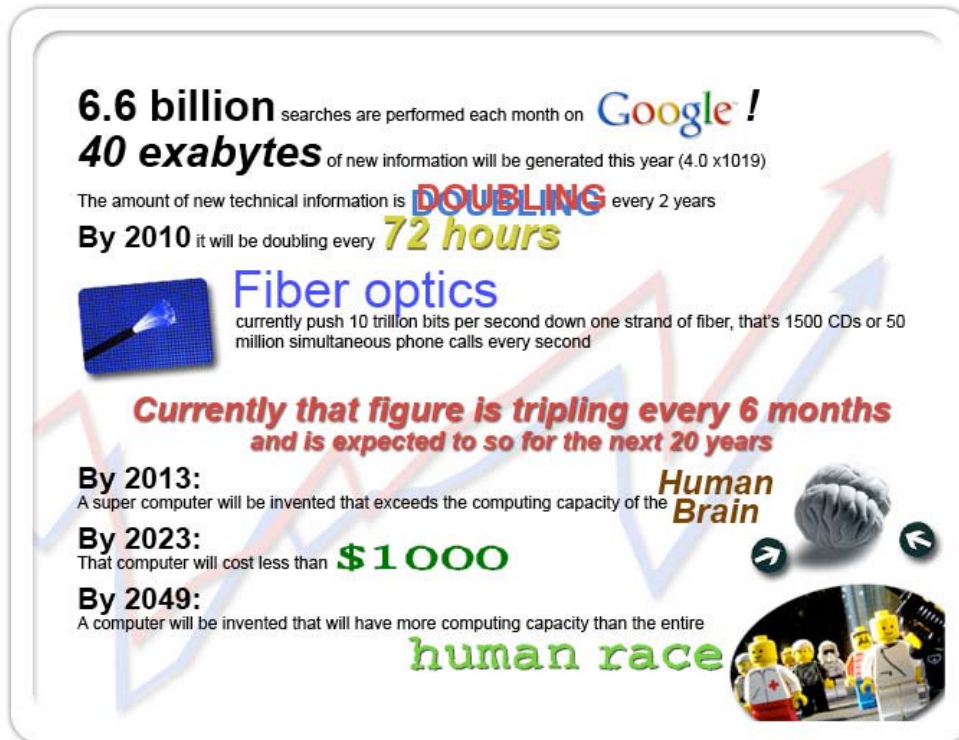
This becomes more difficult, but not impossible, when consumers begin to categorize and identify themselves as a collective group on their own. The brands that are finding success existing in a Web 2.0 world are telling the same story about themselves as their employees and consumers tell about them.

If this brand alignment is not found, companies run the risk of having their brand mocked and ridiculed by an anonymous collective consumer or worse yet, risk having their brand confused or clumped with the brand of a competitor.

While existing brands feel pressure to evolve, we are witnessing a very unique marketplace where, for the first time, brands have the opportunity to emerge and compete on a global scale with minimal time and monetary investment virtually overnight. Case in point are the two most heavily trafficked sites on the Internet today Myspace.com & Youtube.com. Five and ten years ago these were relatively unknown names and now have joined the likes of Google, eBay and Amazon as household names allowing the consumer to interact and belong as they see fit.

WHY IS COLLECTIVE INTELLIGENCE AND WEB 2.0 SO IMPORTANT?

A basic home computer (\$1,000) will exceed the collective computational brain power of the entire human race within 40 years. A computer will not have consciousness to answer a simple question such as, “is a silver Porsche more attractive than a stapler?”, but it will have the processing power to scour billions of web pages, blogs, and documents created by you and me, and formulate an accurate hypothesis using our collective intelligence as its own.



While this has many promising prospects, computers can be misinformed. You've probably heard of the term “garbage in, garbage out”. A computer will crunch information as ‘truthful’ and will render a result based on the original input regardless of the quality of the original information.

Computers don't know right from wrong, good from bad (yet), so it is up to our collective intelligence to evaluate, rate, and update misinformation where it exists.

This practice of collaborative maintenance is most prevalently found on Wikipedia where educators, professors and students work together to maintain, approve, and modify information on each topic. As Wikipedia now exceeds 5 million articles in 229 languages this task becomes more difficult and maintaining the quality of information is a constant effort.

With all new breakthroughs, there will be those that don't trust in collective intelligence. In a Web 2.0 world there can be no real censorship, and for that matter authorship and trademark is seriously questioned. This brings many unanswered questions to the table, questions that if not answered could present serious road blocks in the continued global adaptation of Web 2.0 methodologies and more importantly the continued collaboration and input from you and me.

With its drawbacks notwithstanding, our collaborative efforts (Web 2.0) will allow us the ability to think as a collective unit without losing our own individual identity. As technology catches up in raw processing power it will be able to truly harness our “web brain” that will be capable of analyzing, capturing and responding to information in virtually every industry, social medium, and trend in real time.

With all of the concepts, technology and unanswered questions about how your business might be able to take advantage of the collective intelligence and Web 2.0, it will be critical that your web business has a flexible, scalable platform to take advantage of the opportunities today and in the future.

MaxEXP “The Best eCommerce System in America”, provides the system to allow for instant, scalable and future proof Web 2.0 features and functionality that can take your business into the exciting future of the collective internet.

WEB 2.0 CASE STUDIES

YouTube.com

YouTube is the fastest growing web site in Internet history and a prime example of a true Web 2.0 appliance. YouTube is the premier site for video hosting, collaboration and community groups. User provided content drives YouTube to some impressive statistics:

- Over 100 million videos viewed each day
- Accounts for over 60% of all videos viewed on the internet
- More than 14,000,000 unique visitors a month
- Over 70,000 new videos are uploaded each day
- Users spend an average of 30 minutes per visit with over 85% of users being return visitors.

MySpace.com

MySpace is the most trafficked site on the Internet. Another example of a true Web 2.0 appliance MySpace is an online community or “a place for friends” where users can interact with real life friends sharing photos, music, and journal entries as well as meet new friends from around the world.

- Over 185 million registered users
- 50.2% female / 49.8% Male
- Over 40 billion page views per month
- 350,000 new registrants per day
- 1 Billion total images (more than 80 terabytes)
- Millions of new images every day
- 4.5 million visitors on the site at any given time
- 6000 web servers, 650 ad servers, 250 database servers and growing

Wikipedia.org

Wikipedia is an online collaborative encyclopedia submitted, modified and edited by users. As the largest encyclopedia in the world, it is a prime example of self-moderated collective intelligence and is proof that Web 2.0 has a place in mainstream education and scholastics.

- Over 7.5 million informational articles
- Comprised of 1.74 billion words
- Approximately 250 languages
- English language articles comprising of over 1.8 million articles alone
- English language articles contain 609 million words over 15 times the next largest English language Encyclopedia Britannica
- 282,875 contributors with 8.2 million edits and updates in September 2006 alone

Amazon.com

Amazon is the leading online e-retailer with 2006 revenues exceeding \$10 billion in online sales for 2006. While they are not a traditional Web 2.0 model they do employ some very effective Web 2.0 tools that are directly related to increasing revenue. Tools designed to increase customer interaction, time on site and ultimately influence purchasing decisions are being found to be necessary in any online e-retailer's arsenal. Amazon has pioneered and introduced tools that if you're an online e-retailer and you're not utilizing you are simply missing out on serious potential revenue.

- Customer Reviews on products which also includes customers commenting on others reviews
- Most Helpful Reviews section as rated and voted on by other customers
- Product Ratings allows customers to rate each product in addition to providing reviews and comments on the product
- "People who bought/viewed this also bought" historical product recommenders allow users to view products that are related to their interest
- ListMania is another consumer content driven service of Amazon.com allowing users to recommend and share related lists for products sold
- Over 48 million unique visitors monthly
- 3.52% conversion rate that Amazon.com largely attributes to their embrace of Web 2.0 consumer driven content services

Craigslist.org

Craigslist is self described as local classifieds and forums for 450 cities in 50 countries worldwide. It is community moderated and most of it is completely free. This positions itself well as another true Web 2.0 appliance. Craigslist has become a serious threat to traditional Web 1.0 companies such as Monster.com and Classifieds.com largely based on their little to no cost and community friendly appeal.

- Over 20 million unique visitors each month
- More than 7 billion page views per month
- More than 17 million user published classified ads posted per month
- More than 1 million job opportunities posted each month
- More than 60 million user postings in 100 topical forums each month
- More than 10 million new images posted each month
- EBay acquired 25% equity of Craigslist in August of 2004

ABOUT SAN DIEGO MEDIA

San Diego Media, Inc. is a Southern-California based company focused on designing and developing eBusiness solutions for small to mid-sized companies primarily in the retail, distribution and manufacturing industries.

San Diego Media leverages open standards, modular-based architecture to develop software components that enable a stable, secure and state-of-the-art solution approach for its customers, allowing the right balance of content and commerce for each eBusiness solution produced.

Our commitment to developing exceptional business-optimizing software is further reinforced by a comprehensive suite of professional services designed to facilitate the design, development, and support of each customer application.

OUR MISSION

San Diego Media seeks to develop partnerships with companies in need of flexible, scalable, secure and profitable eBusiness solutions. Since launching our own proprietary eBusiness platform MaxEXP™ in 2001, we have been successfully proving to our clients that a network-based, open-standards software solution can provide everything necessary to fulfill their Web services and eCommerce needs. The open standards and modular architecture of MaxEXP™ provide the additional assurance of knowing that tomorrow's inevitable technology shifts will not impact its ability to conduct business. In short, obsolescence is not an issue.

As San Diego Media continues to market its powerful MaxEXP™ platform, it also continues to develop powerful new eBusiness tools designed to further enable productivity and efficiency.

Behind all of these power business tools is our complete professional services offering- a tremendous asset and powerful differentiator that other platform and software providers cannot easily offer. San Diego Media's professional services include strategic consulting, visual process modeling, graphic user interface (GUI) and design, content development, marketing, branding support and channel conflict management.

CONTACT

Whether you're looking for significant online revenue, increased traffic and brand recognition, business process streamlining, or all of the above, we can help. Our open source technology and award-winning designers and engineers will give your eBusiness the power of content, commerce, and control, with a best-of-breed solution that will give your customers a reason to come in- and come back.

Give us a call today. We'd like to make you our next success story.

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