

# Web 2.0 for the Enterprise

## Introduction

Since the first [Web 2.0 conference](#) held in San Francisco in October 2004, “Web 2.0” has been both one of the most hyped and one of the most attacked terms in the realm of internet technologies. While some celebrate Web 2.0 as being the next paradigm for internet usage, others regard it as an insubstantial marketing slogan. To get beyond the ideological discussion, this article asks: What is the essence of “Web 2.0”? Are there new ideas or techniques applicable within enterprise environments? And, most important: How can Web 2.0 ideas add value for enterprises?

## What is Web 2.0?

The phrase “Web 2.0” is typically used in two contexts. First, it refers to the technical aspects of building web-based applications, including enhanced user experience via technologies and standards such as AJAX and CSS, and protocols that allow for data portability and reuse such as RSS, SOAP and REST.

These technical aspects enable the second context where the phrase “Web 2.0” is used: the interactive opportunities provided to users. More specifically, the functional aspects of Web 2.0 are based on “user-generated content”, which means: enabling people to collectively aggregate and structure large amounts of information; the concept of “folksonomy” that enables collaborative categorising of information; and “social software” that supports individual online identities and promotes social contact and the formation of communities among users.

Some practical examples of these functional aspects:

- Content production and classification shifts from the owner of the site to the users of the site. Editorial oversight and control is reduced. The relevance of information on the site is determined by users, who use techniques such as rating, voting, and keyword tagging. This form of evaluation is an implementation of “[collective intelligence](#)”, where the credibility of a large number of users is assumed to be greater than the credibility of a single editor or content owner. The power of this concept has been successfully demonstrated with projects like [del.icio.us](#) and [digg](#).

- Internet portals provide the ability for users to personalise their use of a site. Rather than top-down design that requires the user to view the information that the site owner deems significant, each user can define his or her interaction by filtering and arranging the information provided by the site.
- Users are given the opportunity to establish site personas. In addition to further personalizing the experience through self-portrayal and a virtual identity, a user's activities on the site (such as submitting content or participating in discussions) can enhance their persona, providing an aspect of reputation.

In general, Web 2.0 projects aim at generating network effects among users in order to both raise the information value of the site and attract new users. A significant milestone is to reach enough momentum to ensure that the site's community perpetuates itself without external help or editorial input.

## Corporate Web 2.0

While several sites and technologies based on Web 2.0 concepts have become mass phenomena (for example blogs, Wikipedia, Flickr, etc), within businesses the use of Web 2.0 technologies and concepts is still in the early stages, even though these technologies offer considerable opportunities for knowledge management, communications and human resources.

### **Sharing information - Wikis**

Most obviously, opportunities for the profitable use of collaborative content generation lie in the field of knowledge management. The basic question is: Why is the production of organisational knowledge (embodied in manuals, policies, written best practices and so on) often strictly separated from its consumption? Or, to put it another way: Aren't the users of a manual often its most competent and knowledgeable authors?

Although the attempt is frequently made, it seems to be very difficult to motivate employees to document their work in sufficient quality and quantity. However, the Wikipedia project has demonstrated that people will voluntarily assemble a vast mass of knowledge without any extrinsic motivation. Is this possible within a company by introducing an internal wiki? Yes, but the preconditions are different:

- Documenting knowledge is of little use for a company if the results lack reliability. In contrast to Wikipedia, correcting errors cannot be left to the rest of the community in the hopes that somebody someday will do the job. Therefore, information must be associated with a credible source, via the author's (or "page overseer's") rank or area of expertise. To create trust in the information, readers must know the source.

- Many kinds of information have a short life-cycle and are subject to frequent change. Use of a wiki must be combined with processes that ensure that information does not become obsolete. Since it is generally not feasible to assign staff to continuously monitor the relevance of each wiki article, this process should be automated, for example by triggering notifications to an article owner or overseer when an article is unchanged for a specified period of time. Another mechanism could be assigning a status of “final” when an article is complete, combined with technically preventing further changes. automatic notice to an owner or overseer whenever changes are made can also raise the level of responsibility the employee feels for the article.
- Rights management is a key issue with corporate wikis. First, information access policies within the organisation must be followed. Therefore, the wiki software must provide multi-level rights both for read and write access. In addition, different kinds of pages need different kinds of access policies. For example, fully collaborative “Q & A” pages might allow global read and write access, enabling everyone to contribute. At the same time, reference pages might have very limited write access, but might have associated comment or discussion pages that allow broader write access. The software platform must allow for the granular specification of access rights for every piece of content.
- Introducing a corporate wiki is a large project that requires support throughout the organization, with the management team setting the example. Use of a wiki can also be encouraged via an incentive model that rewards employees for sharing or updating information. However, the question of whether users are better motivated by intrinsic or extrinsic methods has not been answered yet and is the subject of academic research. Wikipedia works successfully without material rewards; therefore, trusting in the employees’ tendency to share knowledge in order to gain reputation appears to be the proper way for now.
- Information classification and retrieval can be supported by “tagging”. Each user can assign keywords to any content object. These are automatically stored as personal bookmarks. When other users look for information, they can find it by searching through existing “tags”. The concept is based on the assumption that a search engine cannot recognise every context where a piece of information is useful. This use of collective intelligence provides another classification structure for information. The number of instances of each tag assigned to a piece of content indicates the content's relative relevance to the tag.
- By monitoring individual activity levels on the system, human resources staff can identify users who have specific knowledge and are willing to share. This information can be used to choose the right person for a task, or to improve the organisational flow of information by systematically mentoring those who demonstrate potential.

### ***Going public - blogs***

As opposed to wikis, which rely on collaboration and are about collectively gathering information, blogs are about individually publishing personal opinions and insights. Blogs are increasingly used as communication and marketing tools. They provide a mechanism for gaining public attention with minimal costs, merely by publishing employee contributions. Blogs have an added benefit in that they provide readers with varied, informal “views” into different areas of the organization, which demonstrates the organization's general know-how and dynamics. Blogs can also have a positive effect on employee motivation and job satisfaction, as employees feel that their opinion is valued and their expertise is recognized and appreciated. In addition, syndication via RSS means that distribution is as simple as publishing the blog post.

While a review mechanism can be implemented to ensure compliance with corporate information policies, it is probably more effective to trust in employees' ability to publish in an appropriate manner, assuming that the organisation has clear and meaningful communication policies. As with other implementations of Web 2.0 tools, corporate blogs are not a just a matter of technology, but also a matter of culture and trust.

### ***Customers as collaborators***

Another application of Web 2.0 concepts within a corporate environment is the formation of product user communities. By involving customers in the process of sharing information about a product, an organization can gain insight into customer experiences, provide additional support channels, involve users in the product development process and last but not least significantly lower customer support costs.

Some mechanisms for building vibrant customer communities include:

- Encouraging users to comment on the public statements of the company. This does not mean establishing a forum for anonymous criticism of the organisation's mission statement. But more informal publications, for example blog posts, should be open for discussion.
- Constructing user forums for the purpose of establishing a “customers help customers” dynamic. While these forums must be moderated, this does not necessarily have to be done by the organization's staff. Instead, consider recruiting the company's “fans” and “evangelists” - those who are enthusiastically committed to the company's products and services. Make them moderators, and they will spread your ideas – maybe not in your “corporate voice”, but in a very authentic and credible way (as they are not paid by you). Along the way they will find and encourage new authors and moderators and therefore indirectly create new customers. Similar to trusting your employee's ability to publish in an appropriate manner, trusting the honest motivations of your users is the key to success.

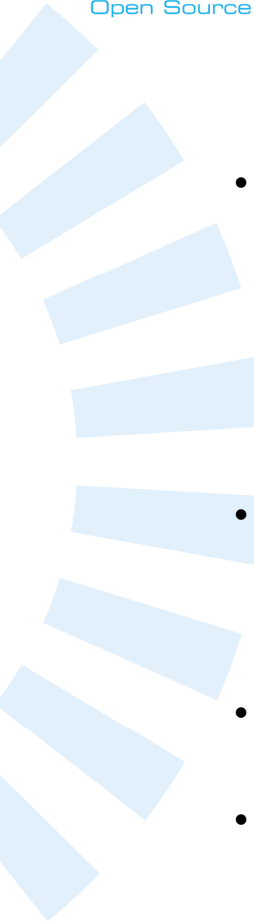
- Involve staff in the user community. This shows the community that their contributions are valued and make a difference to the organization. In addition to encouraging staff generally to be involved, assign one person to watch community activities. This person should address concerns raised in community forums, escalating within the organization as necessary. Ensure that this person is visible and easily accessible.
- Make sure that best practices and solutions from the community are re-integrated quickly into the official manuals and FAQ. Develop an integrated concept for the intranet and the corporate website, and make it easy for employees to exchange information between them.

## Choosing the right technology platform

### **General requirements**

An evaluation of software platforms shows that currently no product offers sufficient support for the variety of Web 2.0 applications useful to a company. Therefore, specific features must be built from scratch or based upon an existing software platform. The class of software platform that comes closest to providing the desired functionality is Content Management Systems (CMS). A content management system, by its nature, supports organizing and facilitating collaborative creation of documents and other content. When choosing the right platform, the following aspects should be considered:

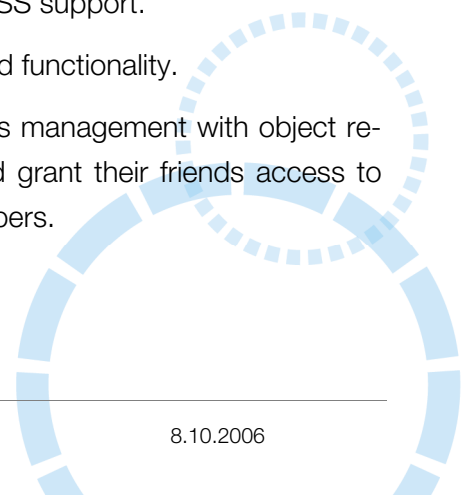
- Object orientation: Object orientation means that a program is seen as a collection of independent data units, rather than a collection of functions. Every unit (or “object”) can be related to any other object, and can receive or send data. All objects rely on the same consistent mechanism for data storage. Therefore, every object can be handled using the same set of methods, and access to each object can be regulated by a standard set of permissions. Introducing new object types (blog entries, calendar entries, wiki articles and so on) does not affect existing object types, and new methods can be assigned to objects according to their type.
- Object relations: The system should enable the creation of object relations. This makes voting, tagging or indexing mechanisms easy to implement.
- Role-based, granular permission management: This is indispensable for enabling truly “social” processes. In combination with object relations, reading or editing rights – as in real life – can depend on relationships (for example, membership in a group or friendship with another user).
- Multi-author collaboration: Simultaneous work conducted by several persons on the same object (such as an article) must be supported. This includes intelligent version management to prevent version conflicts.

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- A series of light blue, slanted rectangular bars of varying lengths are positioned on the left side of the page, partially overlapping the text area.
- **Change notification:** The platform must be capable of generating email notices when specific events (defined by the user) occur. This has broad application throughout the application; for example users might want to be notified when they receive a new private messages, or when changes occur to an article the user is interested in, or when new forum or blog entries are posted. Email notifications help ensure that users return to the community frequently. To avoid antagonism caused by email spam, all notifications must be fully configurable by the individual user.
  - **Open standards and transportable data:** Output of all content should be possible, independent of the target medium. This is crucial for further extensions of the application, for example in the direction of mobile device integration. Support of the XML format is critical not only for RSS streaming, but also for integrating with other applications.
  - **Scalability:** The software should be cluster-ready, so that the portal can be scaled cost-effectively in the event of rapidly increased usage.
  - **Support availability:** To avoid dependency on a single support channel, professional support from the manufacturer as well as from professional service providers should be available. This ensures that the risk incurred by developing applications within the dynamic and fast-changing Web 2.0 paradigm is mitigated, and that the solution can be quickly adapted to new technologies and use-cases.

## Examples of Web 2.0 projects with eZ publish

In recent months, my company (Young Media Concepts, <http://ymc.ch>) has developed several online communities using eZ publish, an Enterprise Open Source CMS. eZ publish provided an excellent basis for building Web 2.0 applications. For example, the following features can easily be built on top of the standard eZ publish functionality:

- **Mobile integration:** User authentication and notification via SMS.
- **Wiki:** Wiki functionality simply requires the creation of an appropriate template and configuring the ability to edit an article and to view the version history.
- **Blogs:** Blogs can be implemented as simple eZ publish content objects. User-configurable RSS streaming is easily developed by adapting the existing RSS support.
- **Forums:** Discussion forums are part of the eZ publish standard functionality.
- **Social Networking:** The combination of granular access rights management with object relations enables users to confirm each other as “friends” and grant their friends access to more personal data such as email address or telephone numbers.



One of the most useful advantages of eZ publish is the ability to adapt and extend the data structure even after going live. In our experiences, we found it simple to modify data structures “on-the-fly”, allowing us to quickly fix problems and meet changing requirements in the early stages of site deployment. This even leads to a relatively short development cycles (about 4-6 weeks for a community including all of the functions above mentioned).

## Conclusion

It is redundant to state that Web 2.0 applications, based on user contribution and collaboration, network effects and user communities, can only be realised if users actively participate. Cooperation and involvement are furthered by links between the members of a project. Therefore, Web 2.0 applications stand a good chance of succeeding in a company if they are a sequel to existing communication processes within the company itself and between the company and its customers.

Because any Web 2.0 application will be a highly dynamic project, flexibility is the most important criterion when deciding on the technology platform. In order to increase the safety of the investment, scalability should also be carefully considered. It is essential that the software will be able to grow with the needs of the users – in terms of both quality and quantity.

## About the author



Kai Krämer is one of the founders of the Swiss web technology provider YMC (<http://ymc.ch>). The company focuses on eZ publish solutions, among them an integrated enterprise web communication suite called Volano. ® In the last months, YMC has realised several online communities based on eZ publish.

