



## Reader ROI

- Web 2.0 technologies stand ready to redefine how businesses interact with customers over the Web. Web 2.0 can deliver a substantial competitive advantage to large enterprises that plan ahead, acquire the necessary knowledge, and overcome internal inertia to pursue Web 2.0.
- Various Web 2.0 facets are maturing at different rates. Businesses that learn when and how to apply these technologies will achieve a critical factor in ensuring successful business-to-customer interaction.

# Web 2.0 Opportunities and Challenges

Web 2.0 shares the media limelight with other hot technologies thanks to the tremendous success of web destinations, like YouTube and MySpace. Unlike many other technologies, Web 2.0 does not feature a well-defined set of capabilities, but rather encompasses various new and emerging consumer interaction paradigms and web-based technologies. Although the industry continues to broadly embrace Web 2.0 for its consumer-to-consumer social interaction utility, most industry watchers generally acknowledge that the technology's strength lies in its broader business implications yet to be realized.

Defining a strategy that leverages Web 2.0 potential possibilities can be daunting, especially considering its current state of development. The key to developing a successful Web 2.0 approach lies in the organization's ability to examine Web 2.0 core concepts and capabilities and evaluate them against the underlying techniques' potential for disruption and capitalization.

This task is becoming even more challenging with the growing quantity of new techniques and standards, ranging from stylish presentation layers to unique ways of conducting business processes. However, a single concept resides at the center of Web 2.0 that constitutes a paradigm shift, which inverts the traditional understanding of how a networked application should be structured.

Until now, organizations have primarily structured these applications and the information they contain from the top down. In the future, Web 2.0 proponents believe applications will be driven primarily from the bottom up, turning users into both application consumers and creators, delivering advantages to participants in the user community and business world. Customers will become increasingly self-reliant as they are able to structure and contribute to their environment.

From an enterprise perspective, one resounding factor pierces through all the hype—any major paradigm shift will be inherently challenging. Still, the hype can alter customer expectations to such an extent that an organization can suddenly find itself at a competitive disadvantage if it cannot satisfy customer expectations. Businesses should therefore prepare to adapt while these technologies are still emerging to avoid being left behind.

## Web 2.0 technical aspects

The constituent elements of Web 2.0 can be grouped into a few major categories ranging from the concrete, like enhanced presentation layer capabilities, to the more abstract, such as collective intelligence.

### Rich Internet applications

New technological approaches support presentation layer techniques that greatly enhance the interactivity of web-based applications. Tools like Ajax and Adobe Flex support complex objects and behaviors, such as interactive data tables and self-updating displays.

### Mashup

Mashup techniques help develop lightweight web applications by combining content and services from multiple heterogeneous sources to create completely new services or capabilities. Mashup techniques have garnered a lot of interest due to their ability to resolve outstanding issues, such as providing access to multiple applications through a single interface. Underlying technology stacks that enable "mashing up" are based on Web-oriented architecture (WOA), a trimmed-down interpretation of a full service-oriented architecture (SOA) that uses the common HTTP and XML standards to establish communication while eliminating the additional messaging layer (SOAP).

### Location-aware technology

Location-aware technology encompasses location tracking capabilities usually enabled by underlying wireless connectivity. Capabilities like GPS, cellular networks, or RFID allow owners and supporting organizations to track people or objects in real time and respond dynamically to designated, physical conditions, such as providing directions to a lost motorist or reporting a stolen car's whereabouts to police.

**Customers will become increasingly self-reliant as they are able to structure and contribute to their environment.**

## Collective intelligence

Collective intelligence includes techniques and technologies that enable large-scale group collaboration with the intent of leveraging the individuals' combined knowledge to develop and predict outcomes, solve problems, create plans, etc.

## Social networks

The emergence of social networks, like MySpace, represents one of the most intriguing outgrowths of Web 2.0. Here network users simultaneously act as the contributors and organizers of information even though they do not own the network.

Social networks potentially present the greatest opportunity and challenge to enterprise strategy. Amid all of the new capabilities Web 2.0 offers, it is the ability to social network that reflects the larger shift in user behavior that potentially could redefine the way customers interact with businesses over the Web.

## How business should respond

As with nearly all technology advances, companies should match the response and pace of change to the technology's maturity and adoption rate when defining their implementation strategy.

Companies should first consider embracing approaches that greatly improve customer experience at a relatively low cost. For example, tools like Ajax or Flex and rich Internet applications can immediately enhance the usability of existing web applications without requiring a full-scale redesign.

The concept behind "mashups" is less cohesive. To a large degree, the mashup utility depends on the available palette of capabilities (e.g., services) that can be combined to create new applications. Many broad services, such as RSS feeds, blogs, and Amazon tools, already exist and are being actively used in current mashup-style applications. Businesses face a challenge exposing key internal, legacy capabilities in similar ways to enrich the palette of services with specific data, such as customer ordering or billing information.

Although location-aware technology has existed for several years, it has not received widespread adoption since it has been ubiquitously available (e.g., phones with GPS) and has offended social attitudes with the connotation that "big brother" is always watching. Businesses have faced additional challenges trying to access required location information from communication network providers. However, these issues are slowly being resolved and decreasing in severity, making location-aware technology worthy of experimentation and pilot programs in the short term.

Collective intelligence has already experienced some notable successes. Google, Eli-Lilly, and Microsoft currently use collective intelligence internally to predict markets for new products and services. The companies deploy internal sites that simulate market reaction by effectively allowing "betting" on future events in a stock market simulation that uses pretend money. This application is relatively easy to implement and worth considering, especially since predicting trends and outcomes is a core enterprise requirement.

Social networks deliver a gold mine of information as they allow vast amounts of data to be gathered from the bottom up. However, some businesses remain hesitant about directly implementing their own social networks. Businesses should also consider social network analysis, which is an outgrowth of social networks. Social network analysis derives trending information from the vast amount of data from social network contributors by mapping and measuring relationships and flows between people, groups, organizations, etc. This emerging technology has great sales and marketing potential and warrants further analysis, testing, and pilot programs.



**EMC Corporation**  
Hopkinton  
Massachusetts  
01748-9103  
1-508-435-1000  
In North America 1-866-464-7381  
[www.EMC.com](http://www.EMC.com)