Web 2.0 and Workplace Productivity

By enabling human collaboration and innovation on a scale never seen before, Web 2.0 is becoming Enterprise 2.0. Here's why no business will be left untouched.

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Like all tipping points, the arrival of Enterprise 2.0 is a function of convergence. Four waves — three of them technological, one of them cultural — have converged to tip us into Enterprise 2.0:

- The spread of broadband communications
- Better Web development techniques, such as AJAX (See Sidebar: *AJAX*)
- Improving multimedia
- The arrival in the workplace of the first generation to grow up digital.

30% of large companies will launch some kind of Web 2.0-enabled business initiative by year-end 2007. (Gartner: http://www.gartner.com/DisplayDocument?id=511944)

From Web 2.0 to Enterprise 2.0

Many of the particulars behind Web 2.0 — instant messaging, blogs, wikis, mashups, etc. — that were initially consumer-focused now present organizations with significant opportunities for innovation and profit. These particulars are permeating the workplace, as employees seeking ways to be more productive bring them from home.

Take note of that: Enterprise 2.0 is a grass-roots, bottom-up event. And it's like fire: There is no stopping it — there is only finding the best ways to tame it and make it as productivity-enhancing as possible.

For most organizations that have found success with Enterprise 2.0, such productivity enhancement focuses not only inside the enterprise but also beyond its borders. Enterprise 2.0 enables a business's customers, suppliers and partners to meet up at what John Hagel III and John Seely Brown (co-authors of *The Only Sustainable Edge: Why Business Strategy Depends on Productive Friction and Dynamic Specialization*) have referred to as "the edge of the enterprise," where collaboration between all parties can occur — if the right tools are available.

22% annual average worldwide growth will occur from 2006 to 2010 for Web conferencing and team collaboration software markets.
(*Gartner*, June 2007; http://www.gartner.com/it/...)

These tools are many and varied: truly unified communications (See Sidebar: *What Instant Messaging Has Started*), richer user interfaces, better search capabilities, social networking and signaling (blogs, wikis, folksonomies, etc.), even virtual worlds. Together, these technologies and tools will not just enable workers to be more productive — they can also be used to involve a business's customers, suppliers and partners in the conception and design of new products, services, processes and experiences.

$2.8 billion is projected to be spent worldwide in 2010 on Web conferencing and team collaboration software.
(*Gartner*, June 2007; http://www.gartner.com/it/...)

Business Transformation

Already Web 2.0 is transforming the way business is conducted and is spawning new opportunities inconceivable only a few years ago.

Consider online brokerages, which have forsaken the traditional business model based on push-marketing, economies of scale and mass marketing to leverage what Gartner research director David Schehr has called "ambient findability" — Web-oriented pull-marketing accomplished via Web search and community links.

These firms also interact with customers differently. For them,

the Web is not merely another channel. Instead, blogs, mashups, RSS (Really Simple Syndication) and the like deliver highly interactive content and help generate community interaction between the brokerage and its customers, and between the customers themselves.

25% of organizations currently use enterprise-grade instant messaging.
[*Gartner*, June 2007; http://www.gartner.com/it/...]

Collaboration and Content

Much of Web 2.0 is about collaboration. Effective collaboration depends on access to well-managed content — not just structured data, but unstructured data, too. This is an old truth (remember the "paperless office"?) that's beginning to carry new portent with the arrival of Web 2.0 collaboration. Here the need is for access to both known content (such as corporate data) and unknown content (such as an ability to search productively on the World Wide Web).

Similarly, Web 2.0 collaboration is not limited to people whom an initiator already knows. Indeed, much of Web 2.0 social networking seeks to attract previously undiscovered resources and contacts.

AJAX

Asynchronous JavaScript and XML (AJAX) is used to create interactive Web applications.

By exchanging only small amounts of data with the server behind the scenes, AJAX eliminates the need to reload an entire Web page with each user change request, so Web page speed, functionality, interactivity and usability are improved. AJAX Web pages seem more responsive, and because AJAX generates HTML locally within the browser — bringing down only JavaScript calls and actual data — payload size is much smaller, reducing bandwidth demand.

95% of organizations currently use enterprise-grade instant messaging.
[*Gartner*; http://www.gartner.com/it/page.jsp?id=507731]

"The major benefit of social networking and blogging applications is that they allow the capture of tacit and unstructured data, relationships and correspondence," observes Rachel Happe, research manager, digital business economy, at market analysis firm IDC. "By enabling systems that capture a much greater percentage of tacit and unstructured information, companies can reduce the cost of customer engagement, support and new product innovation and, when done right, increase customer satisfaction significantly."

As Web 2.0 makes collaboration easier, the functional role of collaboration will become more strategic. Collaboration technologies are many and varied: e-mail, instant messaging, team collaboration tools, workflow, wikis, blogs, social networks, communities of practice and Web conferencing. They will all need to be managed, and the artifacts of collaboration will need to be monitored, measured, managed and archived.

$688 million is projected to be spent worldwide on enterprise-grade instant messaging in 2010. [*Gartner*, June 2007, http://www.gartner.com/it/...]

Free-form Collaboration

Unlike classic collaboration tools, many Web 2.0 collaboration capabilities offer the opportunity to exchange ideas and information in dynamic and open-ended ways with co-workers, business partners and customers. Examples include corporate blogs and corporate intranet wikis.

The variety of free-form collaboration tools continues to grow. For instance, the WebEx Meeting Center integrates voice, data and video within a standard Web browser so organizations can conduct meetings — complete with streaming audio and video, PowerPoint presentations, real-time viewing and editing of documents, and Flash animations — over the Internet,

regardless of location. The Socialtext Workspace integrates with e-mail and instant messaging to enable team blog publishing, wiki collaboration and advanced search capabilities.

Folksonomies, or free-form tagging, permit users to describe Web resources with their own natural-language words or phrases. These user-defined tags (also called categories, concepts, entities, facets) can classify Web resources and/or express preferences. Among the better known folksonomy-based systems are YouTube and del.icio.us.

43% of companies currently block access to Facebook, while 7% restrict access unless a user meets specific business requirements. [*Sophos survey results*: http://www.sophos.com/...]

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Federated Search and the Deep Web

Traditional search engines, such as Google, can search, access and retrieve only sources available on the Internet or mounted on a Web site. Federated search, by contrast, makes possible the searching of multiple, independent data sources using a single query string located within a single interface — although it requires purchase from individual data source providers that license access to information in non-Internet databases.

Federated search, which is also referred to as a portal (typically including reference databases, Web-based search engines, public access Web-based library catalogues, and in-house or corporate data sources), transforms a query into appropriate syntax, then broadcasts it to disparate databases. Results from all the databases are combined and presented in a single format so they can be sorted according to the user's criteria.

Federated search can sometimes access parts of the deep Web — pages on the World Wide Web that are not indexed by common search engines, including sites that prevent search engines from browsing them, require registration or limit access, and pages not linked to other pages. Pages accessible only via JavaScript and Flash links are also often inaccessible, since search engines can't follow these links.

50% **of companies currently allow access to Facebook.**
[Sophos survey results: http://www.sophos.com/...]

WHAT INSTANT MESSAGING HAS STARTED

Workplace communication is changing fast. Instant messaging (IM) is quickly becoming a key part of corporate communication, displacing meetings, e-mails, telephone calls and even video conferences. By the end of 2011, predicts Gartner, IM will have become the de facto tool for voice, video and text chat.

Gartner research analyst David Mario Smith has noted IM's ability to connect people in different locations by text, voice and video in a single application — making the technology well-suited to both formal and informal group communications. As enterprises embrace IM and implement secure, enterprise-grade versions from such vendors as IBM and Microsoft, most will opt for IM systems that complement existing e-mail systems.

That, Gartner believes, is only the beginning. Smith has described a morphing of IM into a fully converged, unified communications platform with "presence" at its core. Establishing the availability of others for real-time communications, wherever they may be, is what presence technology is all about.

Presence is built into IM, but not into other communications technologies. As IM takes its place in a unified communications platform, however, presence information can become broadly available. And this is the first step toward a real-time collaboration architecture — which is why Gartner predicts that by 2012, presence technology will be offered independently of IM and e-mail products.

The World Wide Web's limited ability to classify text on a page is addressed by the semantic Web, which uses the descriptive technologies of Resource Description Framework (RDF), Web Ontology Language (OWL) and XML to create machine-readable descriptions that supplement or replace Web document content. This makes it easy to add meaning to Web content to improve the effectiveness of automated information gathering and research.

41% of Facebook users are prepared to divulge personal information to a complete stranger. (Sophos survey results: http://www.gartner.com/it/...)

Social Networking

"Existing collaborative tools are predicated on knowing the people who are to be involved with the communication," says Clive Longbottom, service director, business processes facilitation, at consultancy Quocirca Ltd. "Social networking opens this up to those who you have no idea exist — yet who may have the very bit of information you need."

Web-based social networking centers on Internet-based communities of people who share a common interest. Participants maintain contact with each other and bring in others who share relevant interests, thereby growing the "community" in both numbers and diversity of interests, knowledge and skills.

Organizations can use social networking environments — those they create themselves and those already out there (for instance, LinkedIn, Ryze, Xing) — to get advice about business issues, share information, find people with needed skills or expertise, attract the attention of potential customers and boost corporate branding. Participants in social networks do this by using plenty of collaborative technologies — instant messaging, text chat, e-mail, podcasts, Internet forums, blogs and wikis.

Software products to build and maintain social networks are available from a variety of vendors, including IBM (Lotus Connections), Socialtext and Userplane.

"Social networking can add significantly to productivity — or it can take away from it," Longbottom notes. "The unconstrained use of consumer-based social networking sites has been seen to run productivity into the ground as employees waste hours on Facebook and YouTube, for example. However, using social networking techniques and technologies to open up collaboration within and across departments and companies can also bring in innovative and useful ideas from people outside your own network."

What It Can Mean For You

Clearly, Web 2.0 technologies and tools can be used not only to improve the ways employees engage each other, but also to engage customers, partners and suppliers in dynamic and open-ended ways with an eye to attracting and benefiting from their insight and creativity to help innovation and process improvement.

There are downsides, of course: initial drops in productivity as workers learn their way around social networks (and, yes, indulge a little), the challenges related to trusting strangers (or not), and figuring out what sort of credence to give "the wisdom of the crowd." Looming even larger are security concerns (See Sidebar: *Web 2.0 and IT security*).

"Organizations need to assess their tolerance for open communication and create an information policy that reflects how the organization wants to communicate with various constituencies," advises IDC's Happe. "For larger organizations, this can be done at a group level. Once there is a clear understanding of information policies, organizations need to identify areas where they have the highest need for increased communication and then deploy solutions that address those issues."

This often adds up to modernizing your organization's Web infrastructure to create a more consistent, more personalized experience across the customer life cycle, including:

- Making it easier for customers and partners to serve themselves.
- Designing your Web presence to grant customers visibility, control and feedback — simple Web services can be combined to dynamically to address changing customer needs.
- Studying successful customer outcomes to find ways to adjust processes, behaviors, etc., so that the success can be replicated.
- Creating and/or supporting customer communities, paying particular attention to how customers use your products and services.
- Looking for ways to get your customers to help you design your products and services — iterative customer co-design goals and practices should be built in to your organization's policies and processes.

66% of workers are concerned that colleagues share too much information on Facebook, creating vulnerabilities to identity theft and targeted phishing attacks against the company. (*Sophos survey results:* http://www.sophos.com/...)

WEB 2.0 AND IT SECURITY

Web 2.0 isn't free: It brings with it plenty of security risks.

Web 2.0 security challenges are, essentially, twofold — internal and external. Internal protection (of users, the network) focuses on typical inbound and outbound risks in new Web 2.0 venues, such as malicious code in instant messages or RSS feeds, leakage of sensitive information via collaborative tools. External application risks must be addressed by developing policies and procedures that deal with the open, reformable, mostly uncontrollable nature of Web content.

Gartner has several suggestions for organizations venturing into Web 2.0 tools and technologies:

- Require secure coding.
- Use Web vulnerability scanners.
- Validate all input on the server side.
- Assume any public content will be reused in unexpected ways.
- Protect internal users and corporate assets with technology tools and education.
- Consider using application firewalls, content monitoring and filtering (CMF), data loss protection (DLP) and database activity monitoring.

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