

Part III

Best Practices





Chapter 9

Putting Web 2.0 to Use in the Enterprise: Higher Value from Greater Participation

By Jean Sini



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When you scale animals you can't just keep everything in proportion. For example, volume grows as the cube of linear dimension, but surface area only as the square. So as animals get bigger they have trouble radiating heat. That's why mice and rabbits are furry and elephants and hippos aren't. You can't make a mouse by scaling down an elephant.

Paul Graham, "A New Venture Animal"

Under its various guises, the Web 2.0 phenomenon has been at the forefront of mindshare in consumer application development and has embodied the revival of the World Wide Web as the ubiquitous computing platform, post bubble, for what qualifies in Internet terms as an eternity. Tim O'Reilly not only helped pioneer and define the Web 2.0 movement, but he also organized the first Web 2.0 conference back in 2004. Whether we focus on its enabling technologies or on its social characteristics and the participatory culture it encourages, Web 2.0 has been the pervasive driving force behind much of the innovation released online, in its trademark state of perpetual beta, since 2004. Yet for all its reach and omnipresence in the consumer space, the read-write Web, and with it all the benefits of rich user experience and social computing, Web 2.0 has been slow to mutate and make deep inroads in the enterprise.

Scale Matters

In venturing to weave key Web 2.0 elements into the cultural fabric of the workplace, we must acknowledge the qualitative differences between the corporate and public spheres, understand how these differences impact the distribution of tools and best practices, and be prepared with countermeasures to palliate the shortcomings of merely transposing from one environment to the other.

Many of the pitfalls encountered when deploying Web 2.0 applications in the enterprise have to do with culture rather than technology. This is not to say that technical and architectural choices don't matter, and important traits to look for in that regard are covered in this chapter. But what is truly going to make or break the value proposition of a solution has to do with adoption. Why? Web 2.0 is all about The Long Tail—it's about participation, about the wisdom of the crowd. It's about harnessing the intelligence diffused throughout the network and bringing it into focus for everyone's benefit. As such, it needs a critical mass to take shape, and, just as important, it needs those forming that mass to become, as famous blogger Kathy Sierra coined it, "passionate users" (see References at the end of the book for source information).

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Scale matters. We can't simply deploy the same tools and promote the same behaviors found in the wild and hope that they'll thrive in the scaled-down enterprise ecosystem. Given the typical rate with which people participate, that would pretty much exclude any but the largest corporations from getting anyone to blog, author a wiki article, or otherwise contribute. The transposition is imperfect at best across these two environments, and to survive behind the firewall, Web 2.0 needs to be even better at eliciting involvement. The virtuous feedback loop at play in the most effective contributory services starts with individuals extracting value from their own submissions. Their publicly sharing these contributions yields value to observers, who are then moved to participate, adding to the original contributor's value (see Figure 9-1). It's critical to tend to each step of this cycle as it translates into the workplace, to ensure that it goes on uninterrupted, allowing network effects to develop.

Because enterprise Web 2.0 initiatives need not only match but must exceed, in terms of participation, the levels seen in the consumer space, we must take stock of the fundamental differences in motivation and barriers driving and limiting deployment and adoption to achieve critical mass. And when it comes to driving usage, at least some of the consumer web applications have catered to the thirst for entertainment manifest in the public: Whether watching and voting on popular YouTube videos, reading and commenting on friends' LiveJournal diaries, or

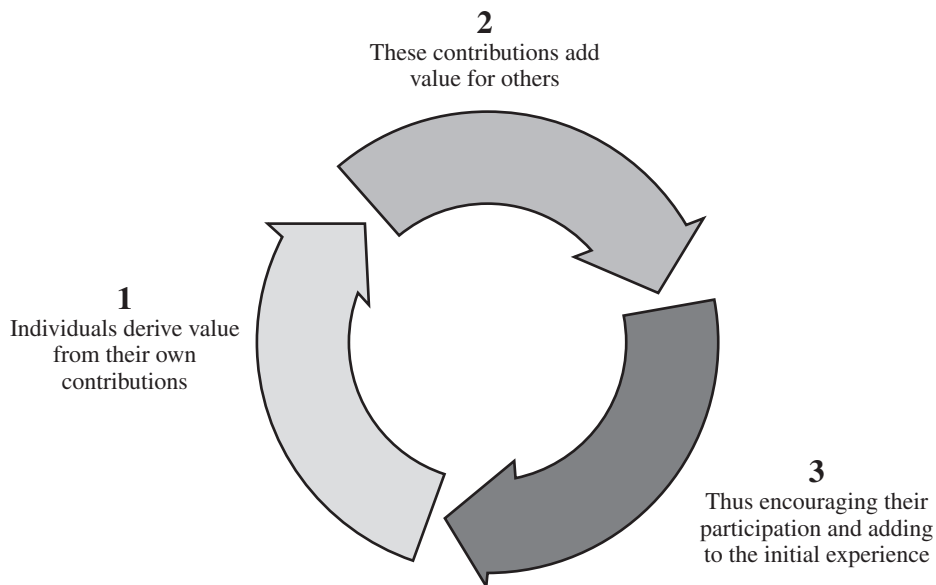


FIGURE 9-1 Contributory feedback loop

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socializing on Facebook (see Figure 9-2), certain demographics use the Web to such an extent that it is practically displacing television as the primary source of entertainment (Figure 9-3). This does not mean that Web 2.0 should be reduced to a new form of entertainment or that it has no place at work: Instead, this is about setting realistic expectations and identifying alternative drivers.

This chapter elaborates on the importance of articulating clear goals, at the enterprise level, for any Web 2.0 initiative. But for success to take hold at the level of the individuals fueling the system, a few key factors must be addressed, and some fundamental fears must be assuaged.

Participatory Systems

How do we satisfy self-interest? Successful participatory systems need to reward contribution as, first and foremost, useful to the individual. Gains in productivity

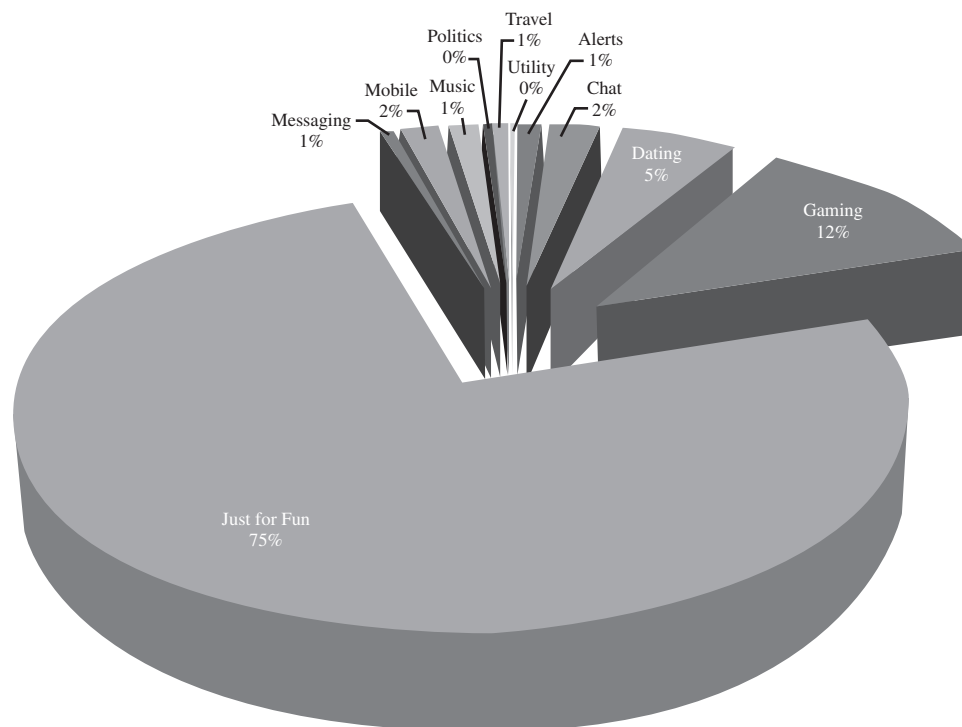


FIGURE 9-2 Consumers seeking entertainment value: Popularity of Facebook applications by category

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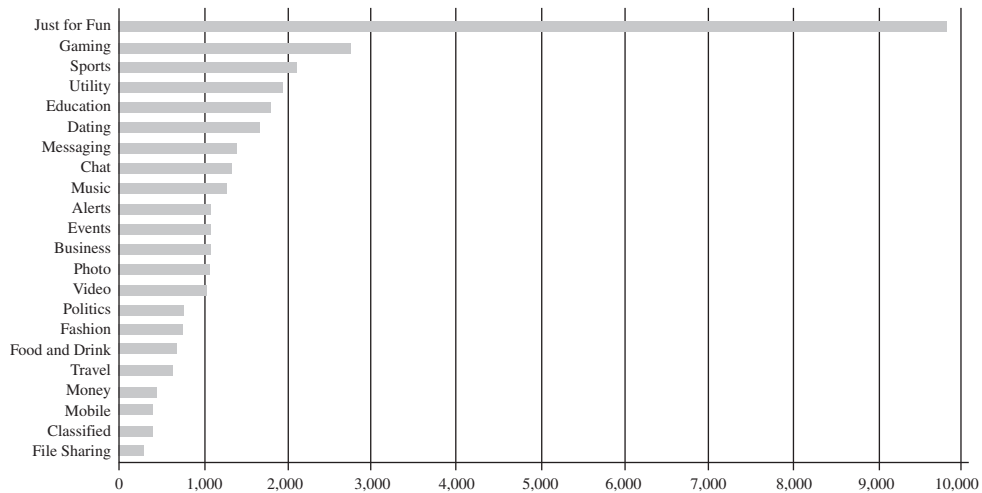


FIGURE 9-3 Consumers seeking entertainment: Number of Facebook applications

need to be made obvious, whether they stem from sharing information on a wiki page instead of sending e-mail messages to each employee, or revamping the system to identify more accurate expertise than indicated via traditional mailing lists.

Companies can achieve great returns from rewarding their contributors by highlighting their participation. For instance, by featuring the most popular employee blog posts on the front page of the company's internal or customer-facing website, a corporation leverages its own footprint and visibility to create avenues and extend opportunities for individuals to attain exposure as a direct result of their contribution. Just as consumers on social networks engage in identity-building activities, employees can cultivate, through participation, expertise and credibility, a currency valuable both inside and outside the company. Given that hoarding information to achieve success within an organization, at the cost of much higher overall performance for the company and all its employees, still remains a widespread behavior, it is important that the company facilitate any mechanism likely to lead to the free flow of key knowledge.

Articulating and broadcasting incentives for all to participate in building these incentives into the corporate culture is crucial: As Nick Carr explains in a 2006 essay (see References), without detracting from the seemingly egalitarian dimension of contributions, the ultimate quality of what the beehive produces (whether a Wikipedia entry or an internal wiki) isn't merely determined by the quantity of contributors but by their quality, their level of competence. If only mediocre output is produced, the system will fail to gather momentum and interest.

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To put it simply, the company elite, the experts, must be on board and must be willing to spend cycles in the system.

Other barriers exist specific to the enterprise. Privacy, for one, is a key concern, given the amount of information typically floating around on social networks: The perception that a blog allows your employer to be aware of the intimate details of your thoughts and deeds might be too close for comfort. Conversely, the need to ensure the safety of data that may be deemed proprietary by the company is just as important. Earlier chapters talked about the blogging policies and guidelines implemented by companies to help employees supplement common sense when in doubt. With the variety of tools, channels, and modalities becoming vehicles for potentially sensitive information, it's important to decouple those guidelines from specific tools, to have medium-independent policies in place.

Search Links

The importance of scale reappears when considering another defining trait of the Web to the enterprise: search. More specifically, the scale issue is partly at play when considering the role of links in establishing the relevance of search results. It's no mystery that Google and other search engines took search results to a high level when their algorithms started leveraging links as a key measure of relevance. The more inbound links into a given document, with surrounding text related to a given query, the higher the rank of the page in the results.

Incidentally, this approach isn't without side effects. Scientist and author Tom Slee (see References) likens the approach to the one in favor at some universities when it comes to laying down footpaths across campus: At first, let everyone walk around the campus any way they choose. Then, lay paving stones where the most natural traffic is observed. The catch is that after the initial phase emerges from natural behavior, the paths are frozen, making it difficult for new patterns to emerge, and each step merely reinforces the existing pattern. The same is true of linking: Once discovery is mostly derived from linking, it becomes difficult for new content to achieve high visibility.

Still, enterprise search, paramount to enable the discovery-driven behaviors prevalent on the Web, will likely fall short in terms of relevance until it can derive authority from links. And fostering the emergence of links in the enterprise currently hits two obstacles: First, the smaller amount of content making up the corpus of internal enterprise documents makes it difficult to derive authority. Even if the density of links were comparable to those of the Web at large, the potential for error would be greater. Second, we need to deal with the link-poor characteristics of the content. Documents themselves still are largely produced

with office productivity applications or industry-specific software that until recently didn't emphasize linking. Furthermore, these documents were largely transported by e-mail, as opposed to being posted to an intranet and linked to.

With search and discovery being such key aspects of facilitating Web 2.0, it is essential to consider means to increase link density. As much content as possible should be web-addressable, and as many applications as possible should be link-aware. And if necessary, links should be derived from implicit behaviors.

Tapping into Existing Flows

Along with creating opportunities for users to access content so they can bookmark, vote, blog, wiki, or e-mail links to it, the enterprise can supplement that explicit data stream by offering applications and content management systems and by measuring actual traffic for each document. This allows the inference not only of overall or local popularity but also of taxonomies, of recommendations about similar content. Potential privacy issues are associated with collecting fine-grained clickstream information: Not only must the anonymity of the data be secure, but it must be used only in aggregate. Ultimately, the goal isn't to replace explicit behaviors, but to supplement them in particular in the initial phases when only a few links are explicitly promoted by users. The distinction between *implicit* and *explicit* signals is akin to the distinction between *data* and *metadata* when it comes to content online: How content is characterized, classified, and organized eventually blends with the content being described, to augment and modify it based on the additional discovery entailed.

Just as critical to bootstrapping and ensuring the ongoing success of any Web 2.0 initiative is the need to maximize *in-the-flow* as opposed to *above-the-flow* interactions. Andrew McAfee coined the terminology in a January 2008 blog post about wikis, as summarized here:

- *In-the-flow wikis* let people do their day-to-day work in the wiki itself. These wikis are typically replacing e-mail, virtual team rooms, and project management systems.
- *Above-the-flow wikis* invite users to step out of the daily flow of work and reflect, codify, and share something about what they do. These wikis are typically replacing knowledge management (KM) systems (or creating knowledge management systems for the first time).

The underlying concept extends well outside the realm of wikis. And the issue with above-the-flow collaboration is generic: Contribution means interruption and

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translates into context switches, and as such it is far less likely to prevail naturally due to the overhead costs. However, tools can be wedged into existing tasks and functions to create opportunities for sharing and participation, instead on relying on employees to undertake a new set of additional tasks to kick start collaboration. Many of the woes of formal KM systems stem from their reliance on out-of-band requirements for updates to capture and maintain information, and as a consequence, KM databases end up both sparse and outdated.

It's worth considering the bottom-up dimension of Web 2.0 infrastructure and adoption patterns, and the consequences in terms of deployment, oversight, and formal involvement from the IT organization. As BBC long-timer and blogging enthusiast Euan Semple explained in a March 2007 post (see References), Web 2.0 will happen in the enterprise with or without IT assistance, and the best way to foster its spread within rather than outside of the firewall is to tread lightly: Sprinkle a few basic tools onto the infrastructure, stay out of the way, and engage those employees already involved in Web 2.0 activities on the greater Web to participate on the inside. At the very least, the grassroots nature needs to be seeded with the proper tools to facilitate the flow to enable integration with legacy tools and to power discovery features such as search. In other words, while Web 2.0 may just happen by itself, it won't be of much use and won't prove productive unless contributions are visible and integrated with the rest of the intranet cloud. The path Semple highlights allows for a progressive, iterative approach in which benefits can be reaped at little cost, allowing engagement to ramp up and participation to yield early yet significant benefits—from plain wikis, blogs, and bookmarking services—before necessitating deeper integration into legacy stacks and applications.

Know Your Goals

The guidelines outlined so far are generic and address typical pitfalls, fears, and risks associated with just about any endeavor pertaining to bringing Web 2.0 into the enterprise. Let's get more specific. Many flavors and possible angles and potential goals are present in such initiatives. One of the first steps involved is to make a clear assessment of scope and its implications.

The goal is not merely to scale down the greater Web into the firewall. Instead, deploying each initiative requires answering a few questions: Where does this service naturally live, and who are its users? Is it meant exclusively for the intranet? Is it meant as an outbound or outreach medium? Or, with a majority of services, does it really belong at the intersection where internal and external concerns mesh?

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While it might be tempting to try and bypass several iterations in one go and lay out a sophisticated, fine-grained access control model that accommodates a wide set of participants, with visibility into various documents and with various permissions, it might also be daunting enough to derail the effort. It's interesting to note that, even in the case of public social networks, the learning curve has been progressive. Successful networking services have started with simple models that gained traction and ramped up the complexity of their privacy and sharing controls, all along educating their users and allowing them ample time to pick up the new features. And even then, defaults widely prevail, with most users not bothering to tweak the access controls they enforce on their information or going with all-or-nothing approaches.

Consider internal efforts, such as intranet wikis or blogs. At the highest level, the goal of rolling out such tools is to improve productivity through better information sharing. Setting up an internal environment is easy, even if the organization takes steps to ensure that the newly introduced platform plays nice with existing single-sign-on schemes, company directories, or social networks. But eliciting participation takes more than simply stating that switching from e-mail or shared file systems to wikis will help achieve productivity gains. It's important that the enterprise articulate those expected gains in terms that relate to the specific "pain points" in the company. That means surveying and understanding the perceived needs for better information sharing, recognizing factors that prevent its smooth dissemination, and identifying who are the likely early adopters, the likely champions of an initiative aimed at streamlining those flows. These are the people who will be willing to change their current toolsets to eliminate friction and replication. The strongest advocates are likely those who have been exposed to and are users of streamlined and social tools, who perceive being confined to e-mail as a step back. This is why McAfee claims that one of the characteristics of successful deployment of Web 2.0 in the enterprise is to engage lots of young people who consider sharing on social networks to be the norm.

For projects aimed at outreach, such as participation in the blogosphere or social networking sites, the key point is simultaneously to nurture an authentic voice and to engage with an existing community of customers. This combined with the need to establish clear, tool-agnostic policies in terms of authoring will help employees feel empowered and informed when it comes to contributing.

Web 2.0 Culture: Success Enablers

Long-term sustainability for the competitive enterprise implies an evolution toward pull-based business models, in which customers aren't merely consumers of

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products but are participants in a community involved in designing the products. This means the enterprise must ensure an open, porous environment, where actors inside and out are loosely but frequently connecting and collaborating. It pays to ensure that, even in the early stages of rolling out outbound Web 2.0 efforts such as blogs, employees are aware that they are not merely writing, but starting conversations with their users.

When it comes to choosing and implementing the various solutions, Dion Hinchcliffe at ZDNet coined a useful acronym of desired characteristics in a Web 2.0 solution: *FLATNESSES*, derived from an earlier version by McAfee, *SLATES*. What does the revised mnemonic stand for?

- **Free-form** Emphasizing ease of use and egalitarian permissions, free-form tools not only foster participation but also enable users who were not originally anticipated to participate when rolling them out.
- **Links** Promoting links is crucial as the unit of exchange and are of value in helping create connections and enabling structure to appear.
- **Authorship** The premise in Web 2.0 is to be inclusive, to provide access to every employee to easy publishing tools that facilitate participation.
- **Tagging** As opposed to folder hierarchies, tags allow folksonomies to evolve naturally and let users slice information along multiple dimensions.
- **Network-oriented** Corollary to the promotion of links, it is critical to make as much content as possible web-addressable, to have web-centric applications mediate as many exchanges as possible. This not only allows users to discover content through links, but supports the reuse of information without a need to replicate it, e-mail-style.
- **Extensions** McAfee refers to extensions of knowledge by extracting patterns, by mining activity to derive implicit behaviors. You can also interpret extensions as the ability for the system to mutate from having mashups and widgets interoperate, reusing data under different guises and perspectives, extending its reach and value.
- **Search** Search is the key to discovery and thus to augmented value for the information held in the system, to accelerated circulation, and to lower replication.
- **Social** At least some of the tools in the ecosystem need to allow weak ties to thrive beyond the static group of the organization chart. Along with

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fomenting discovery of ad hoc connections and similarity in interests, they enable low-key interactions, push-based status updates (Twitter-style), and profiles, and thus foster a climate of trust, collaboration, and participation.

- **Emergence** Emergence supports organic structures to build over time from the content—as opposed to predefined, rigid categories—by leveraging taxonomies, implicit behaviors, votes, bookmarks, tags, and other linking patterns.
- **Signals** No longer solely dependent on e-mail, tools use subscription-based signals such as RSS feeds and mobile devices to update interested parties about new or modified materials.

These characteristics constitute powerful and helpful guidelines for assessing the quality and appropriateness of a service or tool for a collaborative initiative, and for determining how well it complements and integrates with existing solutions. But even more generic principles are worth considering. These straddle both technology and culture and are early indicators of success. In particular, one need is to emphasize ease of use above feature-richness, especially early on. It might be possible to roll out new features over time, but a steep and time-consuming learning curve is a deterrent to significant adoption.

In addition, executive support is important—beyond merely paying lip-service to the initiative or lecturing the rank-and-file about the need to embrace this or that tool. A cultural change is required of everyone in the company, and executives must lead by example and illustrate what it means to open up and participate, whether by spending time contributing to blogs or otherwise breaking the boundaries of the targeted information silos. The executives' own actions and continued support will be more telling and more beneficial to any Web 2.0 initiative than their original stamp of approval on a product rollout.

Cultural hurdles are also encountered when fostering participation through establishing an environment of trust and openness. This is also driven by example. A key success factor is to make sure at least some of the tools deployed are explicitly social, allowing the organic social fabric to be exposed and thrive, and ultimately to be leveraged, as contributors gain more confidence sharing with their collaborators.

Finally, in addition to champions and early adopters, an early set of users willing to spend the cycles needed to tend to the new space should be identified. These users will be available to iterate over versions of the evolving knowledge being built, similar to how Wikipedia has dedicated volunteers who tend to its content.

Beyond the Basics

When considering advanced Web 2.0 tools, be sure that they integrate within the existing environment. Wikis, blogs, and to a lesser extent social networks can be rolled out without much interference—from a strict tool-centric perspective—with existing legacy applications such as e-mail. Ideally, single-sign-on schemes and integration with preexisting search infrastructures can help smooth any barrier to adoption. There are many creative ways to start meshing legacy and new systems. Granted, Ross Mayfield, chairman of startup SocialText, a leading provider of enterprise wiki solutions, is far from unbiased in his embrace of wikis, but here's how he deals with e-mail overload (see References for source information): When he leaves for a vacation, instead of sending the customary automated response listing a few emergency contacts and reassuring senders that their messages were received and will be read, he asks senders to post their questions to his “away” page on the company wiki! Conversations continue while he's away, and he also contributes to reinforcing the mental shift from e-mail-centric to wiki-centric conversations.

The productivity tools of choice for nondevelopers in the enterprise, until now, have been e-mail and Microsoft Excel. So migrating as many e-mail conversations as possible onto a blog or wiki medium represents a great step toward a collaborative ecosystem. In particular, wikis interact well with e-mail and news readers to signal recent updates and allow users to subscribe to specific topic areas, or tags. Of course, there's more to Web 2.0 than blogs, wikis, and social networks. But an incremental approach that leverages those well-known services to reap benefits both internally and with customer and partner communities allows for the culture of participation to grow and develop in the organization with little technical learning curve involved.

What's next? How can you take users even further, by empowering them beyond Excel and breaking free of e-mail? That's where mashups and application-centric wikis come into play. JotSpot, acquired in 2006 by Google, offered its enterprise customers a powerful development metaphor under the guise of a wiki. In addition to WYSIWYG and concurrent page editing, JotSpot's environment supported advanced features such as embedding spreadsheets, calendar, forms, galleries, or forums. In early 2008, Google relaunched the product as Google Sites, which integrates with Google's word processor, spreadsheets, and calendar. What distinguishes these services from a regular wiki, or from a developer-centric approach, is that they make it possible for users to harness powerful application models without any programming skills in a natively collaborative setting.

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To open the architecture further to mashups, companies need to start micro-chunking their content and exposing APIs to the applications from which they want their employees to build. This eventually will lead to a model in which application and data fragments are dynamically chained together to achieve the desired functionality. It implies an adequate infrastructure that is flexible enough to adapt on demand to the needs, in terms of storage, processing power, and networking, of contributors piping the applications together. This translates into setting up a computing grid as a commodity, either within the corporation or, if possible given the potential data-sensitivity issues, by leveraging outside grids such as Amazon's EC2, S3, and SimpleDB. Finally, heterogeneous applications can also integrate software as a service (SaaS) components from outside vendors.

Ultimately, through this incremental approach, we can achieve a collectively intelligent organization that is read-write in nature, that supports emergent structure, with powerful discovery fueled by explicit and implicit signals and mediated by search. As participation reaches critical mass, network effects kick in, making the organization smarter with each new user.

