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Enterprise 2.0 Management and Social Issues

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ABSTRACT
The nature of the enterprise and working is rapidly changing. Recognizing the enabling competitive advantage of new social and participative technologies will transform the enterprise. Web 2.0 is the foundation of the new Enterprise 2.0. By accessing the right information at the right time, Enterprise 2.0, through a web of interconnected applications, services, and devices, provides capabilities for employees to be more competitive and productive and for customers to be more engaged and loyal. Enterprise 2.0 CIO management issues include unauthorized use of enterprise services and technologies, the integration of a myriad of technologies, and potential compliance and security implications. This paper describes an ongoing case study evaluating a conceptual framework exploring relationships among three Enterprise 2.0 dimensions: technology tools and capabilities, employee and customer applications, and how user-generated content leads to business value. It is expected that this qualitative study will also identify new IT culture and policies.

Keywords  
Enterprise 2.0, Web 2.0, social web, social computing, participative computing, knowledge sharing, qualitative case study

INTRODUCTION
The evolution of more social and participatory Web 2.0 services and applications is challenging chief information officers (CIOs) to transform traditional enterprise IT services and applications that support enterprise employees, vendors, and customers. David Armano speculated that by 2009, CIOs, learning from early trials of Web 2.0 social media services, would transition from ‘what’ is Web 2.0 to ‘how’ social media initiatives should be implemented and supported within the enterprise (Kim, 2008).

Considered by some to be the ‘second phase’ of the Web, Web 2.0 is a new and improved Web (Anderson, 2007; O’Reilly, 2005). Enterprise 2.0 then is the new and improved way for the enterprise to use Web 2.0 technologies and capabilities throughout its services and supply chain. As a result, enterprise Intranet and Extranet services and applications also need to be transformed. For example, some consider the current enterprise Extranet (1.0) to be primarily a functional backbone network that focuses on transactions and is connected to backroom enterprise resource systems (ERPs) and customer-facing relationship management (CRM) applications. A new and improved Extranet (2.0) created by merging social media, personalization and segmentation capabilities with user-generated content, leading to more engaging and valuable experiences for users could be implemented and managed by IT managers using Web 2.0 principles as defined by O’Reilly (Vignette, 2009). Applying these same principles to the enterprise Intranet (2.0) would also enhance employee communications and collaboration, which could lead to increased employee investment and retention.

Three key issues emerge for CIOs as they integrate Web 2.0 technologies and services within the enterprise. The first is that if CIOs do not embrace Web 2.0 services, employees will begin using the social media and communication channels without IT executive involvement (Ward, 2009). The second is that Web 2.0 is a generic concept. It is not just technology, nor is it just services. It covers a wide range of media and practices with a wide range of definitions and benefits. For example, employees have adopted different terms for social media connectivity such as ‘social networking,’ ‘open space,’ ‘personal space,’ and ‘online communities’ (Eccleston & Griseri, 2008). Finally, Preston (2009) points out that the enterprise IT executive compliance and security responsibilities will continue to increase. Today, CIOs are responsible to ensure that their companies comply with financial reporting, privacy, and security regulations. Social media services will increase concerns for the protection and safety of personal and corporate data including intellectual property as well as the unintended consequences of these new services and cyber-risk assessment and protection (McCartney, 2009; Preston, 2009).

This paper describes a conceptual Enterprise 2.0 Management Framework for CIOs developed by the authors to summarize what is known about Web 2.0 and Enterprise 2.0 and to define what is meant by Enterprise 2.0. The authors discuss
enterprise business implications and issues comparing old Enterprise 1.0 to new Enterprise 2.0 services. This framework illustrates the different Enterprise 2.0 technology tools and how employees, customers, and vendors use these tools to create new user-generated information content. By considering the organizational culture and management policies implications, Enterprise 2.0 services can be used to create business value. Based on theories and practices identified in the literature, this framework identifies issues regarding the use and management of Enterprise 2.0 services and technologies as they affect the IT culture and policies within the enterprise. The authors are currently evaluating the potential value of the Enterprise 2.0 Management Framework through a case study with three enterprises – one extensively using Enterprise 2.0 both within the business and as its primary customer relationship and communications system; one that is only using Enterprise 2.0 within certain functional units within the business; and one that currently blocks all Enterprise 2.0 applications, but is considering a pilot implementation with several bleeding edge employees. It is expected that some preliminary findings will be available by the August 2010 timeframe.

ENTERPRISE 2.0 BUSINESS MANAGEMENT DILEMMA

The ‘new’ Web, Web 2.0, enables users to publish and evaluate content, socialize, and communicate without technical backgrounds. Mrkwicka, Kiebling, and Kolbe (2009) described in their analysis of Web 2.0 applications for viewer retention, that the business concept of Web 2.0 is controversial because there is no specific technical innovation. However, because of the potential to transform the way business is conducted through interactivity, social networking, and user integration, CIOs need to characterize and integrate a wide range of different technologies, applications, and functions.

Advocates for the enterprise adoption of Web 2.0 services and technologies predict that the ‘new’ Enterprise 2.0 services will create business value by increasing revenues, improving productivity, improving customer relationships, and lowering costs (Bicknell, 2008). Plus, social networking tools such as Facebook, YouTube, MySpace and Google are already being used by enterprise employees for both personal and business applications. As early as 2008, according to Bicknell (2008) over 20,000 employees from IBM, 17,000 employees from Microsoft, and 13,000 employees from Accenture had Facebook accounts.

A series of articles from CIO.com have described implications of how CIOs should introduce and manage Enterprise 2.0 services and technologies within the enterprise. Daniel (2007) pointed out that the promise of Enterprise 2.0 would be its capability to make critical information available through the use of blogs and wikis that store institutional information to the people who need the information. Early enterprise adopters of these tools were newspapers, ad agencies, and consumer brands, who recognized the potential communications and advertising benefits. Today, enterprise employees are using ‘social media’ technology text, audio, and video tools for online conversations, information sharing, and community building (Teich, 2008). Gartner calls Web 2.0 ‘social networking’ tools a new form of ‘social enhancement technology’ as they track the impact of the ‘socializing of business’ on the performance of the enterprise. One impact is that introducing ‘social enhancement technologies’ into the enterprise is not simply the next round of Web development technologies, it is a change in the way technology is delivered and managed (Bicknell, 2008). Drew Bartkiewicz, VP of cyber and new media risk at The Hartford identified the issue that social media services will increase concerns for the protection and safety of personal and corporate data including intellectual property (McCartyen, 2009). Web 2.0 risks from unsanctioned employee use include security, licensing, information reliability, and policy compliance (Bicknell, 2008). This requires CIOs, responsible to ensure that the enterprise complies with financial reporting, privacy, and security regulations, to reduce the risk of the unintended consequences of these new services and cyber-risk assessment and protection. The next section describes a review of the current academic research literature along with a review of the trade press reports about Web 2.0 services and technologies, the use of Enterprise 2.0 within the enterprise, and implications and issues of using user-generated content.

REVIEW OF THE LITERATURE

The term ‘Web 2.0’ evolved from a brainstorming session with Dale Dougherty and Tim O’Reilly in 2003 discussing what companies that survived the 2001 dot-com bubble burst had in common. They concluded the Web was more important than ever and that a new era was beginning – hence – Web 2.0 (O’Reilly, 2005). Anderson (2007, p. 53) summarized this new Web as “the network as platform, spanning all connected devices; Web 2.0 applications...through an ‘architecture of participation’... to deliver rich user experiences.”

O’Reilly (2005) visualized Web 2.0 as a set of principles and practices, several of which can be applied by CIOs to the Enterprise 2.0, the new and improved way for the enterprise to use Web 2.0 services and technologies throughout its supply chain. The first principle is that the ‘Web is a platform,’ where the service automatically gets better as more people use it! New Web 2.0 technology tools such as wikis, tagging, viral marketing, blogging, and rich site summary (RSS) will ‘harness the collective intelligence of the masses,’ which is O’Reilly’s second principle. The collective intelligence of social networking is already changing the way information is shared in the enterprise. Most companies that survived the dot.com
bubbles crash had a type of specialized data base such as Google’s web crawl, Yahoo’s directory, Amazon’s database of products, and eBay’s database of products. These specialized databases show that in today’s world, ‘data’ is the critical business innovation, similar to how ‘Intel Inside’ became a computing innovation in the past. O’Reilly considers this focus on ‘data’ as his third principle, The fourth principle is the ‘end of the software release cycle.’ If software is delivered as a service rather than a product or artifact, then the business model of enterprises that develop software for internal applications must fundamentally change. The applications software operations should become a core competency, which is maintained on a daily basis rather than a periodic release cycle, with end users treated as co-developers. Finally, CIOs must recognize that their employees should have ‘software above the level of a single device,’ the fifth principle, because they need multiple services to be accessible from anywhere at any time. This requires an integrated form of services and applications.

Anderson (2007) described how Web 2.0 is changing the way people interact. Two of the most powerful Web 2.0 ideas are the potential business benefits of individual production and user-generated content and the concept of ‘architecture of participation,’ where through normal use of an application or service, the application or service gets better. Google Search is an example of a system that is designed to take user interactions and use these interactions to improve itself (Anderson, 2007). This also represents ‘network effect,’ where the value of a service increases for existing users when there is some form of interaction with others, such as when more people start to use it (Klemperer, 2006). Examples are when a new user joins a phone network and everyone already on the network has a new person to call, or when a new person joins a social network and everyone else on the site benefits. Once the network effect begins to build, people become aware of the services, the services increase in popularity, and the products take off very rapidly.

Anderson (2007) also identified three implications of how Web 2.0 potentially may transform the enterprise. The importance of the ‘crowd’ and its ‘power’ will increase as the concept of new communities and groups increase from using Web tools. The interactivity and integration capabilities enable user participation, provide additional information about customer needs, and strengthen business relationships (Mrkwicka et al., 2009). Another implication is the growth of user-generated content (UGC) by enterprise employees, but also from engaged customers who discuss the positives and negatives of enterprise services and products. This capability moves the use of the Internet from primarily a broadcast business-to-consumer (B2C) medium to one where information flows in three directions, business-to-consumer, consumer-to-consumer (C2C), and consumer-to-business (C2B) (Eccleston & Griseri, 2008). Finally, intellectual property debates will increase over the ownership of Web 2.0 data that is being generated, aggregated, and processed (Anderson, 2007).

Although new Web 2.0 is receiving much attention, it doesn’t mean that the old Web 1.0 services and technologies are being replaced. Eccleston and Griseri (2008) compared the ‘new’ and the ‘old’ Internet to identify the use of Web 2.0 tools by ‘influencers,’ those who are responsible for creating ‘word of mouth (WOM)’ influence on purchasing decisions. They found that the enterprise needed to integrate both the new with the old depending on the business needs. The old Internet consists of low-engagement and traditional online activities such as Web-surfing or sending / receiving emails. The study found that influencers predominantly use ‘old’ Internet as well as Web 2.0 applications. For example, both Internet 1.0 and 2.0 technologies were used by influencers to ‘discuss products and / or services with other people’ and to ‘recommend products and services.’ A fundamental shift is occurring in how customers use other customer reviews from Web 2.0 connective technologies. Consumers are more likely to make purchases because they now know and trust the people posting the reviews, experiences, and critiques in their social spaces (Kim, 2008).

Table 1 summarizes information from the literature review, comparing the business ‘use’ of the ‘old’ Enterprise 1.0 tools with the ‘new’ Enterprise 2.0 tools. The table also provides benefits of the new services.

<table>
<thead>
<tr>
<th>Use</th>
<th>Enterprise 1.0</th>
<th>Enterprise 2.0</th>
<th>E2.0 Benefits</th>
<th>References</th>
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<tr>
<td>Authoring</td>
<td>Word processing</td>
<td>Wiki Blog</td>
<td>Time saving</td>
<td>Blinn, Lindermann, Fäcks, and Nüttgens, 2009</td>
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<td>Individual production</td>
<td>Anderson, 2007</td>
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<td>User-generated content</td>
<td>O’Reilly, 2005</td>
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<td>Wisdom of crowds</td>
<td>Tan, Nguyen, Oo, Tha, and Yu, 2009</td>
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<td>Social capital</td>
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<td>Business Communication</td>
<td>Memo Email</td>
<td>Email Instant messaging Texting</td>
<td>Less formal</td>
<td>Wang &amp; Gallivan, 2009</td>
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Since Enterprise 2.0 is really a myriad of services, applications, and technology tools, the authors developed a conceptual framework to explore the relationships of Enterprise 2.0 dimensions – technology tools and capabilities, employee and customer applications, and examples of how user-generated content leads to business value – with CIO management implications affecting IT culture and policies within the enterprise. Miles and Huberman (1994) explained that a conceptual framework helps to identify and explain the key dimensions of the studied topic including the main factors or variables and their relationships.

Figure 1 depicts the conceptual Enterprise 2.0 Management Framework. The first dimension – ‘technology tools and capabilities’ - includes Web 2.0 tools such as blogs, wikis, tagging and social bookmarking, multi-media sharing, audio blogging and podcasting, RSS and syndication, etc. Different researchers include services and applications under technology tools, but the authors considered services and applications to be a separate dimension – because the second dimension, the ‘application’ of the Extranet 2.0 or Intranet 2.0 tools by employees, vendors, or customers leads to different management issues. CIOs must understand and consider the implications when employees or customers use social networking services,
data ‘mash-up’ techniques, collaboration tools, or replicating office-style software in the browsers. The third key dimension is ‘user-generated content.’ Besides the typical business information generated and used within the enterprise from Enterprise 1.0 services, user-generated content and the benefits of social capital must be managed and either encouraged or controlled depending on the situation.

![Figure 1. Enterprise 2.0 Management Framework](image)

As with any technology, the culture of the organization and the policies within the organization moderate the potential business value of Enterprise 2.0. Denison (1996) defined organizational culture as the underlying structure of the organization, rooted in the values, beliefs, and assumptions held by organizational members. This leads to several questions. How will Enterprise 2.0 capabilities affect the values, beliefs, and assumptions of the employees who use the Intranet 2.0, as well as affect the vendors and the customers of the enterprise who also use the Extranet 2.0? For one thing, to be successful, Enterprise 2.0 “must emerge bottom-up from the needs and activities of its users, rather than being driven top-down by developers” (Bicknell, 2008, p. 53). To determine appropriate policies and practices, CIOs must understand potential threats (Bicknell, 2008). For example, information about an employee’s organization, his or her work functions, etc., is usually viewable by all members of a social network. Also, enterprise IP addresses can be tracked, which may lead to liability issues concerning messages or material posted.

The Enterprise 2.0 Management Framework may be used to consider impacts on enterprise functions from the introduction of any new Web 2.0 tool. For example, employee training and education applications can benefit from new Intranet 2.0 services. Instead of centralized formal training, employees will learn from social, peer-to-peer networking and resources. The new services of social networking can lead to several new applications or uses - learning management, content management, and knowledge management. Online coaching tools using Twitter and cell-phone connectivity will provide real-time training and feedback. Multi-channel communications including podcasts, Webcasts, and videos will also be used to integrate training into an employee’s daily life (Woodruff, 2009).
QUALITATIVE CASE RESEARCH
Social media specialists have identified a very important lesson from the first wave of Enterprise 2.0 applications. Any social media initiative must establish a ‘culture of rapid response’ that is supported by qualified and passionate people. Without the people, the initiatives will not improve and become self-sustaining (Kim, 2008).

The authors are currently exploring relationships among the dimensions in the Enterprise 2.0 Management Framework to determine if these dimensions are able to establish business value in three specific areas; knowledge management, the creation of social capital, and the use for employee training and education. The authors are conducting a case study with three enterprises – one extensively using Enterprise 2.0 both within the business and as its primary customer relationship and communications system; one that is only using Enterprise 2.0 within certain functional units within the business; and one that currently blocks all Enterprise 2.0 applications, but is considering a pilot implementation with several bleeding edge employees. It is expected that some preliminary findings will be available by the August 2010 timeframe.

CONTRIBUTIONS
The implementation of Enterprise 2.0 within organizations and the way we work is changing rapidly. Little is known about the relationships and interactions of the technology tools and capabilities, employees and customer applications, user-generated content, and culture and policy as they impact business value. This multi-site case study is expected to provide rich data that is needed by CIOs to better manage the enterprise.

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