

Business Value of Social Computing in the Enterprise

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Summary: Based on the research, published by various Web sources and white papers, the current article tries to give a short overview and to present the key findings on the business value of social computing in the enterprise according to major IT consultancy companies.

The Social Computing concept is presented regarding its definition, as well as tools and methods for its implementation. The Social computing business models are given. The different adoption and implementation phases of the Social computing in the enterprise are presented.

The most important advantages of the Social computing concept in the enterprise are summarized regarding its business value and potential users.

Tendencies for the future development of the Social computing concept in the enterprise are outlined.

Key words: Social computing, Enterprise, Collaboration, Data, Information, Business Models.

JEL: C6, C63, C8, C81, D8.

1. Introduction

A recent Unisys and IDC global study on the consumerization of IT found that the average respondent now uses four devices for work and that the adoption rates for devices and applications is accelerating [2]. The study found that the number of information workers in enterprises with 500 employees or more using smartphones will grow from 90 million in 2009 to 160 million in 2014, and the use of social networks by these workers will also double over the same time period. The number of business interactions will grow from 3.5 trillion in 2010 to 12.7 trillion in 2013. IT departments must find a way to balance between worker productivity and expectations, while finding means to manage these devices and applications. A second driver is the open and free movement model that achieves significant economies.

Social computing applications like Wikipedia, Facebook and Twitter have met with tremendous success in recent years and are revolutionizing how people work and play together [8]. Facebook has reached over 500 million users and now accounts for nearly 25 % of web traffic. According to Pew Research, nearly 1 in every 5 web users uses Twitter or some other service to check status messages of their friends and 94 % of enterprises plan to maintain or increase their investment in enterprise

social media tools. For the telecom industry, it is important to note that social computing encompasses but goes much beyond Web 2.0. With emerging technologies like smartphones, social computing will become an embedded experience into both our online and offline worlds. Users will access content from any device or platform, create and mashup their photos, videos and text with traditional content while interacting with each other. Such a trend will cut across human activities – from playing games on a website to shopping in the mall by the street.

In the age of Facebook, blogs and YouTube, information is no longer created exclusively by trusted sources, but the content is created by anyone with access to the Internet. It is the sharing of these thoughts, experiences and knowledge that defines social computing. Social computing provides the forum by which people can communicate their experiences and thoughts. It further enables others to locate and engage with each other for a mutually beneficial exchange of information.

In the enterprise employees are looking to connect with familiar or like-minded people, like they do in Facebook [11]. Locating these colleagues provides an opening for an information or knowledge exchange. Through this type of collaboration, people can find the “experts” they need to solve business issues more easily. In an age of real-time collaboration and instant expectations, meaningful collaboration can mean the difference between success and failure. This trend is becoming fast perceived as essential for business success. Reducing the delay involved in connecting, sharing, understanding and making better use of information becomes increasingly important in today’s speed-accelerating world.

2. Social computing

Social computing is a term for a field of computer science related to the intersection of social behavior and computational systems. It has become an important concept for use in business. Its foundations are the so-called social informatics that identifies a body of research that examines the social aspects of computerization. A more formal definition is “the interdisciplinary study of the design, uses and consequences of information technologies that takes into account their interaction with institutional and cultural contexts.” [6]. This field is defined by its topic rather than by a family of methods, much like urban studies or gerontology. Social informatics has been a subject of systematic analytical and critical research for the last 25 years. This body of research has developed theories and findings that are pertinent to understanding the design, development, and operation of usable information systems, including intranets, electronic forums, digital libraries and electronic journals.

Social computing in general refers to any technologies that involve either explicit or implicit computer mediated communication and interactions among people. Generally social computing may refer to technologies that support social activities such as blogs, emails, instant messaging, wiki, etc. From a IT point of view it means any technologies that allow computations carried out by groups of people, where users not only consume an application but also produce value to the application via contributing content, tags, ratings, links or even software components.

Social computing can be perceived in two ways [1, 8]:

- It must support any sort of social behavior in or through computational systems. It

is based on creating or recreating social conventions and social contexts through the use of software and technology. Thus, blogs, email, instant messaging, social network services, wikis, social bookmarking and other instances of what is often called social software illustrate ideas from social computing, but also other kinds of software applications where people interact socially.

- It must support computation operations carried out by groups of people. Examples of social computing in this sense include collaborative filtering, online auctions, prediction markets, reputation systems, computational social choice, tagging, and verification games.

The Forrester Research market research company suggested that social computing is [5, 15]: “Easy connections brought about by cheap devices, modular content, and shared computing resources are having a profound impact on our global economy and social structure. Individuals increasingly take cues from one another rather than from institutional sources like corporations, media outlets, religions, and political bodies. To thrive in an era of Social Computing, companies must abandon top-down management and communication tactics, weave communities into their products and services, use employees and partners as marketers, and become part of a living fabric of brand loyalists”.

The clearest way to define social computing is to break it down into two necessary and mutually bound elements [1, 7]:

1. Social computing relies on the connections between people to provide value. The key element is that the value comes from the people connections. Nearly all office software involves people, yet most people would not think of a word processing program as social

computing. In the long run all software will be social and the concept of separate social computing platforms will be outdated. In the short term social computing platforms are needed to create, modify and store information about the connections between people and leverage that information to provide value.

2. Social computing enables network effects where the actions of one person benefit others. When people think of social computing software, they often think of consumer solutions such as Facebook, Wikipedia, etc. The common element that drives all these sites is that they enable the network effect where many people benefit from the actions of one person. These sites implement features that follow these three key rules:

- The action is simplified for the user and encourages input – Features that require minimal effort have much higher adoption. Tagging something takes only a few seconds. Features can even be somewhat “fun” to encourage volunteering or participating types of behavior.

- The user sees a direct benefit for his action – Giving the user a direct benefit is critical to success, but the benefits can vary greatly. Tagging tends to produce its own benefit by making it easier for the user to find things again. Some systems build out reputation concepts based on participation or help users build their identity through their actions.

- The user’s action benefits the rest of the other users – Leveraging the user’s actions for the benefit of others is often the easy part. As long as the actions are stored and the context of the actions is understood, the ways to use and present that data to other users are only limited by the creativity of social computing solution developers.

One recent newcomer to this technology is the mobile social computing [8]. Despite some superficial limitations such as small screens, modest computational power, and unstable connections, we can foresee fast growth for social computing innovations in the telecommunication domain. Any social computing applications backed by the telecom operators can instantly expand into the huge existing social network of phone users rather than having to go through a trial start period as most web based applications. Compared with online social networks, the phone based social network could actually reach a broader population, including not only urban and youth population but also rural and elder populations, thanks to the much wide adoption of mobile phones in developing countries like China and India. Besides that, the rich sensing capabilities and portable nature of the smartphone platform allow mobile social computing applications to interact with not only the digital information space but also the physical real world. Any mobile phone encounters almost all the physical parameters that a person experiences – it feels the same force, travels at the same velocity, exposed to the same temperature, sounds and pollution levels. By recording the states of all these sensors attached to a mobile phone, such as GPS, accelerometer and other information, we can effectively record its owner's online experiences across a rich set of dimensions or features about the user's physical context such as his location, or his activity such as whether he is working or entertaining, or his social context such as whether he is with colleagues or families. The powerful, personal mobile devices and related technologies will enable whole new classes of adaptive, context-aware applications, which can automatically serve the right information and functionalities

to users at the right time and right place in support of the user's desired goals and tasks.

3. Social computing in the enterprise

Based on the definition of social computing, its architecture in the enterprise must include connections between people and mechanisms to leverage those connections for the benefit of all users. Taking into account the common business goals of social computing, the architecture must accumulate information from the users and present that information to the appropriate users in the right way. Generally social computing architectures includes the following basic model set [7]:

- **Model of the user profile with a repository of information about the person.** The key architectural question for companies is whether they want to implement a new user profile store or whether they want to leverage an existing store. Nearly every company has some storage that contains the most basic parameters for all users.
- **Model of the connections between individuals,** which forms the social component. User connections tend to fall into one of two categories. Users form one-to-one connections with friends, colleagues, etc. to track individuals or to express that they relate to another user in some way. Users join groups to follow the actions within those groups and to express a connection with the idea or goal of the group. Specifying these connections is typically the core function of social computing solutions.
- **Model of the content,** which represents the information created by and shared between users. If a social computing

architecture introduces a new option, it must be to support one of the other key goals. In the long run, it is safe to assume that all content creation tools will be “socially aware” (that is they will understand the social graph and emit and consume events). In the short term, companies will often find it necessary to augment current content creation capabilities, or at least the systems in which content is stored, to meet the social computing goals of getting the right information to the right users.

- **Model of the events**, which reflects the changes in any of aforementioned three models.

- **Model of the privacy and security rules**, which defines the rights to view and participate in the all aforementioned models. In enterprise environments the existing content repositories and creation environments already have established a security context . Any new social computing platform that must follow that same context , as well as any technologies for content distribution must maintain the same security context.

According to different literature sources [2, 7], social computing in the enterprise can be established by the following four phases:

1. Off-the-shelf and point solutions. In this phase enterprises that want to better connect with customers and build their social networks adopt platforms such as Facebook and Twitter without any modifications. Enterprises also deploy point solutions such as micro-blogs, blogs and wikis as communication and collaboration tools.

2. Enterprise-class platforms. The emergence of social computing platforms such as Jive, Newsgator, SocialText and Telligent, with full suites of social software functionality built in, marks the

second step. It allows CIOs to think about deploying such technology strategically across their organizations. These tools have let enterprises enhance knowledge management portals, leading to improved collaboration, as well as greater connectivity and interaction with target audiences; bolster customer support channels and processes; shore up innovation processes; and provide more mechanisms for the capture and sharing of ideas. Several enterprises have reached this phase.

3. Integration with enterprise applications and processes. CIOs and application portfolio managers will determine how social computing can be used to enhance their existing enterprise applications and processes. Social computing has the potential to bring more collaborative features to legacy applications. The effort is to integrate social computing functionality into core business applications and processes so it speeds cycle times when compared to more manual and less collaborative approaches. This phase also presents CIOs with the opportunity to address a long-standing problem with transactional business applications. These applications, often custom-built, provide tremendous process efficiency for standard transactions, but come to a complete stand-still when exceptions arise. Social computing capabilities that are integrated into these applications will provide more efficient ways to resolve such exceptions than face-to-face meetings, phone calls or faxes.

4. Pervasive and embedded capabilities. As social computing technology matures, it will find its way into a large number of enterprise applications as a built-in feature and become more of a checklist item for software purchases. In some cases, CIOs

will decide to augment the built-in social computing functionality with a specialized enterprise social computing platform.

4. Business Goals and Value of Social Computing in the Enterprise

While social computing solutions can contribute value in many areas, the highest value use cases are the ones where knowledge workers can discover and exchange information in better ways. Many organizations pursue a combination of goals related to this core theme. The most common goals can typically be grouped in the following categories [7, 9]:

1. Expertise discovery and identification –

Expertise discovery and identification consists of two basic parts – collecting information about users and exposing that information in the right ways. Social computing platforms can contribute to both parts. As opposed to having a form somewhere that users are supposed to update with their expertise, skills and interests, social computing solutions can mine existing data and prompt users to build their expertise profile. Social computing solutions can monitor this information and prompt the user in an easy way. Social computing software exposes expertise as well. Social solutions can enrich the profiles that are searched by a “people search” function within the enterprise. Perhaps more importantly, social computing solutions can expose expertise for users to discover as they go about their daily work. For example, user behavior around content creation, tagging, group collaboration, etc. can be made visible for other users. The examining of a person’s profile can reveal their common actions, content interests and related people through their social network.

2. Knowledge sharing – Knowledge sharing works either through direct passing of the information or, like expertise discovery, through collection and discovery mechanisms. Direct passing can be made much easier by presenting relevant knowledge where users are already working and making it easy to forward, post or tag. One of the key functions of social computing software is to make these sharing mechanisms easily available. Social computing software helps with the collection of knowledge in the same way but also aids knowledge collection by providing better places to create information. Most social computing solutions provide alternative places (wikis, forums, question & answer tools, etc.) to create the knowledge. These solutions also typically connect that created knowledge to the relevant people and groups.

3. Recruiting, on-boarding and retention –

Whether someone is joining a company or switching roles, identifying the key people and groups is critical to productivity. Younger workers joining companies today look for social computing solutions because they match the tools they have adopted in college or in their personal lives. The connections created through social software not only help people discover knowledge and expertise, they aid retention by helping people more personally associate with the company. To provide all these capabilities, social computing solutions have to help people discover other people and groups and maintain their connections with them.

4. Improved collaboration and increased innovation –

Social computing solutions really shine at helping new employees come up to speed quickly. Improving collaboration and innovation is probably the most common motivation for deploying social

computing solutions. The two most critical elements to improving collaboration are making the right information discoverable and making interactions as easy as possible. Users need reminders that valuable activity is happening in the new collaboration tools. Social computing solutions only succeed to the extent that they put the appropriate alerts and updates in the places where users can see them. Companies who just bring in a wiki or discussion forum and set it up as a standalone system have to work very hard to get users to go those places to contribute. With the user's connections to other people and groups, social software can provide highly relevant alerts that call the user back to participate in the collaboration solution. Making the collaboration participation easy is the other critical component. Ideally, the collaboration spaces are integrated directly into places where users are already working. That makes it easy to discover changes and interact. But it is also important to let users interact from other interfaces and clients and interactions need to be as quick and easy as possible to reduce as many barriers as possible.

NewsGator's first-hand experience working with Fortune 500 executives on Enterprise 2.0 projects has revealed seven ways recoup the cost of a social computing initiative. They include reducing the costs of email storage, content, printing, enterprise software, travel, employee on-boarding and enterprise application integration [7, 16]:

1. Reducing email volume – By connecting individuals to relevant people, information and community workspaces, social computing reduces the need to send messages and attached files as email. Email storage costs \$500 per GB per year, and one Fortune 100 manufacturing company calculated that a simple 2 percent reduction

in email volume could save \$2.6 million per year. Social computing is a good way to accomplish that.

2. Reducing premium content costs – Enterprise social computing is built on Really Simple Syndication (RSS), a technology for subscribing to the vast wealth of free online content. Though free, some companies are still paying dearly for the content through premium publication database services. One company NewsGator works with recently analyzed 500 randomly chosen articles it had paid for and discovered that as much as 90 percent of the content was free online. In addition to efficiently aggregating free content, social computing extracts more value from the content through social bookmarking, tagging and other efficient sharing activities.

3. Lower printing budgets – Well-designed social computing solutions put important content on or near employees' start pages, eliminating the need to visit disparate legacy systems and print information for review. Social computing also eases online sharing, editing, and reviewing of documents, further reducing the temptation to print, copy and distribute. One company NewsGator works with calculated that social computing could cut its printing and toner budgets by two-thirds.

4. Reducing expensive seats of enterprise software – Seats of business intelligence, CRM, HR and innovation management software can be expensive. For a fraction of the cost, social computing solutions can execute the same functions with an even broader base of constituents. The result is better solutions faster for less money.

5. Trimming travel budgets – Sixty percent of businesses are trying to cut travel

expenses. Organizations are discovering that networking relevant people through appropriate channels and media is a very good substitute for face-to-face meetings, meaning deep savings in travel spending without productivity loss. Open, enhanced virtual communication across functions and locations also enhances a sense of job security and well-being so that employees remain productive despite economic stress.

6. Increasing talent management ROI –

Social computing attracts smart workers. 77 % of millennials use social networking sites, and 91 percent say that “newer, innovative technologies in the workplace would make them more likely to consider a potential job opportunity.” (Source: Millennials in Insurance Survey, KRC Research, April 2008). Social computing also reduces the cost of on-boarding new hires, providing them with rich content, connections and collaboration from day one.

7. Reducing enterprise application integration costs –

Social computing platforms can significantly reduce the need to assign employees to manage integrations between legacy systems and newer business applications. Through RSS and XML, social computing can cost-effectively deliver information, alerts and events to workstations or mobile devices – with the savings more than covering the cost of the social computing implementation.

Extensively conducted research addresses five key challenges that impede value realization from social computing investments: understanding the economic potential of collaboration, identifying collaboration opportunities, mitigating social media risk, ensuring information

usability, and architecture planning amid technology change. The key findings are as follows [3, 14]:

1. While the economics of social computing show great potential for enterprise value, success of these efforts is dependent on IT organizations’ ability to influence behavior change in the use of these technologies. To realize the value of social computing, IT organizations and business partners must take joint responsibility for implementation and adoption of collaboration platforms.

2. The lack of visibility into collaboration workflows and optional nature of collaboration tools challenges IT organizations’ reliance on traditional approaches to requirements gathering and end-user engagement. IT leaders need to redefine how they engage end users to understand collaboration demand and drive adoption.

3. Despite the significant presence of social media in everyday life, business use of these technologies remains nascent, providing IT organizations the opportunity to influence behavior for anticipated future growth. Social media training cannot simply copy awareness training which is focused on known behaviors, but must be able to teach users to handle unanticipated issues that may arise in social media interactions.

4. Usability must evolve from a systems-centric to an information-centric view that assesses the quantity, ability to access, and quality of information available. IT organizations must establish joint ownership of information management processes, aligning technical capabilities with end-user behavior change to increase the value gained from user interaction with information.

5. Business cases looking for short-term return for social computing technologies are unlikely to succeed without investment in change management. Despite the hype associated with social computing, successful enterprise adoption may require significant adaptation of team and employee workflows. On average, social computing and communication technologies require five quarters to realize user adoption targets and eight

quarters to generate moderate business benefits.

6. **However, many** organizations and companies will be not able find an ROI for social computing not because it does not exist, but because they are not looking for it. Organizations that are serious about understanding the value of their investments should not be discouraged by their inability to

Table 1.

Benefit area	Examples
Tools	<ul style="list-style-type: none"> • Savings from replacing older knowledge sharing tools with more modern tools that have • Lower acquisition costs, lower maintenance costs, lower deployment costs and lower integration costs. • Reduced storage costs by consolidated knowledge sharing platforms.
Information	<ul style="list-style-type: none"> • Reduced costs related to finding information because organization-facing sites expose much of the meaningful information that might otherwise be hidden in personal e-mail. • Allows for improved safety and quality, and potential lower legal costs because information can more easily be scrutinized for compliance. Because it is more open, it also reduces the costs related to auditing. • The quality of information itself may improve because others can “fact-check” and otherwise comment and edit.
Business	<ul style="list-style-type: none"> • Global sourcing of talent and capabilities. • Gathering intelligence and sensory information. • Collaborative problem solving. • Expertise location and knowledge transfer. • Employee engagement. • Rapid peer-to-peer communication. • Increased revenue (from marketing). • Decreased time-to-value for new employees and those in transition.

anticipate value and returns. They should practice what investments with positive ROIs still call for – observation. In the case of social computing companies who want to understand its value and its effects, need to develop the capacity to document functions and processes before the introduction of social computing, and then monitor their use and how they affect a process or function over time.

The potential benefits of social computing in the enterprise have been defined and summarized in the table 1 [10].

5. Future Developments of Social Computing in the Enterprise

Social software makes networks and relationships explicit and easily mined. What enterprise social computing users can do is evaluate influence data available in near real time. Rather than looking over wide time horizons, the adoption of process changes or competitive threats or public relations fiascos could be effectively managed by monitoring the enterprise social environment through the lens of its conversations. Enterprises may not be able to anticipate the need for change management, but they can surely understand its value historically and how often change is poorly managed. By deploying social computing, they may be creating an improved capacity for change, the value of which will only be found if they are looking for it.

According to the People Management Predictions for 2010, the following developments are expected for application of the social computing in the enterprise [4]:

1. Learning connections will matter more than learning transactions

– When enterprise real-time collaboration becomes associated with learning and knowledge sharing, it can be self-reinforcing, enabling people to discover others who can help them in a grass-roots way, which in itself fosters information sharing. And businesses should share everything they can – smart and motivated people who can both contribute and gain access to lots of pertinent information will make better decisions. The bottom line: learning connections will matter more than learning transactions.

2. Connecting people to expertise will begin to matter more for organizations than traditional learning management programs

– No matter what new technologies come along, formal learning will always have a role in enhancing business performance. While designing, scheduling and tracking courses will remain important, workers will be at the center of the next wave. Learning professionals have the opportunity to play a critical role: that of a community facilitator. The focus will be on ensuring people have the knowledge and tools to do their jobs well – and on creating a corporate culture that values collaboration and knowledge sharing.

3. Employees will demand and receive continuous performance feedback

– What if performance could be judged by how much the evaluated individuals actually contribute to their connected communities? Or better still, what if emerging thought leaders could be identified by not only gathering data on how much they contribute, but more importantly, by evaluating how well their ideas and suggestions are received? By using social networking, companies can implement technology that helps measure

performance in real time, incorporating community validation mechanisms into performance management infrastructure. By measuring true attributes of success, companies will be able to transform them directly into meaningful rewards.

4. The traditional organization chart – as we know it – will be replaced by social influence maps – Traditional hard-lined hierarchical organization structures will give way to the connections between employees, customers and partners across the extended value chain. Top down goals will continue to set aligned business objectives, but how those objectives are met will happen through informal networks where ideas can surface from anywhere and flourish across functional and geographic boundaries.

5. Video will be the learning mode of choice – Having already killed the radio star, video is now poised to become the preferred mode of learning. This does not mean the high-bandwidth, high production value and high-cost traditional learning videos. Instead, we foresee the emergence of low fidelity, viral, self-published learning videos that dominate the personal web today.

6. Mobile learning has finally come of age – We have been talking about mobile learning for many years and, in our opinion, the platforms have finally emerged to make this a broad-based reality. Today's mobile devices are used to access a huge variety of applications and content types. Learning, connecting, and exchanging expertise will emerge across a wide range of mobile devices.

7. Informal processes will be valued and encouraged – these processes will

be social and real-time – People now pick up what they need to know through web technologies, email or “hallway conversations” – what used to be called “water-cooler talk.” If enterprise social networking is tied into the informal learning and interactions people have every day, it simply provides a better way to capitalize on what already takes place – and empowers employees to share their knowledge and connect with the right people who have the expertise they need.

8. The most successful companies will value collective competencies more than individual competencies – The ability to form and reform teams based on complementary areas of expertise in response to real-time opportunities and threats will become a critical differentiator for flexible, agile organizations. Extending this team-based approach to partners, suppliers and customers will drive more value than what is derived from individual competencies.

6. Conclusion

Social computing adds business value to companies and organizations in several ways. By encouraging employees to create, consume and offer feedback on content, an organization ensures that knowledge stored within one employee's head is now documented and available to others who need it.

Nowadays the information of the whole entire is available to help identify critical data about the organization to ensure optimal execution of business processes or resolution of business problems. Communicational significantly improves when a common vocabulary is established and offered to

the company. New employees are effective sooner because they can connect with experts within an organization as defined by this common vocabulary. Collaboration can have a positive impact on the bottom line and provide for collective intelligence within the organization to solve business issues more effectively [13].

On the negative side of the technology is the fact many managers are uncomfortable with social networks because the fear of losing control over their employees, who now have tools that enable them to easily collaborate with colleagues and friends inside and outside the company [12]. Such individual and community empowerment is precisely the key value of social networks. Rather than relying on rigid hierarchic structures and formal meetings, social networks encourage employees throughout the organization to work together, innovate by self-organizing into communities of interest, and collaborate with each other in tackling the toughest, most complex problems facing the business.

Enterprise social computing can deliver significant business value. Leveraging the connections between people and the network effects of user connections can greatly aid expertise discovery and identification, knowledge sharing, and recruiting, on-boarding and retention. Companies are also seeing improved collaboration and increased innovation through good implementation of social computing solutions.

Enterprise social computing solutions must not only create easy interactions that power network effects, but also must address the architectural concepts of user profiles, user connections, content, events, and security and privacy.

Value creation has thus been shifting from protecting proprietary knowledge, to fostering collaboration, both within the company and beyond its boundaries, in order to help the firm participate in as broad and diverse a range of knowledge flows and thus improve its competitive position. It is within this context that one has to consider the business value of social networks, and their impact in helping people better connect with each other, and build sustaining relationships that enhance knowledge flows and innovation.

The traditional, industrial age hierarchic organization must evolve. Firms must embrace more flexible organizational structures, better suited to help them reach out, absorb and integrate all the knowledge flows, expertise and talent out there. The Internet, social networks and related communication technologies are helping create such flexible organizations, as well as having a huge impact on the way people collaborate and generally relate to each other. Ultimately this is their real value to the business.

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