Electronic Globalized Business and Sustainable Development Through IT Management: Strategies and Perspectives

Patricia Ordoñez de Pablos  
*University of Oviedo, Spain*

Miltiadis Lytras  
*American College of Greece, Greece*

Waldemar Karwowski  
*University of Central Florida, USA*

Rongbin W.B. Lee  
*The Hong Kong Polytechnic University, Hong Kong*
Chapter 9
The Emerging Value of Social Computing in Business Model Innovation

Peter Knol
Deloitte Consulting, The Netherlands

Marco Spruit
Utrecht University, The Netherlands

Wim Scheper
Utrecht University, The Netherlands

ABSTRACT
The value of Social Computing and its application in business has largely remained unclear until now. However, this chapter reveals that Social Computing principles may have important business value, as they can help lower transaction costs. This makes the Social Computing development here to stay, instead of another hype. This chapter describes Social Computing with nine technological and social principles, obtained by comparing both Internet and academic sources in this field, being Open Platform, Lightweight Models, Enabling Services, Intuitive Usability, Long Tail, Unbounded Collaboration, Collective Intelligence, Network Effects, and User Generated Content. The results show that Social Computing provides most support in those aspects of business where connections with the environment exist; the relations with partners and customers. This chapter will explain what Social Computing is, and how one can use it to increase business value.

INTRODUCTION: SOCIAL COMPUTING AND BUSINESS MODELS

Around the millennium the hype around the Internet reached its top and we found the Internet was highly overrated. The bubble popped. Currently too, a certain euphoria exists on seemingly unbounded possibilities coming with what has been labeled Web 2.0. From around 2005, developments on the Internet do sometimes draw comparisons to the Internet hype around the millennium. The impact of Social Computing is not restricted to circles of technology adepts,
but expands to the business world as well. Consider the amount of start-ups and acquisitions in the field of e-business, often in combination with astronomical sums of money. Apparently, corporations do not want to stay behind in these developments. More than half of the North American and European corporations consider Social Computing to be a priority in 2008 (Forrester, 2008). Those investing in Internet technologies in the last five years are very satisfied with the results (McKinsey, 2007). Many corporation are already rethinking their business models and say they have to make fundamental changes in their businesses. “Business model innovation matters. Competitive pressures have pushed business model innovation much higher than expected on CEOs’ priority lists” (IBM, 2006). The same research shows that outperformers in industry did place higher priority on business model innovation than underperformers did.

But are these developments another hype? Or is there something more happening, and are we part of a revolution? More and more indications appear, which suggest that Social Computing might be of lasting value. But there are hardly any studies on why Social Computing is valuable. History provides interesting insights on technological developments, or even revolutions, like the Internet and Social Computing. With these insights we might be able to value the Social Computing developments that are happening currently. Moreover, limited research is available on how to apply Social Computing ideas in business. Both these aspects will be examined in this chapter, guided by the idea that Social Computing developments as emerging IT innovation enablers demand new management and business models.

This chapter will perform an explorative and qualitative search towards Social Computing, since the field of Social Computing is new, and not much scientific literature is available yet. Next, this chapter will describe how Social Computing can be of value in business. The subsequent sections each elaborate on a different topic related to this subject. Section 2 revisits technological revolutions in recent history and describes the role of standards, to provide analogies for the technologies under discussion in Internet and Social Computing. Section 3 gives a more thorough description of what Social Computing is. Section 4 elaborates on business models and their role in an organization. Section 5 describes how Social Computing can be used in business by relating it to business models. Section 6 gives conclusions and discussion.

STANDARDS AND TRANSACTION COSTS ECONOMICS

Looking back in time, we can find some illustrative examples explaining the role of standards in technological revolutions. Around 1778, a French gunsmith Honoré Blanc pioneered in developing muskets from parts which were exactly the same for each musket; interchangeable parts. He created some muskets, disbanded them into separate bins and then reassembled the muskets from picking parts at random from each bin. Around 1800, Henry Maudslay pioneered by developing screw thread on interchangeable bolts and nuts, which became a practical commodity. It was a major advance in workshop technology. Not only because they were interchangeable parts themselves, but also because they boosted modularity, since they act as connectors. In the late 1880s, the invention and standardization of electric current caused the so-called ‘War of the Currents’. The feud between alternating current (AC), promoted by George Westinghouse, and direct current (DC), promoted by Thomas Edison involved demonstrations including the electrocution of an elephant and the invention of the electric chair. Only since the wide acceptance of the AC standard, mass usage of electricity, and its commoditizing, ran off. What we can learn from these cases is that standards in an industry support interchangeability, and interchangeability decreases complexity (Christensen & Raynor, 2003).
The aforementioned analogies can be transposed to the Internet as well. The success of the World Wide Web arguably depended mainly on open standards and interchangeability (Berners-Lee, 2007). Therefore, “the Internet creates value by reducing the costs of transmitting information. (...) [It] is a terrific advance in lowering the cost of information” (Liebowitz, 2002, p. 9). This can be achieved, because standards lead to better interchangeability between products and services, much like the historical cases described above. In terms of ICT, standards lead to higher compatibility.

Low compatibility leads to an unequal distribution of information between parties. This links us to the transaction costs economics; the value of transaction cost economics lies in the increase of efficiently managing uncertainty or complexity, leading to more equally distributed information, thus decreasing the transaction costs (Cordella, 2001). In his influential work *The Nature of the Firm*, Coase (1937) mentions “the costs of the price mechanism”, referring to transaction costs. Williamson extends with “the economic equivalent of friction in physical systems” (Williamson, 1985, p. 17). In other words, transaction costs are the costs of making an economic exchange. With that in mind, and looking again to the Internet, we can conclude that the value of the Internet may be related to the decrease of transaction costs. But how does Social Computing fit in this picture?

When the World Wide Web increasingly became more common during the ‘90s, its primary use by companies was to represent themselves online, and by consumers to find information about these companies, or other consumers. Instead of using the new technology as a new concept, with all of its new possibilities, it was used like an old concept, similar pressed media. This is a commonly observed behavior with respect to new technologies (McLuhan, 1964). Compare it to the development of vehicles, from stage coaches to cars. The first cars looked just like stage coaches; wheels with spokes, its appearance, and so on. But instead of horses they were driven by engines. Later, people found there were better shapes for vehicles with an engine. Then, the use of the new technology adjusted to the new possibilities of this technology.

The same holds for the Internet; a new technology (the World Wide Web) was used for old concepts (brochures, newspapers, catalogs, business cards, etc.). In the second era (which started approximately in 2001), the Internet is used in a different way, more adjusted to the possibilities of the Internet (Tapscott & Williams, 2007). So the value of The Internet as a whole, and Social Computing specifically, lies in the lowering of information transaction costs. This is not a hype, but valuable to everyone using the Internet for information transaction. Who is not? Time to take a closer look to what Social Computing actually is.

DEFINING SOCIAL COMPUTING

More and more is written and heard about Social Computing. It has become a marketing buzzword and without you or your product being marked 2.0, as in Web 2.0, you seem out to be of the market. Even though many of those using the term don’t even know what it really is. The opinions on Web 2.0 rather differ from evangelists (IBM, 2006; Hinchcliffe, 2006; Leadbeater, 2007) to antagonists (Boutin, 2006; Keen, 2007). This section will give the floor to both evangelists and antagonists. Also the definition varies from study to study and from blog to blog, which could explain the disputes among bloggers, trend watchers and scientists about a proper definition. It took a while to even find a common perspective since the first definition attempt of O’Reilly and Graham in 2004, varying from just graphical elements, technologies and design patterns, to more abstract attitudes and philosophies (O’Reilly, 2005; Hoegg, Martignoni, Meckel, & Stanoevska-Slabeva, 2006). Maybe a combination of one or more of these abstraction
levels should be incorporated when defining Social Computing.

All these aspects are due to the newness of the subject of Social Computing. Every opinion and study contributes to the crystallization of the concept. Therefore many of these opinions, writings, studies, and researches will be presented to find some common ground in the currently forming field of Social Computing. That will be the start of the description of Social Computing used in this chapter. It is interesting to focus on what can be learned from current developments. Therefore the quest will reach out to principles underlying Social Computing, at a higher level of abstraction then just bare examples or cases. A principle is an initial concept, a fundamental idea, a basic rule. The principles should be applicable in other situations on the Internet. This section will use examples, mention technologies, services, and so on, to define Social Computing.

Nine Social Computing Principles

The previous section has positioned Social Computing in a context. In this section some more focus will be placed on what Social Computing is. In the attempt to define Social Computing, many examples will be used to clarify the definition. Some different existing views will be posed as well. This way a common ground will be established out of all cited opinions on the subject and the discovered similarities point to the principles of Social Computing.

When exploring the field of Social Computing, we used both Internet sources, since it is the platform presenting the newest opinions and discussions in this field, which makes it a necessary source for up to date information, as well as scientific sources, if any. Several more or less substantiated definitions, descriptions, principles, and design patterns came by. All used sources do attempt to define Social Computing in a way. O’Reilly seeks principles (O’Reilly, 2005), Hinchcliffe goes for key aspects (Hinchcliffe, 2005), Hoegg et al look for fundamentals (Hoegg, Martignoni, Meckel, & Stanojevska-Slabeva, 2006), McAfee finds ground rules (McAfee, 2006a), and Vossen and Hagemann stick to essences (Vossen & Hagemann, 2007). All found definitions or descriptions exist out of one or more elements. For comparison, these elements are put together in Table 1. The column header contains the author of the definition or description placed in that column. Each cell in that column contains elements of the author’s definition or description. Elements that look similar between different definitions or descriptions are placed at the same row level. This way an extensive overview of different elements of Social Computing definitions and descriptions is presented, as found in Internet and academic sources. Different definitions are compared to each other on the same row level. The first column presents the defined principles based on the definitions from the other columns at that row level. The cells in the first column therefore contain elements of defining Social Computing of the researched sources. The remainder of this section will elaborate on these principles as mentioned in the first column of Table 1.

Open Platform

O’Reilly (O’Reilly, 2005) is an often cited source when talking about Web 2.0, which is why this chapter cannot ignore his views on the subject. O’Reilly shortly defines Web 2.0 as “the business revolution in the computer industry caused by the move to the Internet as platform, and an attempt to understand the rules for success on that new platform” (O’Reilly, 2006). The key element in this definition is the Internet as a platform, which means that the Internet is the computer and the operating system on which services should be offered, instead of a desktop computer running software. Although the Internet is already often used to ship new software versions to customers, the idea of the Internet as a platform goes one step further, according to O’Reilly. It means that
The browser is your only local tool, which gives you access to everything else you want to do, since everything you do happens on the Internet (O’Reilly, 2005).

Andrew McAfee puts it a little bit different, noting that “most current platforms, such as knowledge management systems, information portals, intranets and workflow applications, are highly structured from the start, and users have little opportunity to influence this structure” (McAfee, 2006a). It is not that the Internet should be the platform per se, but that most current platforms, like desktops, are too structured, preconceived, or imposed. The platform should be open, blank, in a way unstructured but able to emerge: “Instead, they [should be] building tools that let these aspects of knowledge work emerge” (McAfee, 2006a). At this moment the Internet is an example of such a platform. This idea corresponds with that of Berners-Lee, which we saw in the chapter on standardization: “The lesson from the proliferation of new applications and services on top of the Web infrastructure is that innovation will happen provided it has a platform of open technical standards, a flexible, scalable architecture, and access to these standards on royalty-free ($0 fee patent licenses) terms” (Berners-Lee, 2007, p. 4). Tapscott mentions ‘being open’ or ‘transpar-

<table>
<thead>
<tr>
<th>Table 1. Comparison of social computing definition elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>User generated content</td>
</tr>
<tr>
<td>Network effects</td>
</tr>
<tr>
<td>Collective intelligence</td>
</tr>
<tr>
<td>Unbounded collaboration</td>
</tr>
<tr>
<td>Leverage the long tail</td>
</tr>
<tr>
<td>Intuitive usability</td>
</tr>
<tr>
<td>Enabling services</td>
</tr>
<tr>
<td>Lightweight models</td>
</tr>
<tr>
<td>Open platform</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>
The Emerging Value of Social Computing in Business Model Innovation

ency’ as a new idea in the current Internet era, in his book Wikinomics (2007). Being open also increases trust, according to Tapscott. Next, a global platform for collaboration will open many new possibilities in many fields (Tapscott & Williams, 2007).

On the other hand, McAfee does not promote one platform like the Internet, but suggests building and adding upon existing platforms, an opinion in which he shares the side of Microsoft, as we can see in the example in the sidebar. He gives as ground rule to create an “… online platform with a constantly changing structure build by distributed, autonomous and largely self-interested peers” (McAfee, 2006a, p. 26). McAfee describes how these platforms should be used in a business environment: “Simple, Free Platforms for Self-Expression; Emergent Structures, Rather than Imposed Ones; Order from Chaos. (…) They’re meant instead to illustrate how technologists have done a brilliant job at three tasks: building platforms to let lots of users express themselves, letting the structure of these platforms emerge over time instead of imposing it up front, and helping users deal with the resulting flood of content” (McAfee, 2006a; McAfee, 2006b). These remarks already entail many elements considered in the next subsections, but again an open, simple, and even free platform is mentioned.

Trend watcher Dion Hinchcliffe says about the platform: “The Web and all its connected devices as one global platform of reusable services and data” (Hinchcliffe, 2006). He, in a way, extends on what McAfee said, by noting that the platform is not just the Internet, but all connected devices, like the Internet, but more. That is why this element is called Open Platform, leaving it open which system this platform should contain. One could for instance think of the increasing developments in the field of mobile telephony and its synergy with the Internet. O’Reilly too, mentions different devices as an element of Web 2.0, but in relation to software (O’Reilly, 2005). An example of the synergy between different devices is the combination of iTunes, which makes use of the Internet as music database, iTunes as local software client to play and buy music, and the possibility to copy music to an iPod to listen to the music.

This does not mean that existing platforms, like local desktop PC’s, or organization computer systems, should be replaced by the Internet straight away. Why let go the advantages of a well built history and switch solely to the Internet? That is not what is suggested. Instead, try to use the good of the two worlds and integrate openness onto your existing platform. Compatibility is a keyword in such an approach, and everyone should be able to add, edit and build upon this platform. Authoring doesn’t have to be as big a problem as will be discussed in the subsection about User Generated Content.

Why an open platform lowers transaction costs is not difficult; when an open, accessible, maybe free, platform exists to build your information systems upon, users are easily able to switch services, or edit them. They do not have to worry about local hardware as much as they used to do, since only a desktop PC with a browser will be necessary. The users save costs.

The Open Platform is the fundament on which many of the next principles are building, as we will see in the next subsections, which is why this principle is handled first.

Lightweight Models

O’Reilly calls lightweight programming models and business models one of the core competences of Web 2.0. With this he means to aim at several strategies. First, the programming and business models should allow for loosely coupled systems. Next, syndication is more important than coordination of information. Finally, one should design for hackability and remixability (O’Reilly, 2005). These strategies should assure flexible businesses that can easily anticipate on a changing environment. Since the environment in which we do business today is changing faster and faster,
these strategies help making an organization, or web service, lean and agile. In the development of a product one should already take into account the possibilities for re-use by third parties, or possibilities to easily extend on that product.

The idea of Lightweight Models is very superficially shown sometimes by sites, like Google’s Gmail, containing the term ‘beta’ in their logo or header. The reasoning is to suggest that the service is still in development, while, in the mean time, it is already in use. By suggesting that the service is not yet complete, Google suggests to improve the service soon, just like one would do after releasing beta versions of a software packet. But the term beta remains in the logo, which suggests Google will always be working on improving the service. This phenomenon is called ‘perpetual beta’. Updating with such fast subsequences requires an agile business model which can handle such a fast update rate. Instead of revising every year or month, like traditional software companies do with their products, web services implement new versions up to a few times a day. The required agility to be able to do so is the basis for an enabling service, the subject of next subsection.

Agility also has to do with not creating structures and limits to a service up front. McAfee mentions “Technologies that let users build structure over time can coexist peacefully with those that define it up front” (McAfee, 2006a). He suggests letting structures emerge over time, by the use of a tool or service, see the subsection on Network Effects. This is something a development model should take into account and extends the openness of the platform of the previous subsection. Again, compatibility is an important issue. Tapscott calls for removing insulation to open the way for ‘acting globally’ (Tapscott & Williams, 2007, p. 30).

Aiming for Lightweight Models also lowers transaction costs. Changing an organization costs a lot in terms of energy and investments. But developing a business in an agile and lean way from the start, makes anticipating on a changing environment take less effort.

Enabling Services

This subsection wants to compare services with regular software. Online services, or software brought to you as a service, are often promoted with the term ‘SaaS’. Examples of online services are Gmail, an email service, salesforce.com or SugarCRM, both CRM services, or osCommerce, a web shop service. These are online offered services, with or without paid membership, sometimes open source, otherwise offered by a commercial company. These services compete with software packages like Outlook for mail and SAP for CRM.

There are many advantages of online services above local software. First, there is the advantage of the maintenance of the package, which becomes part of the service provider, instead of the user. Next, updates can be implemented right away, since every user is using the online product, which discards the need for users to achieve updates, which saves costs. Updating is far easier on an Open Platform with lightweight development and business models since every user uses the online version. Furthermore, since the services run on the deliverer’s server, the delivering company has the possibility to update whenever they feel to, immediately assuring every user uses this updated version. Next, there is a logistic advantage; products delivered as a service through the Internet don’t need shipping and will therefore be delivered faster and cheaper. Next, data storage is managed online. In relation to this, the content resulting from services, for example, a document from Google Documents, is easier to share through the Internet, since the results already are stored online. This holds for backups too.

These services should not only be flexible, but enabling. This means, it should be easy to interact between services. Services, or parts of them, should ask to be interchanged with other services, to create mash-ups.
mann mention “functionality- as well as service-oriented approaches to build new applications as a composition of other, and in order to enrich user experiences” as a core aspect of Social Computing (Vossen & Hagemann, 2007, p. 67). Elements of this refer already to the next subsection, Intuitive Usability, but they also mention mash-ups and remixability when they mention the aim to build new applications as a composition of others. Also Hoegg et al. assure that “Web 2.0 services are highly dynamic, which is why this context has to be understood as an interactive development process” (Hoegg, Martignoni, Meckel, & Stanoevska-Slabeva, 2006, p. 13). The last part of this citation refers back to the previous subsection.

One condition is that the service must be scalable, preferably cost effective (O’Reilly, 2005). Since every software or service is a tool to manage content, or data, may it be documents, music, movies, financial administration, or whatever, the service must be scaled with the amount of data it handles, often related to the amount of users.

Enabling Services too lower transaction costs; one does not need local resources as much as with local software. Interchangeability enables the re-use of pieces of services and with some creativity supports innovation. There is less need for distribution, so efficiency increases. Storing the results of online services make those results better distributable to or accessible for colleagues for instance.

**Intuitive Usability**

Many of the researched resources mention something about usability or functionality. According to O’Reilly, user experiences should be rich (O’Reilly, 2005). To Hinchcliffe, user interfaces should be rich and interactive (Hinchcliffe, 2005). To McAfee, offerings should be easy to use (McAfee, 2006a). And to Vossen & Hageman functionality should enrich user experiences (Vossen & Hagemann, 2007). Usability is about the ease of use of a user interface, usability guru Jakob Nielsen explains. This breaks down to five elements; learnability, how easy is it to accomplish tasks; efficiency, how quickly can tasks be performed when learned; memorability, ease of reestablished proficiency; errors, how severe and recoverable when made; and satisfaction, how pleasant to use the design (Nielsen, 1993).

Intuitive in the current context means that the user should not have any concern about how to use a service. The *walk up ’n’ use* idea in usability jargon explains the idea. It goes one step further then the ease of learning aspect of usability. The intuitivity should ensure both experienced and non-experienced users are able to use a service. This needs a design for experienced users, who want to find enough features or personalization options in the service, to remain being of interest. On the other hand, it needs a design for non-experienced users, who want to be able to immediately know how to use the service without being discouraged by the amount of features. This is one of the preconditions for the Long Tail principle, further elaborated upon in the next subsection.

McAfee suggest replacing the WIMP components (windows, icons, menus and pointers), often used for interface design up to date, with SLATES (search, links, authoring, tags, extensions and signals) (McAfee, 2006a):

- **Search**: let users search themselves instead of preconceived notions brought up through page layout and navigation structures by editors or professional staff.
- **Links**: let (intra)nets be built by large groups so a dense link network can evolve containing information on relevance and interest.
- **Authoring**: many people can add value to a service, authoring should support the elicitation of these contributions. Wikipedia proofs that these contribution emerge to convergent, high quality content (Giles, 2005).
• **Tags:** a categorization system that emerges over time due to users’ actions. This is called a folksonomy, versus a taxonomy which imposes a categorization up front.

• **Extensions:** recommendation systems or algorithms that reason by extension to offer users things they might be interested in.

• **Signals:** when new content of interest appears, users are notified, compare syndication or RSS feeds.

Many of the underlying ideas of these components come back in the subsections about Collective Intelligence and Network Effects, but the goal is clear; make the use of a service as easy as possible, and don’t concern the user with difficulties the service can do smartly by itself. Instead, advance the user with offerings or help with information gathered in the background.

Macromedia coined the term Rich Internet Applications (RIA) to focus more on the GUI style applications that could be build with Flash. But when Google introduced AJAX technologies to create their services like Gmail, the web-based applications really got the look and feel of PC-based applications without losing their web advantages (O’Reilly, 2005). Ruby on Rails, from David Heinemeier Hansson, is another language in development and often used in recent designs. In their Web 2.0 discussion, Hinchcliffe and others called aforementioned technologies and languages, a lightweight version of SOA (Service Oriented Applications), or WOA (Web based Oriented Applications). It needs to be expressed that the specific mentioned languages are not Social Computing in itself, but programming languages in their broadest form do enable intuitive design and therefore usability. Mentioned languages are examples of enabling technologies.

That Intuitive Usability lowers transaction costs is straight forward. Ease of use increases efficiency, lowers search costs, and lowers the costs of learning a tool or service. The four principles mentioned so far are the basis for the remaining principles. They are more technological, and closely related to each other. These principles trigger lower transaction costs. The following principles tend to be more social. Those principles are a result of lower transaction costs.

### Long Tail Focus

The 0 is the only principle mentioned by just one source as a core element in Web 2.0. Still, it is included in the model. This is been done, first, because also the other sources mentioned Long Tail, though not in their definition (Hinchcliffe, 2005; Vossen & Hagemann, 2007). Next, this is been done because also not listed sources have mentioned it (Forrester, 2008). The Long Tail is an old concept, but in relation to the Internet developments popularized by Chris Anderson in his book *The Long Tail* (Anderson, 2007). Take a power law distribution, or a Pareto distribution, as in Figure 1. The horizontal axis depicts for instance an amount of clients, the vertical axis depicts for instance an amount of profit. The curve depicts the profit gained from those specific clients. As we see in the figure, there is a small amount of clients who each generate a large amount of profit, called the short neck, often about 20% of the Pareto principle. Next, we see there is a large amount of clients who each generates a small amount of profit, called the long tail, often 80% of the Pareto principle. Obviously is seems most interesting to target those clients who generate high profits. But the idea of the Long Tail is that a large amount of clients, who generate only a small profit, total for a high amount of profit as well.

The focus on the Long Tail is made possible since a decrease of, for instance, stocking and distribution costs make it more attractive to also serve niche clients. Another trend is that lower transaction costs for clients, make it more attractive for them to find other providers, which makes self-service possible. In that case it is not a provider who actively searches for clients, but a client searching for a provider, with the provider
just enabling and facilitating these searching clients.

The idea of the Long Tail is applicable in many fields. For instance, auction sites and market places on the Internet. Or online book stores like Amazon as described by Brynjolfsson et al. (Brynjolfsson, Hu, & Simester, 2007), where they describe how a large proportion of the sales of Amazon comes from niche products often not available in normal book stores. In another article they describe how lower search costs can increase the distribution of sales (Brynjolfsson, Hu, & Smith, 2003). This shows how the decrease of transaction costs makes it possible to leverage the Long Tail.

Unbounded Collaboration

Collaboration might be the main goal where the enabling role of the Internet becomes apparent. The recent Social Computing developments really add to this goal. Services and programs can cooperate, like shown in the subsection of Enabling Services. In this subsection will be focused on collaboration between people, organizations, or both.

O’Reilly mentions that respecting users as co-developers is one of the core competencies of Web 2.0 companies and acknowledges there is need for trust do to so (O’Reilly, 2005). Hoegg et al. mention the need for creating and sharing information (Hoegg, Martignoni, Meckel, & Stanoevska-Slabeva, 2006), which also points already to the next subsections. Vossen & Hagemann also make statements in this direction, but generalize by saying that personal contributions are made available to the general public (Vossen & Hagemann, 2007, p. 67). The idea of them all is clear: users add value. Or as McAfee puts it, “... most people have something to contribute, whether it’s knowledge, insight, experience, a comment, a fact, an edit, a link, and so on, and authorship is a way to elicit these contributions” (McAfee, 2006a).

With collaboration that is unbounded, we mean that collaboration is less and less dependent of place and time. When the Internet is used as a platform, offering intuitively usable enabling services, collaboration around the globe becomes very easy. Not only involving customers in the development of a new product, which is more the area of the next subsection on Collective Intelligence, but really collaboration initiated from both, or more, sides, like in the development of open source software. This new form of organization is called peering by Tapscott, and, according to him, also refers to a more horizontal organization (Tapscott & Williams, 2007, p. 23).

Users often meet in communities, dealing with a certain subject, task, or interest. When collaboration is a goal enabled by the Internet, then communities could be seen as the socialization of the Internet, or, broader, the socialization of computing. User contributions, in their broadest form, are often valuable to other users or to organizations. Those contributions lead to content enrichment and the improvement of the services dealing with this content. This enrichment and improvement will emerge over time. This is the relation between the last four subsections.

Just as leveraging the Long Tail is becoming attractive because of lower transaction costs, also Unbounded Collaboration is made possible due to lower transaction costs of working together. The Open Platform forms a perfect basis to collaborate on, using the services, usability, and resources of this platform.
Collective Intelligence

Unbounded Collaboration focused on collaboration of different parties, initiated from different sides, with the goal to together develop something. Collective Intelligence is more about individuals who do not per se have the goal to develop something collectively, but who individually work on the Open Platform, and, as a result, are developing something of value. Therefore this is also called co-creation (Prahalad & Ramaswamy, 2004).

According to Hoegg et al., Web 2.0 is “the philosophy of mutually maximizing collective intelligence and added value for each participant by formalized and dynamic information sharing and creation” (Hoegg, Martignoni, Meckel, & Stanoevska-Slabeva, 2006). This definition includes different elements. Dynamic services are mentioned again, as in the subsection about Enabling Services. Another element is to mutually maximize collective intelligence. Collective Intelligence is also a core competence according to O’Reilly (O’Reilly, 2005). Users can add value in different ways, we already saw in the previous subsection, and will do so if you harness it.

The term ‘collective intelligence’ is actually a fallacy of wrong level, since a collective cannot have intelligence. The term refers more to the process of eliciting intelligence of a lot of individuals. Collective Intelligence is the knowledge of the mass, the knowledge and competences of the total of a collection of users, on the Internet, in a community, and so on. This is also called ‘the wisdom of crowds’, a subject James Surowiecki wrote a book about; he explains: “Large groups of people are smarter than an elite few, no matter how brilliant the elite few may be. The wisdom of crowds is better at solving problems, fostering innovation, coming to wise decisions, and even predicting the future” (Surowiecki, 2004). This has been researched in the case of Wikipedia, the online encyclopedia created by Internet users. The results show that Wikipedia is almost as accurate in scientific articles as the Encyclopedia Britannica (Giles, 2005). But users do need to share their intelligence, whatever it may be, to be able to make use of it. Therefore Tapscott calls sharing as a new idea in the Internet era (Tapscott & Williams, 2007, p. 26).

The crowd is an emergent entity. This means that the more people act in some way, the more people will copy that behavior. For example, when someone is about to drown in a pond, witnesses often do not react, while everybody sees the accident happening. In such a case people are like a colony of ants, a herd of sheep, or a school of fishes. These are also called boids. Central decision making is very difficult in such a situation, since there is no common point to address, no one you can speak to in particular to reach the entire group. This phenomenon is extensively elaborated upon by Rod Beckström, in his book The Starfish and the Spider (Beckstrom & Brafman, 2006). He describes the decentralization of the Internet and explains the need for trust, as O’Reilly did in the previous subsection, since decentralization lacks control. One can create a social environment, like a community, not per se restricted to the Internet, with some structures, or facilities, where a community can and may emerge. This emerging is an organic process, which can be steered by the service providers through the identity, visibility, conversation, relation, sharing, reputation, authoring, and so on, of users. The theory of bounded rationality gives more insights in these issues (Simon, 1991).

A remark that needs to be placed is the phenomenon of the ‘one percent rule’. This rule explains that in a community, just one percent of the visitors will contribute to the community, only ten percent will react in some way, but the majority of 90% just lurks, which means, read, consumes, uses, but does not add anything of value to the community. This is a common habit in newsgroups, for example, but also on social network sites like Facebook, or initiatives like SecondLife. A possible solution for this is presented in the next subsection.
The increased possibilities for knowledge elicitation from many individuals are also made possible by lower transaction costs for those individuals to share their intelligence.

Network Effects

Instead of Unbounded collaboration, or Collective Intelligence, which implies purposeful interaction, users also can be unaware of their contributions, when just using a service. An example of this phenomenon is the Amazon suggestions: “If you like this book, you’ll probably also like this one.” Amazon can do these suggestions based on browsing and buying information of other users. This is called a ‘network effect’. Robert Metcalfe introduced the term around his network law, based on the use of the Ethernet card in the 1980s (Metcalfe, 1980). This law relates the value of a network to the amount of cards in that network. The value of one card increases exponentially when more users with a card join the network. Another example is that of a telephone; when you are the only one in possession of a telephone, it would be useless. But the more people obtain a telephone, the more people you can connect to, the more valuable you telephone will become. The same idea holds for services on the Internet where Network Effects are used. Network Effects are also known as network externalities (Katz & Shapiro, 1985).

Hinchcliffe calls Network Effects “the real secret sauce of Web 2.0”, emphasizing this phenomenon is becoming really visible and used in recent Internet developments. This is because the appliance to a service has been made easy through other developments, like sharing and feedback loops (Hinchcliffe, 2006). The more users use a service, the more valuable the service becomes. Examples are countless: Wikipedia, the more users contribute and edit articles, the more accurate information on it will become, and the more users will come to use Wikipedia. Del.ici.ous, the more users add tags to their bookmarks, the better these tags describe the content behind the bookmark, the more findable they become. Flickr, the more users add tags to a picture, the better the content on this picture is described, the better findable it becomes.

To leverage the value of Network Effects, a certain amount of users, contributors, editors, and so on is needed. This amount is called the critical mass. Depicted in a usage curve, when the critical mass is reached, the usage of the service will increase steep at once, whereas before that point the usage did increase slowly. This point in the curve is called the ‘tipping point’ (Gladwell, 2000). How to reach this point has been described by Moore in his book Crossing the Chasm (Moore, 1991). This, again, has relations to the adoption phases in the diffusion of innovations theory of Rogers (Rogers, 1962).

To make use of the Network Effects, and to overcome the problem of the one percent rule of the previous subsection, the aim is to let the Network Effects happen automatically. “Only a small percentage of users will go through the trouble of adding value to your application. Therefore: Set inclusive defaults for aggregating user data as a side-effect of their use of the application” (O’Reilly, 2005). This way, users contribute to building applications getting better the more it’s been used. One of the first success stories relying on this phenomenon was Napster, since Napster was configured to share downloaded music by default, which automatically increased the size of the music database. This architectural trick uses the ‘selfish’ pursue of users to collectively build value as an automatically byproduct, explains O’Reilly.

McAfee calls this phenomenon ‘extensions’, meaning “… automating some of the work of categorization and pattern matching”, as we already saw in the subsection on Intuitive Usability (McAfee, 2006a). Vossen & Hagemann mention that the socialization of the web often leads to improvement of the underlying platform (Vossen & Hagemann, 2007, p. 67). Again, this
is something reached with a service developed to make use of those improvements.

In relation to the Network Effects stands the phenomenon of cumulative advantage, or the Matthew-effect, from the parable of the talents in the Bible in the book of Matthew. Robert K. Merton described this effect already in 1968 (Merton, 1968). The theory learns that the rich get richer or he that has much will get more, and he that has few, even what he has will be taken. Take again the tipping point in the usage of a service from the previous subsection. When a service reaches the tipping point in usage, its usage will highly increase. Therefore the Network Effects become more usable to the service, resulting in even more value. Also called a waterfall effect or increasing returns.

Because of these increasing returns, some argued that being first to a market will result in first-mover-wins, or winner-take-all principles. According to them, lock-in should guarantee corporations to ultimately make profit from the Network Effects. But, as Liebowitz explains, the opposite is true on the Internet, whereas the Social Computing developments even more undermine these thoughts. Because of lower transaction costs, it will be easier for users to switch from providers, so lock-in will not hold (Liebowitz, 2002, pp. 20, 21). Section 2 already showed how lower transaction costs help coordination barriers from switching to other providers. Social Computing highly extends to lower transaction costs and coordination, thus decreasing lock-in possibilities even more.

This does not mean the Network Effects will decrease in the Internet era, they will not. But using Network Effects for first-mover-wins, or winner-takes-all principles, thus aiming at lock-in is not truer on the Internet than it is in the off-line world. Social Computing doesn’t change that, or undermines it. A research from McAfee and Brynjolfsson revealed that winners might win big and fast, but not necessarily very long (McAfee & Brynjolfsson, 2008). Remember how quick Yahoo! replaced AltaVista, and how quick Google replaced Yahoo!. They conclude, therefore, that competition gets nastier.

**User Generated Content**

All the previous subsections were about how to approach a platform, build services, deal with users and their contributions. But O’Reilly is right, when he says, in the end it’s actually all about data (O’Reilly, 2005). Hinchcliffe calls data consumption and remixing a key aspect of Web 2.0 (Hinchcliffe, 2006). Also McAfee and Vossen & Hagemann mention the central role of data or information and its enrichment and utilization. In sketching the trends of the Web for the future, Berners-Lee sees that “... the Web will become one big database” as one trend (Berners-Lee, 2007, p. 5).

O’Reilly stimulates to seek for hard to recreate data for competitive advantage. Good examples of valuable data owning companies are NavTeq and TeleAtlas, who create geographical maps. Both companies were bought in 2008 for more than ten times the turnover they made in 2006, NavTeq by Nokia and TeleAtlas by TomTom. What’s more, TeleAtlas did not even had one year of profit in its existence. Many companies rely on their data, as do some organizations on the Internet as well; MapQuest, Yahoo Maps, MSN Maps, Google Maps and Google Earth.

This data can be news, information on books, events, weather, market places, stock and market prices, and so on. Many websites rely on only a few data sources. Advantages are sought for in reusing and smartly enriching data, or offering tools to do so. The owner of the data is key. Ownership is important, but also in this area things are changing. For example the authorship rights on the Internet are very difficult to restrain. On the Internet, especially in recent developments, combining, sharing, enriching content is of value, as we have seen so far. So by claiming too much rights and protecting data, one blocks
The Emerging Value of Social Computing in Business Model Innovation

The value adding possibilities. This not only is a missed chance for the community, but also puts the author out of the picture, since it is hard to use content which is not accessible. A corporation doesn’t make money with content, but because of content. Graham puts it this way: “Experts have given Wikipedia middling reviews, but they miss the critical point: it’s good enough. And it’s free, which means people actually read it. On the web, articles you have to pay for might as well not exist. Even if you were willing to pay to read them yourself, you can’t link to them. They’re not part of the conversation” (Graham, 2005). Therefore some new initiatives rise around this subject, like the Creative Commons, which is a method for describing the authority of created content.

Content may be the core in Social Computing, there are also drawbacks to opening up content, and working and storing your work online. First, there is the concern of often heard suspicion on privacy issues. When using Gmail as your email service, its contact list as your address book, Google Docs to create and share your work, and Google Blogger to write about your personal interest, imagine the amount of personal and professional information Google gathers about you.

Another, relating issue is that of authoring; what about security of what you create online? Microsoft assures that a platform like Windows on a local desktop PC is necessary to guarantee the right application of these issues. This is not necessarily the case. Again, it is about trust. If Google would be transparent enough to its users, by showing how they deal with these issues, it is possible for the user to decide whether that is sufficient. Then, the user will remain using the services of Google. Or whether that is not sufficient enough. Then, the user than can switch to an organization that offers privacy and security according his or her wishes. It therefore is the user who decides who to trust and who not. This aspect is in such a situation just a part of the business model of the organization, an added value of an online corporation. As for privacy issues, the discussion will presumably change from protection by authorities, to self protection, or openness, from users. So these aspects do, in fact, have nothing to do with the platform. But now we are already too much into the next sections, where business models make their entry.

The Nine Social Computing Principles

We have elaborated upon the nine Social Computing Principles. The first four principles are technological and lower transaction costs, since searching, editing, and reaching of content and services becomes more easy, more accessible, increasingly efficient, or cheaper The last five principles are social and emerge due to lower transaction costs. The principles are depicted in Figure 2, in a more structured way, with technical enabling principles at the bottom, to more social resulting principles at the top. In previous research we would refer to Social Computing based on these principles as a development where technologies enable empowerment of individuals, or groups of individuals, to express themselves in a more natural way, leading to easier creation, enriching, sharing, and finding of content (Knol, Spruit, & Scheper, 2008).

BUSINESS MODELS

To see where in business Social Computing can be supportive, we will relate them to a business model. A generic business model is a tangible tool to point out which aspects of an organization can be supported with the Social Computing principles. The increasing impact of Social Computing on business “should (…) not be neglected from an academic perspective. New business models arise and existing business models are highly affected by Web 2.0 communities” (Hoegg, Martignoni, Meckel, & Stanevska-Slabeva, 2006).
Although the term ‘business model’ gained growing reputation in the last two decades (Osterwalder, Pigneur, & Tucci, 2005, p. 3), the basis of its definition comes from Andrews’ classic definition of the strategy of a business (Chesbrough & Rosenbloom, 2002, p. 7). This definition states business strategy as “the determination of how a company will compete in a given business and position itself among its competitors” (Andrews, 1971, p. 12). Chesbrough, stresses that the strategy of a corporation is at several points somewhat else than a business model; first, a business model focuses on value creation, while a business strategy focuses on how value will be captured; next a business model seeks to create value for the organization, while a business strategy seeks to create value for an organization’s shareholders; and finally, a business model needs less environmental knowledge, whereas a business strategy needs more complex information, also about the environment (Chesbrough & Rosenbloom, 2002, p. 535).

In his book Open Innovation, Chesbrough elaborates on business models in the context of innovation within a corporation, based on both scientific and business cases. He defines a business model as a method to convert a new technology into economic value (Chesbrough, 2003, p. 63). That places a business model in a bigger picture.

Chesbrough stresses the need of a business model by explaining that the commercializing of an innovation does not exists in the product or service using the new technology, but in the business model which underlies that product or service (Chesbrough, 2003). Osterwalder did a thorough research to the origins and developments of the business model, and gives a useful representation of most recent literature on this topic. He defines a business model as: “… a conceptual tool that contains a set of elements and their relationships and allows expressing the business logic of a specific firm” (Osterwalder, Pigneur, & Tucci, 2005). His generic business model is depicted in Figure 3.

**Figure 2. The nine principles of social computing, of which the bottom darker four are technology oriented and the upper lighter five are socially oriented (Knol, Spruit, & Scheper, 2008)**

![Figure 2](image-url)
The Emerging Value of Social Computing in Business Model Innovation

Figure 3. The business model and its building blocks (Osterwalder, 2005)

As mentioned in the previous section, the Value Proposition and the customer, or market, segments are closely related. A segment is a group of customers with the same characteristics. The Value Proposition is determined for each Customer Segment, or the other way around, the Customer Segments are determined for the different Value Propositions of an organization. Sometimes it might be better first to determine the Customer Segments and next find proper Value Propositions for each segment. The satisfaction of a customer’s need should be turned into a Revenue Stream. You need to know the customer in order to know what value you should create for him or her and where you should focus your activities in order to create or capture these values. Therefore it might be that, with the same technology but a different customer, a different value should be created. Famous is the case of Canon entering the printing market, which up till then was dominated by Xerox. Canon targeted the small businesses and home consumers, and took a fair bit of the market share from Xerox, which in turn had always targeted the big corporations (Chesbrough, 2003, p. 74). A smart business model made the low-end focus of Canon successful, in this seemingly impenetrable industry.

Once the Customer Segments are mapped, you need to determine how you are going to communicate with your customers. This can be by advertising, promotion teams, websites, phone...
inquiries, and so on. Of course also the Internet plays a growing role since its commoditizing from around 1995. Communication not only includes sending your message to the customers, but also to hear from the customers their reaction on your Value Proposition. In addition you need to know how well your channels work, and by which means you reach which Customer Segments. Channels not only include the flow of communication between you and the customers, channels also include how you offer your Value Proposition to them. You should determine the best distribution channel for each of your offerings. This, of course, heavily depends on what this Value Proposition is. Be it an online service, then the Internet will be your channel, which results in low costs. Be it a tangible product, then it might be delivered through a retail shop with additional transport aspects. Or you might use both channels for the deliverance of your tangible product and for the after sale services.

Customer Relationships include the type of relation you maintain with each Customer Segment for each Value Proposition. Important is the expectation you create with your customer. Different customers expect different relationships, for example customers paying more expect more. Customer Relationships has great overlap with Customer Relationship Management (CRM), which also is about how you create an appealing environment in which the customer wants to identify himself and what a customer is willing to pay for that. Closely related to the Customer Interface of the business model is the value discipline ‘Customer Intimacy’ of Treacy & Wiersema (Treacy & Wiersema, 1995).

The Customer Interface for a certain Value Proposition is now described. But for the Value Proposition you offer to the customer, you want something in return. That is called the Revenue Stream. The Customer Interface of the business model needs to convert your offered Value Proposition into revenue. Those Revenue Streams might be the profits of selling products, renting products, transaction fees, advertising fees, subscription models, or even giving away a Value Proposition. The overview of the Revenue Stream for each Customer Segment and each Value Proposition gives insight in the contribution of the different Customer Segments to the total Revenue Stream. This might help in determining the effort you want to put into the value creation or capturing for each Customer Segment.

On the Asset Management side of the business model, first the Key Resources and Competencies block shows up. Here you need to describe which resource your corporation has internally, like human resources, building materials, and capital. They also might be your competences, like knowledge, data, or IT infrastructure. Some of these core capabilities might be increasingly difficult to measure, like your brand equity or expertise. You should ask yourself whether each resource is needed to create the Value Proposition you deliver. Your Key Resources and Competencies are highly accountable for how your corporation will sustain competitive advantage in how you gain differential access to these resources (Wernerfelt, 1984).

The Configuration of Key Activities is a highly accountable building block for sustaining competitive advantage in how you design your internal processes to create value for the customer, when they are difficult to imitate (Wernerfelt, 1984). This block determines the configuration of your Key Resources and Competencies mentioned in the previous building block. Having the right resources and competencies is one thing, but how to apply them to create a Value Proposition is another one.

Your Partner Network is the last building block on the infrastructure management side of the business model. This block determines who the partners and suppliers are that you work with to create your offered value. Therefore this block sometimes is called value network. This block gains importance since networks are increasingly important in today’s economy, a network economy.
Also, the value chain is more and more becoming a value network, where the customer also might be someone helping on new product design. This block also determines which activities the corporation does by itself, and which activities should be in-sourced, or out-sourced to obtain the required resources for your Value Proposition. Finally the relation of your Value Proposition and that of other corporations is determined here, for example by finding complementary products that increase the value of your proposition. The Asset Management side of the business model is closely related with the value discipline ‘Operational Excellence’ of Treacy & Wiersema (Treacy & Wiersema, 1995). Not the partners themselves are part of the operations, but the ability to incorporate the necessary input of partners into your operations.

The costs of the running a business according to your business model is determined in the Cost Structure building block. Here, you can specialize the costs by sorting them in high to low order, and by referring them to other building blocks, like resources or Customer Segments. This way the profitability of a value offering can be determined. The Cost Structure also gives insight in the demanded prices of your offerings and the justification of target margins. Competing on ‘costs’ is another way defined by Porter in sustaining competitive advantage against your competitors (Porter, 1985). Notice that the financial result of your business is determined by the results of the Revenue Streams minus the results of the Cost Structure.

**RELATING SOCIAL COMPUTING TO BUSINESS MODELS**

This section will now extend upon the previous chapters. The idea is to look again to business models, only now with the Social Computing principles in mind. The aim of this section is to see how Social Computing supports the different business model building blocks. Although the application of Social Computing in an organization often is referred to as Enterprise 2.0, according to McAfee (McAfee, 2006a), the school of Enterprise 2.0 limits itself to the intranet of the company. This chapter takes a broader perspective and examines both the internal and external environment of an organization, including both intranet and the Internet. This chapter therefore proposes to broaden the term Enterprise 2.0 accordingly.

Knol, Spruit and Scheper (2008) analyze a series of thirteen expert interviews to obtain more insight into the relationships between Social Computing principles and business model building blocks. Therefore, they asked experts to mark relations between them. Next, they analyzed these relations, clustered them in three groups and labeled those groups Open Collaboration, Lean Configuration, and User Value. Open Collaboration contains the Social Computing principles covering openness, accessibility, remixability, and interchangeability, as basis for collaboration without boundaries. Lean Configuration contains Social Computing principles relating to flexibility, scalability, and focus on all users. Finally, User Value contains Social Computing principles focusing on the users and how and what they contribute. They find which building blocks are most strongest related to the principles in each cluster. The first cluster highly supports both Customer Relationships and Partner Network. The next cluster mostly supports Customer Segments, Communication and Distribution Channels, and Configuration of Key Activities. The third cluster mostly supports Value Proposition, Customer Relationships, and Partner Network, considering the user might also be a partner. The three clusters reveal where the Social Computing principles most support the business model, see Figure 4. At these places most possibilities exist for business model innovation supported by Social Computing principles.
Application

Following Osterwalder (2005) we will use the music industry as a case to apply the Social Computing principles in business. The Value Proposition in the music industry can very well be created by the customer. When thinking of User Generated Content, it is the user himself who is enabled to create and share music. He is enabled to express himself online and share those expressions on open accessible platforms like MySpace, YouTube, and AmieStreet. The Intuitive Usability of these services makes them highly used. More Value Propositions will be invented, because of the ease of combining them; creating mash-ups. Since the music can be copied in a wink at hardly any costs, value goes to more one-of-a-kind experiences, which cannot be copied.

Next, it is also the user who selects the music he wants to hear. This can be very niche, since there are enough sources and access is easy. Customers are to be found in the Long Tail, small groups, or even individuals, with very diverse music tastes. Size is no restriction, there is enough supply. The musician can link to his work, his Value Proposition, share it, give it away, and so on. Many bands already did this: Radiohead puts their newest album online for free and just asks for a tip. Prince gave its new album away through a magazine. And there are more examples. The Communication and Distribution Channels change from pushed distribution, to pulled discovery channels. Searching and finding is important. The availability of accessible work makes an artist better known, yielding more demand, so Network Effects appear. Distribution costs almost nothing.

The relationship between a musician and a customer becomes more individual. Customers become ambassadors of their favorite artist. Relationships occur in social networks. Because User Generated Content supports Customer Relationships, customers are involved in the music creation. The Collective Intelligence of customers is input for the artist. These sources can be approached since it becomes easy to contribute. Intuitive Usability is the basis for reaching those inputs. The Revenue Streams per song go down fast. Profit needs to be found on other aspects, adjacent stages of a music song. These stages probably will be more focused on experience, live concerts, merchandising, and other aspects of music which remain scarce. Music itself tends to be free, the transaction costs for it are too low to charge for it: Music becomes a commodity, because of an infinite supply and an infinite demand, and since barriers in transaction are taken away.

The artist will use other Key Resources to create his music. Not only his talent, but also his ability to use someone else’s input becomes important. Other musicians and customers become important...
resources. An artist doesn’t need a label anymore. He himself can aim on discovery by being active in proper networks. This becomes a Key Activity for an artist. Customers like personal experience. So the artist needs to be active in Open Platforms ensuring discovery. On these platforms the Partner Network can be found too, often being customers. They together have Collective Intelligence to help an artist create the proper Value Propositions. These platforms are the places where the Unbounded Collaboration occurs.

Because of his highly Lightweight Models, the artist isn’t left behind with high costs. The needed infrastructural assets are easily achieved by subscription. For instance, Amazon S3 supplies him with hardware needed to store his musical works, online, easily accessible, easy to share, maintained by the provider. When not needed anymore, he just stops the subscription and doesn’t stay with the hardware. Most of his costs become variable, making his business scalable.

Where does that leave the music labels? Some think new opportunities exist in full-servicing musicians. Not only finding talent and commercialize their work on CD’s. But also taking care of the concerts, the merchandizing, the promotion, video’s, producing, recording, and so on. Everything an artist needs should be covered by one company. Another option would be to seek new-markets. Most likely those markets will concern some experience, wanted by customers, and that cannot be copied.

**CONCLUSION AND DISCUSSION**

This chapter walked through a few steps. First, we showed that standards increase efficiency and interchangeability. Because of this efficiency, transaction costs, like searching and negotiating, will become lower, making it easier to share, create, and locate transactions containing a certain Value Proposition. Lower transaction costs therefore are a main driver in the value of the Internet as a whole and Social Computing in particular.

Next, based on literature the main principles that underlie Social Computing were found. These principles first exist of technologically oriented ones, being Open Platform, Lightweight Models, Enabling Services, and Intuitive Usability. Next, social or user oriented principles are the Long Tail, Unbounded Collaboration, Collective Intelligence, Network Effects, and User Generated Content. These principles were validated in the interviews with Social Computing experts. Based on these findings Social Computing has been defined by this research as referring to a development where technologies enable empowerment of individuals, or groups of individuals, to express themselves in a more natural way, leading to easier creation, enriching, or finding of content.

Third, a business model was shortly described, based on recent literature, as a conceptual tool that contains a set of elements and relationships, and allows expressing the business logic of a specific firm. The different building blocks gave insight in how a business model can be designed and applied, with respect to a Value Proposition, the Customer Interface, the Asset Management, and the Financial Aspects. The business model was introduced to find a way to relate the found Social Computing principles to a tangible model representing the way of doing business.

Next, this chapter showed that the parts which are best supported by Social Computing are Customer Relationship and Partner Network. But also Value Proposition, Communication and Distribution Channels, and Configuration of Key Activities can be supportive in business. Many of those building blocks with a strong relation to Social Computing, connect the business to its environment, which is assumed to be the main reason why actually these building blocks can be supported with Social Computing. Recent developments show a standardization and commoditizing of ICT and its tools which will lead to lower transaction costs in the area of information transactions.
Most of these transactions take place between a company and its partners and customers, in the transformation from input to throughput, and from throughput and output of an organization. Next, partners, including customers, also can be of high value in co-creating a value proposition. This is because standardization and commoditizing make information sharing, finding, and enriching more accessible to individuals. Therefore, organizations should focus on those areas, for as Social Computing is most supportive there. It does need an adjustment of the key activities of a company, and an adjustment of the channels to reach the customers which can be assumed to be the main reason why those building blocks are affected as well by Social Computing. These building blocks especially do need thorough consideration for Social Computing support in a business model innovation process.

REFERENCES


The Emerging Value of Social Computing in Business Model Innovation


The Emerging Value of Social Computing in Business Model Innovation


ENDNOTE

1 We use the term Social Computing in this paper, since it covers both the technological and social aspects of the developments under discussion. Web 2.0 is popular, but rather biased, and strictly speaking not accurate; the developments we are talking about occur on Internet as a whole, and are thus broader than just the Web.