3-28-2008

# The Realm of Sociality: Notes on the Design of Social Software

Wim Bouman
w.bouman@gmail.com

Tim Hoogenboom
mail@timhoogenboom.nl

RenÃ© Jansen
rene@winkwaves.nl

Mark Schoondorp
mark@winkwaves.nl

Follow this and additional works at: http://aisel.aisnet.org/sprouts_all

### Recommended Citation

# The Realm of Sociality: Notes on the Design of Social Software

Wim Bouman

Tim Hoogenboom

René Jansen

Mark Schoondorp

Bolke de Bruin

Ard Huizing
University of Amsterdam, Netherlands

**Abstract**
In this article we seek to understand and clarify the contribution of the multifaceted concept of sociality towards the design of social software systems. Our premise is that it is not software as such that is social, but the free choice of people to engage in social activities. Paraphrasing Wenger (1998): sociality cannot be designed; it can only be designed for. We adopt a soft systems approach to cope with the loosely defined concepts of social software. The paper's main contribution to the field consists of the theoretical work on the sociality based conceptual model, identifying if and to what degree software systems can trigger social behavior, and the design framework that stretches beyond the more traditional functionality-based approaches and focuses on the realms of sociality. We consider this orientation toward sociality, not functionality, a valuable contribution to the field of study.

**Keywords:** Social software, sociality, design framework, soft systems methodology

**Permanent URL:** http://sprouts.aisnet.org/8-1

## Introduction

---

*Friday afternoon, the pub is crowded. "Anyone a beer?", someone shouts. "Yes please, it's weekend!" and someone passes a beer and a bowl of deep fried snacks. Interestingly, the smell of snacks is absent and so are the people involved. Or are they not? Forty-three comments have been made on the "Friday afternoon drinks" blog posting since 5 p.m. A couple of people were early. Did they skip work?*

*We are not observing a normal pub where you can meet your friends and have a drink. Instead we just typed in an address in our web browser and we ended up at a blog. Still, from the described picture it becomes clear that this blog has certain features of a real pub. People are talking, passing plates, maybe skipping work and sometimes they complain about the music being played.*

The promise of social software is that it allows for social relations in cyberspace that are nearly as rich and meaningful as those in real life (Boyd and Heer 2006; Kaiser et al. 2007). Over the years, we have seen the development of a stream of services that people use when they engage in social activities (Efimova 2004; Kelleher and Miller 2006). We have seen the growth of social network services, social network search engines and social bookmarking, to name a few. LinkedIn, del.icio.us, Flickr, Wikipedia, Facebook and Last.fm are a few well known examples. These services have in common that they provide functionality to communicate, to interact, or to form relationships in one way or the other (Boyd 2007). We have also seen people using established services like blogs, forums or wikis to create and maintain groups and group memberships. It seems that people use whatever they have at their disposal when it comes to engaging in social activity.

We hold that sociality, not functionality, is the key concept in social software systems. In understanding sociality, we are able to understand what it is that makes people form or engage in social groups to pursue companionship. It will ultimately allow us to understand and improve the design and development of social software. Following Wenger (1998), we argue furthermore that sociality cannot be designed; it can only be designed for. People have a free choice in their use of tools to engage in social activities. From the rich picture above, we learned that even an unlikely instrument as the comment section of a blog can serve as a community's tool of choice when it comes to seeking or enjoying companionship. However, from a designer's perspective, one would like to learn what it is in social software that makes it work in a

*4*

social context. That is, how people feel that they are stimulated to engage in creating or joining a social group.

People have a variety of ways of building their social environment. These include communities, networks, objects and systems. In this paper we focus on social software systems as a means of pursuing sociality. Social software systems are soft systems in the sense that they are not confined to the software system itself but include the situated experience in real life as well. Certain facilities of social software are able to trigger mechanisms in people that make them engage in offline and online social activities. Based on our research, we present a conceptual model as well as a design framework to describe and explore the issue of social software design. We define social software as soft systems that trigger mechanisms of sociality. The question under study is: how does the concept of sociality contribute to the design of social software systems? In answering this question we learn that the design of social software systems is a multidimensional problem that stretches beyond connecting people and information. We hypothesize that, in order to create social software, a designer has to address in one way or the other all issues of enabling practice, mimicking reality, building identity and actualizing self. Given the current state of social software we consider this a world not yet explored, but worth discovering.

**A Soft Systems Methodology approach**

Following a soft systems approach, we explore the contribution of sociality to social software. We have chosen this methodological approach and have found it to be very effective and useful in this field of study, where concepts, theory and technology are in a constant state of flux. Acknowledging that reality is socially constructed, Soft Systems Methodology is a qualitative, interpretative methodology that is particularly suited for the analysis of complex, ill-defined situations where there are divergent views about the definition of the problem, while the reasoning strategy of this methodology is centered around model building and testing (Rose 1997). We refer to Checkland (1981) for an in-depth discussion of this methodology.
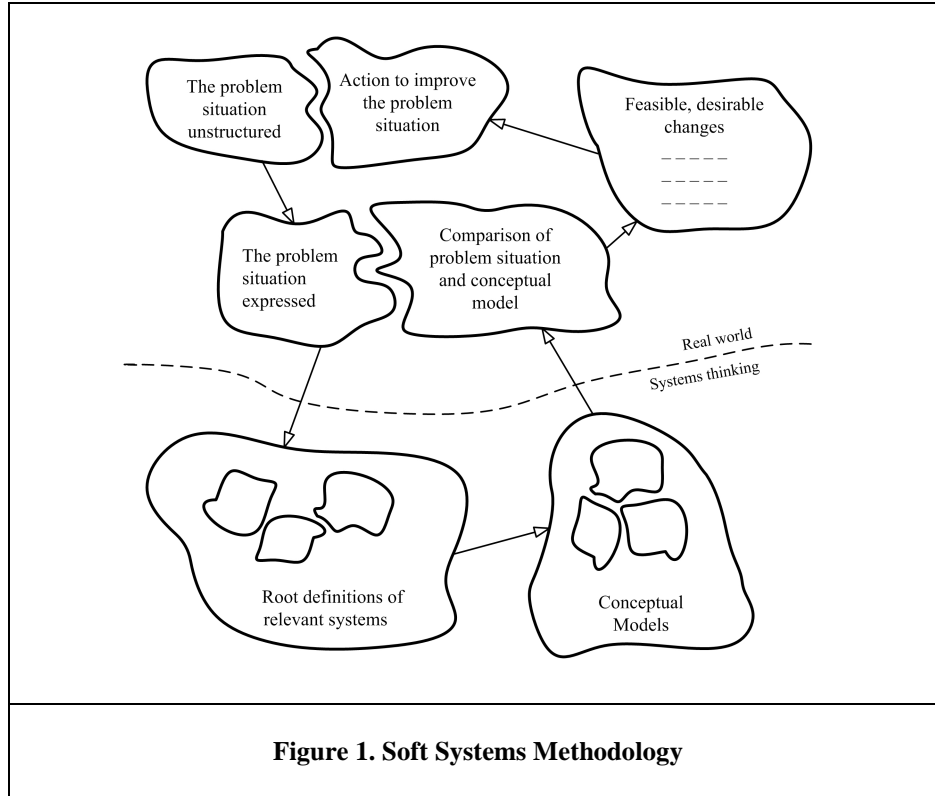
*5*

**Figure 1. Soft Systems Methodology**

In our research and in this paper we essentially follow the steps depicted in Figure 1. The rich picture of the online pub acts as a narrative into our field of study. The problem situation has been identified as a design problem. We define the conceptual model using our root definitions of systems relevant to a theory of sociality that can be used to design and develop social software systems. In our research we call these relevant systems realms. A realm is a set of cohesive theoretical constructs which are perceived as one concept if looked at from a distance (De Bruin 2007). This perceived concept is known as the leading concept. For instance, in the realm of building identity, the concept of identity is leading but the realm itself comprises many variables. We then build a conceptual model that unravels the broad concept of sociality into four domains: the realms of enabling practice, mimicking reality, building identity and actualizing self. The conceptual model helps us understand and describe how these areas each have their own different mechanisms that trigger social behavior. By using the concepts of our conceptual model, we subsequently develop a tentative design framework consisting of design domains, design criteria, design parameters and design dilemmas with the goal of providing directions for practitioners in the field of social software. Finally, we confront the current state of affairs in social software with our conceptual model, illustrating the various concepts by case descriptions of well known social software services. A short discussion on proposed improvements for practice as well as theory concludes this paper, in order to provide rigor and relevance for regulative and reflexive purposes (Van Aken and Germans 1994).

## Sociality and Social Software Systems

Sociality refers to the tendency to associate with or form social groups. Sociality is a derivative of biological anthropology practices, to understand how creatures organize their relations. Human sociality is thus about how actors relate to each other to organize their social practices and construe their identities (Fiske 1998). Sociality can be mediated by group-based or artifact-based interactions. In the first type of sociality, people form groups by relating directly to each other. In the second type a perceptible object situated between people acts as a connector (Star and Griesemer 1989). Social groups are also characterized as being one-dimensional, strongly focusing on a particular aspect of a social group, or multi-dimensional, referring to more complex social relationships including various processes of negotiation, participation and sense making over time. Taken together, both distinctions lead to the classification scheme presented in Table 1.

| **Table 1. Types of sociality** | | |
|---|---|---|
| | *One-dimensional* | *Multi-dimensional* |
| *People- or group-based* | *Network-centered sociality*<br><br>A sense of belonging arises from connectivity in a network. The degree of sociality stems from the number of people known, social invitations and so on. | *Community-centered sociality*<br><br>A feeling of companionship arising from a community in which participation and membership shape social relations over time. |
| *Artifact-based* | *Object-centered sociality*<br><br>A shared experience and meaning arises from objects valued as belonging to or characteristic for a certain group or an in-crowd. | *System-centered sociality*<br><br>A mode of belonging based on the feeling of participating in a social software system. |

*Network-centered sociality* is about people relating to each other by means of their personal network. In this type of sociality, social relations are not narrational but informational. They are not based on mutual experience or common history, but primarily on an exchange of data and on catching up (Wittel 2001). This type of sociality is primarily about connecting to each other, without necessarily having a shared interest. If relations become more stable and interactions between group members evolve around mutual practices, the concept of *community-centered sociality* comes to the fore. Wenger (1998) ascribes community-centered sociality to the level of participation and belonging by individuals within a community of practice and vice versa. Belonging to a community is mediated by so called legitimate peripheral participation, in which members gradually shift from participation with members at the boundary to participation with members at the core of a community. Nardi et al. (2002) also mention that

*7*

their sociality is kept alive by the acts of remembering and communicating with the participants within their community. Community-centered sociality evolves from interaction between people to participation between members, which makes this type of group-based sociality more complex than network-centered sociality. When artifacts fulfill a mediating role in binding persons we speak of *object-centered sociality*. Objects that are situated between intersecting persons and communities and that are supportive of various practices affect sociality (Gal et al. 2004). Boundary objects were commonly perceived as being translational instead of relational artifacts (Pawlowski and Robey 2004), while Gal et al. (2004) relate these boundary objects to the formation and adaptation of social structures, and thus to sociality. An example of object-centered sociality is provided by the iPod. At parties, iPod-owners are allowed to plug their iPods into a club's stereo system so that everyone can dance to a song or two from those persons' playlists. Moreover, the existence of the iPod has given rise to the development of a specific, in-crowd terminology. In *system-centered sociality*, the boundaries between the virtual and the real blur even more. Whereas an iPod is a tangible object with clear boundaries that may enable sociality, a system actively participates and intervenes in group formation by, for instance, automatically suggesting new relationships between participants and allowing multiple identities. Typical examples in which system-centered sociality plays a decisive role are Last.fm, Twitter.com, LinkedIn and Friendster, which are discussed in detail later in this paper.

The four modes of sociality are in our view equally important in describing and understanding the various ways in which people form or engage in social groups. Of these modes, system-centered sociality is the most complex and least understood, and at the same time the most relevant given the increasing role for social software in connecting people to their various groups. Therefore, system-centered sociality, mediated by social software systems, is the object of our study. It is also the central concept in the conceptual model that underlies our social theory of software design.

**A Conceptual Model**

Following Wenger (1998), we hold that a social theory of software design is at the intersection of main axes of relevant traditions (see Figure 2). These traditions include the well known debate between structure and action, as well as the dichotomy between identity and practice. It reflects academic debates like those of Luhmann (1985) (the sociological systems theoretic) and Habermas (1981) (known for his theory of communicative action), and also spans the philosophical concepts of Eros and Thymos as expressed by Sloterdijk (2006).

As to the vertical axis in Figure 2, our concept of sociality as a driving force for the design and development of social software is positioned in the middle between social structure and situated experience. Theories of *social structure* give primacy to institutions, structures, norms and rules. They

seek to understand action of social actors as a result of underlying structures, discourses and history. We concur to the view of Luhmann (1995), in that we view the social structure of the system as disembodied, in other words as transcending the individual. On the other hand, theories of *situated experience* emphasize agency and intentions. They address the relationship of people with their environment, or as Argyris (1993) puts it: action is how we put meaning to life. We contend that system-centered sociality is a matter of culture and history. Design and development of social software systems are processes of continuous interaction in which the social software system is reinvented and renegotiated continuously by the purposeful action of social actors.

Regarding the horizontal axis in Figure 2, we also place our conceptual model between theories of social practice and theories of identity. Theories of *social practice* emphasize the social mechanisms or resources by which groups organize and coordinate their activities, whereas theories of *identity* are concerned mainly with the social formation of the person and the complex relations between individuals and groups (Wenger 1998). Identity refers to the construction of 'self', the mental apparatus that underlies self-reflection (Leary and Tangney 2005). In our view of sociality as a critical factor in social software, we hold that both the evolution of practices, the inclusion of newcomers and the development of identities should be incorporated.

Following another central concept in the work of Wenger (1998), we develop our conceptual model further to include the above dualities of structure and experience, and practice and identity by creating *realms* on the diagonal axis, representing design areas to be included. These realms are spaces of co-existence, in the sense that they are spaces that are commonly overlooked or taken for granted and conceal information crucial to developing an understanding of what humans are (Sloterdijk 2006). The resulting conceptual model is depicted in Figure 2.

**Figure 2. The Realm of Sociality: A Conceptual Model for Social Software**
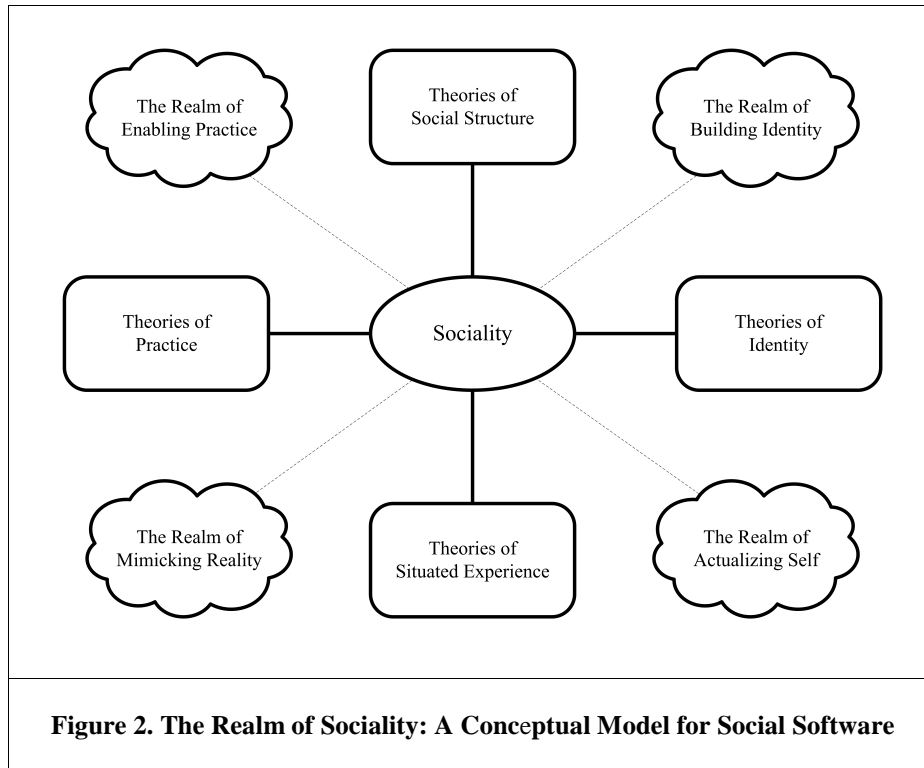
In general, we refer to the overall concept of the model as the *realm of sociality*. This realm combines all perspectives on sociality from the main theoretical points of view. On the duality between social structure and practice (Giddens 1984), we identify the realm of *enabling practice*. It indicates the domain in which the social software system operates to support and enable a social practice that exists – or sometimes could or even should exist – in the real world. A well known example is social networking, which is a real practice easily translated into software practice. Other examples include wikis, aimed at opinion making or knowledge sharing, and storytelling as supported by blogs (Hoogenboom et al. 2007). While the realm of enabling practice indicates *what* social phenomenon is being supported by a social software system, the realm of *mimicking reality* expresses *how* this is achieved. For instance, the concept of 'digging' a certain something, which is slang for appreciating or understanding something, exists as well in the real world as in the social software of Digg.com. This resembles what Lakoff and Johnson (1980) refer to as 'metaphors we live by'. From our research we learned that people actually are more inclined to use software systems that resemble their daily routines, language and practices than to adopt whole new concepts, interfaces and methods.

Between social structure and identity, we identify the realm of *building identity*. As in any real world community or other social group, we hold that social software should provide the mechanisms that allow for building a proper social identity or constructing and activating relevant working self-concepts (Showers and Zeigler-Hill 2005). A large part of this realm is concerned with the ability to show others a desired picture of self, a version of one-self that is goal-relevant. Two examples of social software illustrate this. Creating a personal page on MySpace can be interpreted as mainly a matter of showing off: 'Wouldn't I be your perfect friend?', thus reflecting the human urge to be popular. Likewise, social bookmarking software like del.icio.us not only acts as a handy way of organizing one's bookmarks, but also reveals a picture of self to the world. Lastly, in the realm of *actualizing self* we collect all mechanisms referring to personal identity, ultimately aimed at self-actualization (Maslow 1943). We contend that humans are inclined to develop themselves by using their social environment to learn to discover new perspectives, and to challenge one-self in terms of creativity, morality and so on. A practical example of actualizing self is referrals made in social software like Last.fm.

**Case: Last.fm**

Last.fm is an internet based radio station and social recommender of music. People can classify their music and give their opinion by rating it, find kindred spirits and get information about events of their likings. Last.fm is a social platform that has gathered millions of participants since its startup in 2005. It enables people to listen to music they like, based on what they listened to before. Last.fm creates these recommendations by gathering musical preferences from its users' local and online playlists. By combining these preferences with collaborative filtering, Last.fm aims to achieve a high accuracy of delivering the right music to the right people.

*The realm of enabling practice.* Listening to music, finding new music, finding people who like the same music, and sharing one's taste – Last.fm supports the whole range of what the life of a regular music lover consisted of for the last fifty years. Hanging out in the local pub, talking to each other about the newest, hottest or most obscure bands, tipping each other about the newest venues in town and showing off by means of their musical tastes – it is all covered on Last.fm. And for those who are not that crazy about music, it can easily be a personalized, non-obtrusive radio station.

*The realm of mimicking reality.* Radio has an unpredictable character that stimulates curiosity, because listeners are subjected to an arbitrary music arrangement. Nonetheless, listeners can customize their taste because of the various genre-targeted stations. Last.fm mimics these characteristics by letting users attune to their singer or band of interest, but the arrangement broadcasted is again rather arbitrary. A sense of real world appreciation is even simulated by offering the option to add music to one's playlist, which is an indicator of popularity. The metaphors Last.fm uses are also discernible in the music scene, like weekly

charts, live events, concert registrations, images of record sleeves etcetera. Yet, Last.fm's social engine is powered by 'scrobbling', which appears to be a non-associative term for music lovers that is irreducible as a metaphor for unraveling and storing playlists.

*The realm of building identity.* At least since the emergence of pop music, music is an important part of juvenile identity – an identity that can linger on whole lives. In addition, copious empirical research is written about the relation between music and emotion, in that the choice of music reflects moods (Scherer and Zentner 2001). Thus Last.fm not only reifies stable identities on music preferences, but also builds fleeting identities based on moods and preferences. Identity building is not solely an individual action, but it can also be mediated by groups. Last.fm enables people, even encourages them, to gather into groups, to benefit from group playlists and the forums enable fans to share details and to further strengthen their identity.

*The realm of actualizing self.* For music lovers, music annotates their lives. It is about reliving their pasts by their favorite songs, finding suitable music for different moods and being on the lookout for great new artists or new versions of their all time favorites. Music helps music lovers to make sense of their lives, whether they like Bob Dylan or Chet Baker. Associating with kindred spirits, in terms of a shared musical taste, can reveal a lot about an individual music lover. Actualizing self is this search for one-self, by exploring and getting surprised by one's musical discoveries. Last.fm supports these explorations by intermediating between isolated soul mates (the concept of neighbors) and musical preferences.

**Triggers and mechanisms**

In order to create social software systems, a deep understanding of the concept of sociality in relation to the design of social software is critical. We argue that social software systems should trigger mechanisms that allow us to associate with or form social groups, whether online or in the real world. To say it simple; it is not software that is social in nature, it is mankind. Such mechanisms would acknowledge human motivations, like eagerness for exploration, curiosity, inquisitiveness, civilization, valuation of belonging, achieving self-realization, enjoying one-self (Beck and Cowan 1996; Maslow 1943). Twitter.com is used as a case that illustrates such triggers and mechanisms.

**Case: Twitter.com**

Twitter.com became public in March 2006 and nearly a year later, it suddenly became the new web's darling. According to traffic analyses of Alexa, at the moment of writing this paper, it is number 620 on their list, having gained an astonishing 10,000 places within three months. Twitter is, technically speaking, a large-scale platform independent message routing system. Its proposition is to be a global community of friends and strangers inviting the world to let them know what they are doing. Therefore

users refer to it as a micro-blogging service. Messages are limited to 140 characters and can be posted via SMS, instant messaging or directly on the web itself. Twitter is about a continuous flow of very short updates on your life. It is less a website than an enabler of mediated presence (Nevejan 2007). Users will seldom visit the website, but will stay in touch with their Twitter friends by using their cell phone.

The pace of Twitter reinforces the feeling of situated connectivity and enables group formation. This situated connectivity advances a pure form of Wittel's definition of sociality (Wittel 2001), in which relations are briefly intense and are solely based on particular points of interest and not on history. Users of Twitter can express themselves, without necessarily making a lasting impression. The ephemeral character of minute to minute diaries and the website's non-directive character make the platform rather open to spontaneous reactions. Discussing or eavesdropping is minimized by the medium's pace. Therefore, comments are relatively simple and explicit, which makes Twitter easily accessible to new users, because of the absence of pressures to comply with the intellectual level of the audience.

Twitter triggers mechanisms like politeness, curiosity and friendship. Since Twitter's service offers a low barrier to participate, independent of time, place or device, people use the service to tell their peers what they are doing continuously. The interesting observation is that conversations are kept open. Open conversation triggers the mechanism of politeness: one does not walk away from an ongoing conversation. With Twitter you even cannot physically walk away. This might be one of the explanations why a virtuous cycle is initiated of keeping each other updated, which in turn might help to build trust and reinforce friendship. The mechanism of intense curiosity – maybe voyeurism – is triggered by facilities like the public time line. The public time line shows every single subsequent message sent to Twitter, meaning that everything happening in the world, at least in the world of Twitter users, is visible. The earthquake in Mexico was reported faster on Twitter – 'Hey, I feel the world is shaking' – than on any official news channel. The monitoring of this time line resembles people having CNN or their favorite soap turned on at the background: something might happen, and you simply do not want to miss it. Another mechanism triggered by Twitter is anxiety. Anxious to forget or to be forgotten. Some users use Twitter just like Hemingway used his Moleskine: writing any thoughts for later referral and reflection, building a historical trail of yourself. Anthropologists may call this materialized culture (Deetz 1977). For instance, Democratic Candidate John Edwards twitters about all his past visits and upcoming events, blurring on-line and real life interaction.

Twitter also triggers the mechanism of freedom. It does not preordain its usage or topics of interest; topics are completely absent or dependent on external contributions. What is more, users can make Twitter interoperable with third party services, to support geographical visualization of comments, instant messaging synchronization, etcetera. Twitter hereby honors one of the fundamental design axioms: sociality cannot be designed, it can only be designed for. Last but not least, Twitter triggers the

*13*

mechanism of 'being part of the hype'. Many users are twittering, just because of the fact that they would like to identify themselves with the cool and trendy innovators. One way or the other, Twitter triggers mechanisms that encourages and enables users to form or engage in social groups.

As the above conceptual model and cases illustrate, sociality is the key concept in understanding social software. We have seen how Twittering relates to both online and offline actions which is exemplary for being a soft social system. Next, we translate the concepts from our conceptual model into a design framework.

## A Design Framework

Based on the conceptual model, we developed a design framework that could help designers and developers of software systems to create software that invites and supports its users to engage in social activities online as well as offline, to associate with or form social groups, ultimately leading to seeking or enjoying companionship. The tentative design framework, reflecting the current state of our research, is depicted in Table 2. For all constituting elements – criteria, principles, parameters and dilemma's – a first treatment will be given illustrating the various design motives.

| Table 2. A Design Framework for Social Software | | | | |
|---|---|---|---|---|
| *Design Domains* | *The realm of enabling practice* | *The realm of mimicking reality* | *The realm of building identity* | *The realm of actualizing self* |
| *Design Criteria* | *Economic criteria* <br> Use, purpose, value | *Empirical criteria* <br> Empirical reference ability | *Social criteria* <br> Trust, connectivity, identifying with, trajectories | *Individual criteria* <br> Love, social needs, esteem, cognitive needs, aesthetics |
| *Design Principles* | *Supportability* <br> Social software needs to be designed in such a way that a (possible) social practice is supported | *Alignment* <br> Social software needs to be designed as a real life social experience with valuation, rating, individuation, repudiation | *Belonging* <br> Social software needs to be designed to support identity and group formation. | *Discovery* <br> Social software needs to be designed to help people explore new territories, and in that way help develop one-self. |
| *Design Parameters* | *Practice* <br> Facilities of engagement, alignment and imagination | *Metaphor* <br> Metaphors of engagement, alignment and imagination | *Presentation* <br> Conversational interaction, social feedback, social networks | *Feedback* <br> Guided exploration sharing |
| *Design Dilemma* | Creating new practices while economizing on old ones | Finding new ways, words and worlds without losing reference ability | Balancing between factual and self depiction | Balancing between the known and unknown |

*14*

The first element of the design model consists of the *design domains*, the areas a designer needs to take into consideration, which are the realms identified in our conceptual model. In the *realm of enabling practice*, a designer is faced with the task to create facilities enabling the support of a practice that exists or could exist within the social group that is the intended audience of the social software system. In the *realm of mimicking reality*, a designer faces the challenges of finding or creating metaphors that relate to the empirical world. In the *realm of building identity*, the designer's job is to provide the user community with the mechanisms that allow for the development of an online identity. Finally, in the *realm of actualizing self*, a designer needs to create the mechanisms that allow users to tap into the collective wisdom and experience and use it for their own benefit, learning processes and self-actualization.

The second and third elements of the design framework are the *design criteria* and the *design principles*. In the realm of enabling practice, *economic criteria* play the most important role. Users will ultimately value the social software in terms of its added value to enable or create practices that play a certain part in their social life (Kaiser et al. 2007; Lesser and Storck 2001; Russel et al. 2001). Any social software therefore should have its use, purpose and value clearly expressed in both software functionality as well as user communication. The criteria will be further illustrated in the case about LinkedIn and Friendster. *Empirical criteria* are the driving force in the realm of mimicking reality. We have seen successful social software concepts align to the mechanisms and metaphors that we know from ordinary real life. Users feel comfortable if they face an interface that uses logic, language, graphics and concepts they can relate to from their everyday life (Lakoff and Johnson 1980). For example, nearly all elements of the Digg.com site's content refer to the everyday process of valuation, as do the Amazon.com functions for rating. In the realm of building identity, *social criteria* are most important, implying that belonging becomes the central concept. Identities are based upon trust, persistency and the ability to present a desired image of self within the social environment (Wenger 1998). A typical example is that users choose the lay-out for their profile pages that is common to the group they identify with. Also the explicit visibility of the users' social groups in MySpace comes to mind when discussing social design principles. *Individual criteria* refer to 'what does this software do for oneself?' in the realm of actualizing self. People not only enjoy companionship in online and offline experiences, they also appreciate the feedback the system provides them with that can help their quest for self-fulfillment (Burleson 2005; McLure Wasko and Faraj 2005; Nardi et al. 2004). So, designers should design systems that are not only aesthetically pleasing and surprising but also provide for creativity, spontaneity, and mechanisms that build self-esteem. People like to discover new and unchartered territories, as seen in the case of Last.fm.

*Design parameters* form the fourth element of the design framework. We find that the constituting elements of the learning architecture as described by Wenger (1998) serve the designer well when it comes to identifying relevant *design parameters for enabling practice*. Design parameters to support

*15*

practice include mechanisms to support mutuality, such as virtual places and spaces, joint tasks, things to do together as well as the availability for help, and peripherality, mechanisms for boundary encounters. Other design parameters support competence, varying from knowledge transfer to decision making, and continuity, like stored bookmarks and FAQs. Design parameters in the field of imagination address issues of orientation, such as visualization tools, reflection mechanisms, such as models and facilities for comparison, and exploration, such as places to create and discuss common plausible futures. Also, the design parameter set includes mechanisms for coordination, like standards and methods, communication and feedback mechanisms such as found on forums. *Design parameters for mimicking reality* are largely metaphor driven. The question is not which facilities of imagination, alignment and engagement to create, but how to make them appeal to the users. Designers need to find words, logic and graphics that help their clients that use the social software to understand not only the functions but also the meaning of the functionality presented. Every social engagement is in the here and now of social reality, and designers face the task of making that engagement as clear and interesting as possible (Minsky 1974; Powell 2005). For instance, networking is a common activity, at least in Western societies, in which a social repertoire is developed over the years. Therefore, as we will see in the case of LinkedIn, adjusting the social software system with the metaphors and language of the accompanying human subsystem contributes to the user's acceptance of the software system. *Design parameters for building identity* refer to mechanisms that can present one or even more images of self to the community. Whereas some social software concepts focus on presenting a real, factual picture of their users, we feel that sociality is also grounded on the ability to adjust the picture of self towards the desired picture of self (Ellison et al. 2006). This is a minefield for tag-based operations. For instance, posting opinions on a website does not necessarily imply that posters consider themselves an expert on that topic, even if they are the first or only person known to use that particular tag. *Design parameters for actualizing self* rely on the presence of reflection and feedback from the social environment to enrich the user with new, unexpected or refreshing insights that help to actualize self. A designer therefore needs to create a space where users can explore and reflect on new and interesting information, or are stimulated to understand suggested connections between people or topics without annoyance or harassments.

Finally, four *design dilemmas* are identified. In the realm of enabling practice, the designer's *first dilemma* is to refer to practices in the real world as much as possible without losing sight on possible improvements or alternative ways to improve that practice. The dilemma here is to economize on the existing practice of for instance social networking while maintaining the drive for (combinatorial) innovation (Varian et al. 2004). Bringing in elements from neighboring disciplines or technological innovations that are new and acceptable to the practitioners is a common way to establish this. The recent wave of new and inspiring social software concepts, often introduced by new and innovative names, point

to the *second design dilemma*. A designer needs to balance the new and unique of the social software concept, while taking into account the real world driven perception of the users. We suggest that it is no coincidence that most popular social software concepts bear resemblance to real world phenomena and concepts, though we are fully aware that this association needs to be further researched. The *third design dilemma* is concerned with the veracity of the identities used online. The designer's dilemma is leaving the individual user with enough freedom of expression to present his or her own online profile and identity, and meanwhile guaranteeing the well-being of the social group by restraining non-factual information wherever needed. For instance, people have a tendency to put trust in each other's opinions, so perhaps people should not be allowed to call themselves an expert. Finally, the *fourth design dilemma* refers to the designer's task to realize that people's ultimate social need is to actualize self (Maslow 1943). Yet, at the same moment nobody feels comfortable in informational or social environments that are too far beyond comprehension. So, even when sharing new and refreshing information is a goal of every learning system, a designer needs to create mechanisms that allow users to dose this in a way and to a degree that fits their needs.

Our discussion on design domains, criteria, principles, parameters and dilemmas illustrates the various elements derived from our conceptual model. A case combining insights of both LinkedIn and Friendster is presented below, and serves as a practical example of how designers can use the design space build on the realm of sociality to create social network enabling software.


**Case: LinkedIn and Friendster**

LinkedIn and Friendster are social networking sites. Both social software systems evolve around organizing and maintaining relations, whereas LinkedIn targets professionals and Friendster targets alleged friends and acquaintances. Although both systems are frequently lumped together (e.g. Carpenter 2007; Churchill and Halverson 2005), the design framework can be used to illuminate design differences. *Design domains.* Social networking is about reifying belonging. In LinkedIn the emphasis is on organizing professional contacts, which are facilitated by exchanging profiles that resemble the layout of curricula vitae. By structuring profiles based on personal information, work experience and other experiences it mimics the average professional résumé. Choices to omit customization of profiles and avatars, and in using a light interface further illustrates the copying of the real world. Moreover LinkedIn uses metaphors, like building your network, colleagues, recommendations, which are actually also known important business practices. The foregoing refers to the domain of *mimicking reality*. Conversely, Friendster expresses a multitude of unique profiles that range from colorful to chaotic. Profiles can get exposure by getting visited, rated or discussed. Obviously Friendster focuses more exclusively on the domain of *identity building*. LinkedIn in turn facilitates the exchange of virtual business cards and

résumés, which is common in the business world. Friendster similarly supports the sharing of friends, which is actually more difficult to grasp from a real life perspective. Friendster flattens social networks by collapsing relationship types and contexts into the ubiquitous 'friend' (Boyd 2007) and as an effect relegates friends to weak ties (Granovetter 1982). Exemplary of this flattening is the commonly seen request for 'Interested In: Friends' on profiles. So the design of the domain of *enabling practice* seems to be more distinguishable in LinkedIn. The domain of *actualizing self* is elaborated quite differently within these two systems. Within LinkedIn the emphasis is on getting valuable network connections and getting recommended by and to others. In other words, stable connectivity is the key word. Friendster is about dynamic interaction, by commenting on profiles, by sharing videos or by surprising someone with a popularity rating.

*Design criteria.* The main reason to connect on LinkedIn is based on economic criteria and empirical criteria, to safeguard future remembrance. Friendster aspires the same objectives, but the purpose or value of this objective appears to be blurred. What is the use to record virtual friendships? LinkedIn is about personal valuations of colleagues, while Friendster is about anonymous valuation of superficial information. The social criteria, especially the veracity of information, appear to differ in both systems. The value of LinkedIn is based on representative information, while so called fakesters at Friendster (Boyd 2004) do not necessarily undermine the use of the service. Another criterion is about the returns for its users - what are the individual criteria in both cases? LinkedIn and Friendster offer rather one-dimensional feedback on personal networks, which is where we see challenges for the design of social software in achieving self-actualization.

*Design principles.* LinkedIn functions as a market in which it aligns jobs and hiring, which reinforces its business related and professional identity for both job seekers and employers. The practice Friendster supports remains rather vague. The help functions identify the objective of Friendster as 'to discover the people and things that matter to you most' (Friendster 2007). The role this system plays in fulfilling this agency and in exploiting its massive networks seems rather obsolete. The principles of alignment applied in LinkedIn and Friendster have already been discussed by means of rating and recommending as reported in the previous paragraph. Principles of belonging are highly visible in both social software systems. Concepts of membership and brokering function as an intangible membrane for upgrading weak ties into strong ties or so called members or friends. As illustrated earlier, discovery is a principle that offers significant opportunities for sociality, in which a first step is facilitating the sharing of information instead of the grouping of information.

*Design parameters.* Friendster offers a variety of mechanisms to support sociality. It offers features to continuously update sites, by means of templates, pictures, news and videos, to ensure 'grabs' or visits. Parameters of practice, like facilities of engagement and alignment, are mediated by networking at

*18*

Friendster, but this practice is also reinforced by group formation. Group formation can be set up deliberately or it can be deduced from profile information. The latter is also supported by LinkedIn. In Friendster, imagination, in the sense of exploration, is guided by the system's technical mechanism (Boyd 2006), and not by the system's social mechanism, namely its users (which is the parameter of feedback). LinkedIn integrates principles of feedback in its recommendation of professionals, which can be categorized by network proximity or service area. One can view first tier recommendations by users in your direct network, which alleviates issues of trustworthiness and taps in on the alleged advantages of the wisdom of the crowds (Surowiecki 2005). Both LinkedIn and Friendster support metaphorical mechanisms (like recommendations, posting vacancies, promotional activities versus birthday reminders and sending SMS). Parameters of presentation are quite extensive in Friendster. While profiles are the central objects in both Friendster and LinkedIn, Friendster offers various mechanisms for conversational interaction through blogging, requests and discussion forums.

*Design dilemmas*. Design dilemmas are about augmenting social practices, while averting alienation. One of the most significant design dilemmas concerning practices that is reflected in Friendster relates to the so called classifieds. This option features an online rummage sale, in which it is unclear how friends relate to classifieds. The second design dilemma concerning metaphors is the meaning of classifieds. There is no empirical reference relating classifieds to the real world concept of second-hand sales. The third design dilemma is about the integrity of your identity. Social software systems offer freedom of identity, for which LinkedIn enables mechanisms of verification that can positively contribute to group behavior or a sense of belonging, while they can also impoverish the user's true identity, which can negatively lead to exclusion or delusion. The last dilemma we identified – balancing between the known and unknown – is not reflected in either LinkedIn or Friendster. Both tools facilitate unguided explorations that may lead to surprises but also to going astray and quickly loosing recognition, which would make such explorations less meaningful.

The application of the framework to the cases of LinkedIn and Friendster exemplify how two social software sites, both labeled as social networking sites and having comparable functionalities, differ dramatically in the way they stimulate users to engage in social activities. It illustrates the contribution of our design model based on the multifaceted concept of sociality compared to current functionality-based approaches. The design framework enables designers to move away from well known social software concepts like tag clouds, micro content or sharing, towards a system that triggers mechanisms to engage in social activity.

**Towards sociality driven design**

In this paper, we aim for a deeper understanding of the contribution of the multifaceted concept of sociality towards the work of social software designers. How does the concept of sociality contribute to the design of social software systems? The answer to that question has been formulated in terms of our conceptual model as well as in our design framework.

In the conceptual model, four realms relating to the broad concept of sociality have been identified: enabling practice, mimicking reality, building identity and actualizing self. These four realms allow for a more complete perspective on social software, a perspective encompassing theoretical views on practice, identity, social structure and situated experience. Combining these perspectives, designers should be able to design and develop software concepts that are relevant, interesting and bear resemblance to the real world. In the design framework, we have expanded the traditional design kit filled with the usual tools for sharing and connecting such as tagging, blogging and collaborative editing, by incorporating design principles, parameters, criteria and dilemmas stemming from the four sociality realms described. A designer can use these insights to create social software more systematically and more rooted in theory. In the end, it is not social software as such that determines its social-ness, but people choosing freely to use this software to engage in social relationships. The ultimate lesson to be learned from this paper and the most valuable contribution of the concept of sociality to a designer's perspective on social software is in the mind shift from functionality to mechanisms triggering social behavior. Designers may think that they can design the mechanisms that make social software social, yet from our research we learn that they can only aim to create triggers activating mechanisms, which encourage people to explore their social environment and seek or enjoy companionship.

In this paper, a soft systems approach has been followed to cope with the loosely defined concepts of social software. This methodological approach has been of great value in structuring the research design, as well as in creating the conceptual model in a logical and systematical way, and has proven valuable in presenting the results in this paper. This research project also gave rise to additional research questions which we think are worth exploring in more detail in future research. An issue not covered by our design framework is whether a designer should incorporate all four design domains, and to what extent these domains should be incorporated, in order to sustain a claim for delivering social software. From our theoretical propositions, it is legit to assume that a certain degree of balancing between the four domains could contribute to the users' perception of a social software system as more or less effective in supporting sociality. Yet, this has to be studied in a more systematic and methodological way. Another issue that could extend our work on the model and the framework and make it even more useful for designers, is to have a clear understanding of the relationship, if any, between the design characteristics of a social software service and its success. This relationship has intentionally not been covered in our

research strategy, as we focus on the practical contribution of the concept of sociality and not on its empirical success, the latter being defined in terms of economic or any other measures. We would also encourage research studying the concept of sociality and its meaning for design involving issues of balancing design parameters throughout the various design domains, creating archetypical configurations of various design elements, the relationship between the degree of sociality, success and a specific context, and technological issues relating to sociality. As a final remark, we note that the shift from functionality towards sociality which we observed and described in this paper matches with the shift from objectivism towards subjectivism as seen in the research area of information systems in general (Fitzgerald and Howcroft 1998; Huizing 2007a, 2007b).

The paper's contribution to the field consists first and foremost of the theoretical work on the sociality based conceptual model and its broad, underlying theoretical foundations, as well as the design framework that has been formulated according to the logic of this conceptual model. Whereas the literature is still scarce on exploring topics related to our realms of sociality, in proto-theoretical works on blogs and journals, we can observe a tendency to discuss and develop these new concepts in the designers' toolkit. Our model is illustrated by means of four cases that highlight aspects of the conceptual work. It shows a promising degree of validity to describe and even, to a certain degree, explain how social software could trigger mechanisms of sociality. The design framework stretches beyond the more traditional functionality-based approaches on social software design and focuses on design choices, principles, parameters and dilemmas in four design domains related to the realms of sociality. We consider this orientation toward sociality, not functionality, a valuable contribution to the field of study.

*21*

## References

Argyris, C., *Knowledge for Action: A Guide to Overcoming Barriers to Organizational Change*, Jossey-Bass Publishers, San Francisco, 1993

Beck, D.E. and C.C. Cowan, *Spiral Dynamics: Mastering Values, Leadership, and Change,* Blackwell Business, Malden, 1996

Boyd, D.M., "Friendster and Publicly Articulated Social Networks," in *Conference on Human Factors and Computing Systems (CHI 2004)*, Vienna, Austia, April 2004, pp. 24-29

Boyd, D.M. and J.M. Heer, Profiles as Conversation: Networked Identity Performance on Friendster," in *Hawaii International Conference on System Sciences (HICSS-39)*, Kauai, Hawaii, January 2006, pp.1-10.

Boyd, D.M., "None of this is Real: Identity and Participation in Friendster," in *Structures of Participation*, Karaganis, J. (Ed.), 2007 (forthcoming)

Burleson, W. "Developing Creativity, Motivation, and Self-Actualization with Learning Systems," *International Journal of Human-Computer Studies* (63:4), October 2005, pp. 436–451

De Bruin, B., *Knowledge Dynamics: On Performance, Learning and Demands*, Master thesis, University of Amsterdam, 2007

Checkland, P., *Systems Thinking, Systems Practice*, John Wiley and Sons, Chichester, 1981

Efimova, L., "Discovering the Iceberg of Knowledge work: A weblog case," in *Proceedings of the Fifth European Conference of Organizational Knowledge, Learning and Capabilities*, Innsbruck, Austria, April, 2004

Ellison, N., R. Heino and J. Gibbs, "Managing Impressions Online: Self-Presentation Processes in the Online Dating Environment," *Journal of Computer-Mediated Communication* (11:2), January 2006, pp. 415-441

Fiske, A.P., "Human Sociality," *International Society for the Study of Personal Relationships Bulletin* (14:2), 1998, pp. 4–9

Fitzgerald, B. and D. Howcroft, "Competing dichotomies in IS research and possible strategies for resolution," in *Proceedings of the International Conference on Information Systems*, Helsinki, Finland, December 1998, pp. 155-164

Deetz, J., *In Small Things Forgotten: The Archaeology of Early American Life,* New York, Doubleday, 1977.

Gal, U., Y. Yoo and R.J. Boland Jr., "The Dynamics of Boundary Objects, Social Infrastructures and Social Identities," *Sprouts: Working Papers on Information Environments, Systems and Organizations* (4:4), Fall 2004, pp. 193-206

Giddens, A., *The Constitution of Society*, Polity Press, Cambridge, UK, 1984

Granovetter, M.S., "The Strength of Weak Ties: A Network Theory Revisited," in *Social Structure and Network Analysis*, Mardsen, P.V. and N. Lin (Eds.), 1982, pp. 105-130

Habermas, J., *Theory of Communicative Action*, Beacon Press, Boston, 1981

Hoogenboom, T., M. Kloos, W. Bouman and R. Jansen, "Sociality and Learning in Social Software," *International Journal on Knowledge and Learning* (3:2), 2007 (forthcoming)

Huizing, A., "Objectivist by Default: Why Information Management needs a new Foundation," in *Information Management – Setting the Scene*, A. Huizing and E.J. de Vries (Eds.) Elsevier Press, Oxford, UK, 2007a (forthcoming)

Huizing, A., "The Value of a Rose: Rising above Objectivism and Subjectivism," in *Information Management – Setting the Scene*, A. Huizing and E.J. de Vries (Eds.) Elsevier Press, Oxford,

UK, 2007b (forthcoming)

Kaiser, S., G. Müller-Seitz, M. Pereira Lopes, and M. Pina e Cunha, "Weblog-technology as a trigger to elicit passion for knowledge," *Organization* (14:3), May 2007, pp. 391-412

Kelleher, T. and B.M. Miller, "Organizational Blogs and the Human Voice: Relational Strategies and Relational Outcomes," *Journal of Computer-Mediated Communication* (11:2), January 2006, pp. 395–414

Lakoff, G. and M. Johnson, *Metaphors We Live By*, The University of Chicago Press, London, 1980

Leary, M. R. and J.P. Tangney, "The Self as an Organizing Construct in the Behavioral and Social Sciences," in *Handbook of Self and Identity*, M.R. Leary and J.P. Tangney (Eds.), New York, 2005, pp. 3–14

Lesser, E.L. and J. Storck, "Communities of Practice and Organizational Performance," *IBM Systems Journal*, (40:11), April 2001, pp. 831–841

Luhmann, N., *Social Systems*, Stanford University Press, Stanford, California, 1995

McLure Wasko, M. and S. Faraj, "Why Should I share? Examining Social Capital and Knowledge Contribution in Knoweldge Networks of Practice," *Management Information Systems Quarterly* (29:1), March 2005, pp. 35–57

Maslow, A.H., "A Theory of Human Motivation," *Psychological Review* (50:4), June 1943, pp. 370–96

Minsky, M., "A Framework for Representing Knowledge", in *Mind Design II: Philosophy, Psychology, and Artificial Intelligence*, J. Haugeland (Ed.) MIT-press, Cambridge, UK, 1997

Nardi, B., S. Whittaker and H. Schwarz, "NetWORKers and their Activity in Intensional Networks," *Journal of Computer-supported Cooperative Work*, (11:1-2), March 2002, pp. 205–242

Nardi, B., D.J. Schiano, and M. Gumbrecht, "Blogging as Social Activity, or, would You let 900 Million People read Your Diary?," in *Proceedings of the 2004 ACM Conference on Computer Supported Cooperative Work* (CSCW2004), Chicago, USA, November 2004, pp. 222–231

Nevejan, C.I.M., *Presence and the Design of Trust*, PhD Thesis, University of Amsterdam, 2007

Pawlowski, S.D. and D. Robey, "Bridging user organizations: Knowledge brokering and the work of information technology professionals," *Management Information Systems Quarterly* (28:4), December 2004, pp.645–672

Powel, A. "Composite metaphor, games and interface," in *Proceedings of the Second Australasian Conference on Interactive Entertainment* (IE2005), Syndey, Australia, November 2005, pp.159–162

Rose, J., "Soft Systems Methodology as a Social Science Research Tool," *Systems Research and Behavioral Science*, (14:4), April 1997, pp. 249–258.

Russel, L.P., V. Sambahurty, R.W. and Zmud, "The Assimilation of Knowledge Platforms in Organizations: An empirical Investigation," *Organization Science* (12:2), March–April 2001, pp. 117–135

Scherer, R.K. and M.R. Zentner, "Emotional Articles of Music: Production Rules", in *Music and Emotion: Theory and Research*, P.N. Juslin and J.A. Sloboda (Eds.), Oxford, 2001, pp. 361-393

Showers, C.J. and V. Zeigler-Hill, "Organization of Self-Knowledge: Features, Functions, and Flexibility", in *Handbook of Self and Identity*, M.R. Leary and J.P. Tangney (Eds.), New York, 2005, pp. 47-67

Sloterdijk, P., *Zorn und Zeit*, Suhrkamp, Frankfurt, 2006

Star, S.L, and J.R. Griesemer, "Institutional Ecology, 'Translations' and Boundary Objects: Amateurs and Professionals in Berkeley's Museum of Vertebrate Zoology, 1907-39," *Social Studies of Science* (19:3), August 1989 pp. 287-420

Surowiecki, J., *Wisdom of the Crowds: Why the Many Are Smarter Than the Few and How Collective Wisdom Shapes Business, Economies, Societies and Nations*, Anchor, New York, 2005

Van Aken, J.E. and J. Germans, "Het analyseren en veranderen van structurele organisatie-eigenschappen met gebruik van metaforie," *M&O Tijdschrift voor Organisatiekunde en Sociaal Beleid* (47:3), June 1993, pp. 200-213

Varian, H.R., J. Farrell and C. Shapiro, *The Economics of Information Technology: An Introduction*, Cambridge University Press, Cambridge, 2004

Wenger, E., *Communities of practice: Learning, meaning and identity*, Cambridge University Press, Cambridge, 1998

Wittel, A., "Toward a Network Sociality," *Theory Culture & Society* (18:6), December 2001, pp. 51-76.

**Blog references**

Friendster, "About Friendster" at http://www.friendster.com/info/index.php?statpos=footer, April 2007

Koster, J., "I Like Last.fm", at http://www.sixshootermedia.com/blog/i-like-lastfm/, January 2007

Miller, J.L., "PC Mag May Boycott Edelman PR" at http://www.webpronews.com/topnews/2007/04/20/pc-mag-may-boycott-edelman-pr, April 2007

Morris, G.F., "How and Why I Use Last.fm" at http://gfmorris.com/archives/2005/12/22/how-and-why-i-use-lastfm, December 2005

Newitz, A., "The trouble with Twitter: Your life, sped up and squared" at http://www.alternet.org/ columnists/story/50686, April 2007

Sacca, C., "Why I like Twitter", at http://www.whatisleft.org/lookie_here/2006/12/why_i_twitter.html, December, 2006

Sierra, K., "Is Twitter TOO good?", at http://headrush.typepad.com/creating_passionate_users/2007/03/is_ twitter_too_.html, April 2007

Twitter, "New York Times on 911", at http://twitter.com/blog/2007/04/new-york-times-on-911.html, April 2007

Weinberger, D., "Why I like Twitter", at http://www.hyperorg.com/blogger/mtarchive/why_i_like_twitter. html, April 2007

*24*