



EXPERIENCING VIRTUAL SOCIAL ENTERPRISE MEDIA ARCHITECTURES

Lene Pettersen

This article addresses knowledge professionals' experiences of being in and using social enterprise media, which is characterized by a social, people-centric, dynamic and non-hierarchical information architecture. Rather than studying the social enterprise media from a typical STS-perspective in terms of 'scripts', 'antiprogram', or as 'configuring design processes based on the user', the paper direct its analytical lens to the users' experiences, practices and routines when they are making sense of the virtual space in social enterprise media. As theoretical framework, unexplored corners of structuration theory where Giddens (1979^[1]; 1984^[2]) discusses spatiality (place) and temporality (time), where Giddens is inspired by the philosopher Wittgenstein (1972^[3]), the micro-sociologist Goffman (1959^[4]), and the time-geographer Hägerstrand (1975^[5]; 1978^[6]) are employed. With this approach, dynamic social processes are included in our studies of technology. Qualitative insights from a comprehensive and longitudinal case study of a multinational organization with entities in Europe, North Africa and the Middle East were used in order to get an in-depth understanding of how people experienced using virtual and social architectural spaces. The findings show that the social architecture and people-centric model in the virtual space in social enterprise media does not provide an intuitive spatial sense, nor does it provide logics that correspond with known and familiar logics or established communication and interaction practices among employees. Key features in social enterprise media (e.g., transparency) collide with how space is constructed in the physical world and with the logics at play in offline conversations and social interactions (e.g. turn-taking in conversations or the opportunity to withdraw from conversations).

Keywords: Social enterprise media, social architecture, social groups, social interaction, structuration theory, time-geography, Wittgenstein.

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Introduction

Media and information technologies is a growing research agenda in studies of information communication technology (ICT) and science and technology studies (STS) (Hackett et al. 2007^[1]). Although several intellectual bridges between the two disciplines have been set forth, these have not been explicitly articulated in the literature (Boczkowski and Lievrouw 2007^[1]). One such bridge concerns the general question on causality; of social and technological agency versus determinism¹. Boczkowski and Lievrouw (2007^[1]) suggest that instead of seeing 'causality' as a dichotomist notion of 'determinism' versus 'contingency', we should characterize technology as socio-material configurations where different elements expel different degrees of determination and contingency (p. 958). In the paper at hand, I pursue this call in a longitudinal in-depth study of employees in a multinational workplace, and how they make sense of virtual spaces in their organization's social enterprise media platform by using unexplored corners of structuration theory (Giddens 1979^[1]; 1984^[1]). Social enterprise media (e.g. Yammer, Facebook@work, Jive) are inspired by public social media or social networking sites (e.g., Facebook, Twitter, LinkedIn and others) and their design-features and functionalities (Leonardi et al. 2013^[1]).

Transparency is seen as a master key in social enterprise media (Tredinnick 2006^[1]), where everyone can take part and observe other's communications and interactions (McAfee 2009^[1]). The information architecture in social enterprise media turn previous content models upside-down by having an organic – a Web 2.0 'people-centric' – architecture because content and information are structured around individuals. In the physical world, communication and social interaction is closely tied to a physical conversation space. Social interaction and communication practices in social groups are, for example, characterized by turn-taking in conversations, distance to others, reciprocity, overview of conversation partners, trust, and privacy (Goffman 1959^[1]; Giddens and Pierson 1998^[1]; Fayard and Weeks 2007^[1]). The principles in social architectures in social media are related to key characteristics of conversations and social groups (Kietzmann et al. 2011^[1]). Yet, the virtual space in the social architecture of social enterprise media collides with the characteristics of social groups and conversational practices in the physical world because of the lack of spatial sense or orientation, the lack of an overview of conversation members and the lack of privacy in the transparent, virtual platform. Rather than approaching the social enterprise media from a typical STS-perspective in terms of 'scripts' (Akrich 1992^[1]), 'antiprogram' (Latour 1992^[1]), or as 'configuring design processes based on the user' (Woolgar 1990^[1]), the paper direct its analytical lens to the users' experiences, practices and routines when they are making sense of the virtual space in social enterprise media.

As theoretical framework unexplored corners of structuration theory where Giddens (1979^[1]; 1984^[1]) discusses spatiality (place) and temporality (time) are used. In this vein, Giddens is inspired by the philosopher Wittgenstein (1972^[1]), the micro-sociologist Goffman (1959^[1]), and the time-geographer Hägerstrand (1975^[1]; 1978^[1]). Actually, Wittgenstein is considered by some (e.g. Collins 2011^[1]; Bloor 1973^[1]) to be at the very roof of the STS-tradition. According to late Wittgenstein, language is inextricably tied to practice, routines and experiences. Thus, the meaning of a word, what the color 'red' looks like (Wittgenstein 2000^[1]), or how computer programs are interpreted by the user, are learnt practices inseparable from the social context in which the user are part of. Wittgenstein's construct 'language-game' stresses that the speaking of a language is inextricably tied to the activity itself (Helle-Valle 2010^[1], 198), an activity that is used the way we are taught to use it (Bloor 1973^[1], 184) and when "learning language, the child learns things that are never said" (Collins 2011^[1], 280). Language, thus, is the glue that bind practices together (Collins 2011^[1], 85). With this approach, the user's language, practices and routines play key roles for how users make sense of logics at play in computer systems. This paper uses these thoughts that Giddens (1979^[1]; 1984^[1]) developed further in structuration theory and adds a fruitful contribution to the STS discipline of scholarly interest. The study also provide important insights to programmers and system designers designing the next versions of social enterprise media. More specifically I ask the following research question in this paper;

How do knowledge professionals experience the virtual space in social enterprise media, and how do they interpret the organic logic of social information architecture at play in social enterprise media?

The research question is answered with insights from a comprehensive longitudinal case study of knowledge professionals employed in a multinational organization, and as already stated, from the framework of unexplored corners of structuration theory (Giddens 1984^[1]).

This article is organized as follows. It begins with a brief introduction of the characteristics of the development of the Internet and information architectures. This is followed by a presentation of the theoretical framework used in this study, a method section and then a presentation of findings. The paper ends with a discussion, concluding remarks, limitations of this study, and a call for further research.

¹ In many senses, this dichotomy echoes earlier intellectual debates between reception analysis and literary studies or critical media theory where media scholars disagree in whether meanings are structurally embedded in texts for readers to decode, or if the reader creates the text or content meaningfully themselves, giving favor to agency and a social constructivist lens.



Internet and Information Architecture

The early period of the web in the nineties is characterized by a passive or static one-way sender content model, with few opportunities for readers or users to interact with the platform or website. The first version of the web was followed by the second version - Web 2.0 - or the 'Web-as-participation' characterized by two-way interaction (Song 2010^[9]), typically exemplified with the introduction of social media where users are content producers. The semantic Web is sometimes used as a synonym for "Web 3.0" with its main characteristic being that different computer systems exchange data between themselves to provide relevant content to the user (e.g. the computer system suggests new friends, contacts, or products to purchase) (Barassi and Treré 2012^[9]). Social enterprise media (e.g., Facebook at work, Yammer or Jive) are implemented in many organizations these days as a replacement of traditional intranets where content are organized in static and hierarchical Web 1.0 manners. The opportunity to form and maintain social connections is key in social media (Ellison 2007^[9]). As said, transparency is seen as a master key in social enterprise media (Tredinnick 2006^[9]), where everyone can take part and observe other's communications and interactions. Thus, social enterprise media aims to facilitate the flow of employees' knowledge among colleagues across departments, entities and countries, yet also across social statuses and hierarchies (McAfee 2009^[9]). However, social enterprise media in the workplace do not correspond with institutionalized practices on how knowledge work is organized,

measured, and rewarded in practice, and the expected success of these platforms is still pending (Pettersen 2014^[9]).

Information architecture is the practice of designing structures in software (Brown 2010^[9]) where information is designed or categorized into semi-structured (smaller) environments. The nodes in the information architecture mainly fall into four classes: hierarchical, matrix, organic or sequential (linear) (Garrett 2003^[9]). Traditional intranets have hierarchical structures, which provides a spatial-sense of overview of where the user is located within the larger static structure. For example, the folder logic of a PC desktop typically uses a hierarchical model where content is organized into folders (or "houses") and sub-folders (or "rooms"). The virtual space is designed in manners to provide a spatial sense of where the user is located within the virtual structure. Information architecture in social enterprise media, however, is organic and social; it is built on the principle that groups are self-organized rather than having a structure or organization imposed (Schiltz et al. 2007^[9]). The virtual architecture is therefore more flat and centered around peoples' dynamic actions, rather than static, spatial belonging (e.g., computer desktop, department membership, etc.). Organic information structures pose challenges for users to find their way back to the same piece of content again (Garrett 2003^[9]), decreasing 'findability'—the capacity of an object to be found through search or browsing (Rosenfeld and Morville 2002^[9]).

Theoretical Approach

Structuration theory (Giddens 1984^[9]) has been extensively employed in ICT studies and should be applicable to any aspect of ICT research (Jones and Karsten 2008^[9]). However, few scholars have used Giddens's theorizing on temporality (time) and spatiality (place) in their work. One exception is Nandhakumar (2002^[9]) and his study of virtual workers. In his structuration theory, Giddens (1984^[9]) builds on ideas and theories from of number of philosophers and scholars. When theorizing on spatiality and temporality, he is especially inspired by the time-geographer Hägerstrand (1975^[9]; 1978^[9]), the philosophy of the late Wittgenstein (1972^[9]) and his language-game, and the micro-sociologist Goffman (1959^[9]), amongst others.

Spatiality and Temporality

According to structuration theory, all social interaction is situated in (tied to) time and place. To Giddens (1984^[9]), the idea of 'place' as ordinarily used by geographers overlooks the time-construct by simply designating a point in time as a succession of 'nows'. Giddens refer to the time-geographer Hägerstrand (1975^[9]; 1978^[9]) who studied everyday social practices when he is theorizing on 'place'. Because time is continuously going on, there will always be movement in time. Yet, logically, movement in time is not tied

to place (one can sit still in the same place for hours, but the time will always go on), and with movement in place follows movement in time. In time-geography, the individual's space for action is constrained by his or her path or trajectory, and movements in the future are limited by what are represented within a prism (the opportunities at hand) (Lenntorp 2004^[9]). Giddens (1984^[9], 117), however, stresses that with all constraints come opportunities. Giddens (1984^[9]) introduced the concepts 'locales' and 'presence availability' to describe the inextricable relationship of time and place more fully. 'Locales' denotes that individuals' mobility and communication are inextricably related to the physical properties of their surrounding world. A bus stop, for example, provides a space for bus riders to come together and wait for the bus. Similarly, rooms in a house need doors in order to enter, and two streets are needed in order to form a corner to meet others on (Giddens 1984^[9]). Who else is waiting for the bus at the bus stop depends on the specific time you are present at the bus stop. Those who have just jumped on the previous bus are logically no longer present in the bus stop space. They are somewhere else in place. This means that the mutuality of presence and absence needs to be understood in terms of spatiality (place) as well as temporality (time). Both spatiality and temporality provides opportunities for





action. In a house, for example, the organization of rooms provides settings for interaction. A room with no doors provides no opportunity to leave or enter because, as Giddens puts it, 'you can't just walk straight through a wall' (Giddens and Pierson 1998^[9]), a metaphor Latour uses in the same manner (Johnson 1988^[9], 298).

A similar concept to 'locales' is 'pocket of local order', which denote that human activity requires a certain order or arrangement (Lenntorp 2004^[9]). In our everyday lives we move through a number of pockets of local order in which we have varying control of. Pockets of local order are created by the connection of various resources, people, material and so forth, in a particular time-space segment (Lenntorp 2004^[9]). Also, trajectories are unambiguous in historical time, but from the present stretching into the future they can, at least in theory, branch off in any number of directions (Lenntorp 2004^[9]). However, the constraints on a trajectory always convey limitations. A pre-supposed speed of movement creates a possible time-space that, if a future point in time-space is also specified, forms a so-called prism. A certain constellation of restrictions will decide a prism's configuration (Lenntorp 2004^[9]). The concepts of path and prism have contributed to shift the focus from movement per se, and towards an individual's continuous sequencing of stationary activities and movements. Thus, possible movements and opportunities for various activities or actions is closely related to place, opening hours, systems of regulation etc. Giddens (1984^[9]) uses the construct 'time-space' to stress the notion that 'space' is inextricably tied to 'time'. Being at the same place at the same time represent opportunities to accidentally meet and bump into others. Certain places are particularly important 'stopping places' in that they *invite* to such accidental meetings. As examples in the workplace are the water cooler, the copier or the coffee machine (Fayard and Weeks 2007^[9]). Accidental meetings with other employees by the coffee or copy machine are shown to open up conversations that lead from small social talk to work talk that benefits the organization (Fayard and Weeks 2007^[9]). These stopping spaces are found to have certain characteristics or affordances; they need to provide spontaneity (it must be a space that people naturally pass by), privacy (people must control the boundaries of their conversations) and legitimacy (the space must offer a reason for people to approach it) (Fayard and Weeks 2007^[9]).



Context and Representation

Spaces that provide legitimacy, spontaneity and privacy hold characteristics that provide settings for meaningful and informal interaction. These characteristics, as will be shown below, are also valid also for social interaction in virtual spaces. For example, a trend in the social media landscape today is to provide much smaller interaction spaces (e.g., Snapchat, direct messages among a few participants in Instagram, or conversation thread messages in Facebook). Research into social media sites found that having different circles of friends present in the same space was experienced by users as problematic and induced a context collapse that resulted in users resigning from participation (Brandtzæg, Lüders,

and Skjetne 2010^[9]). In organizations, the employees are not only likely to have different circles of colleagues, but individuals also hold different hierarchical ranks and social statuses. Pettersen (2016^[9]) find that offline, local practices are expanded in the organization's social enterprise media. Similarly, in their study of instant messaging (IM), Quan-Haase and Wellman (2006^[9]) find that IM does not remove hierarchical structures. On the contrary, they find that a person's status within the hierarchy of the organization plays a key role in how messages are replied to.

This suggest that virtual spaces needs to be constructed in ways that enable opportunities for action, communication and social interaction that uses the same communication logic that characterizes the practices in social groups. Social interaction is manifested through language and communication (Gumperz and Cook 2008^[9]), and social interaction is inextricably tied to the context in which it takes place (Giddens 1984^[9]). Because social interaction is situated in time and place, response cues are normative; how to respond in conversations or social interactions depends on the rules of the specific context. In this vein, Giddens is inspired by the thinking of the late Wittgenstein (1972^[9]). According to Wittgenstein, language is always tied to social practice and thus to the daily routines that socially integrate individuals. For example, when a mother points to a green apple and says 'green' to her young child, the child knows that 'green' is not another word for 'apple' but rather denotes the color of that particular apple. This is because the child have previously learned what an apple is, and "in learning language, the child learns things that are never said" (Collins 2011^[9], 280). In the Internet space, the icon of 'home' -  -, only denote a specific website's first page to those who have learnt this previously. This approach is different from many STS-scholars (e.g. Woolgar 1990^[9]; Akrich 1992^[9]; Latour 1992^[9]) that would typically approach the reading of the icon  in semiotic terms as negotiations with the design feature or between 'programs' and 'antiprograms'. Language-games concern the action that is woven into language, which, in Wittgenstein's thinking, is connected by a family resemblance. Without a learned experience of 'apple', the child would not know that the construct 'green' denote the color and not the object itself. 'Language-game' stresses that the speaking of a language is inextricably tied to the activity itself (Helle-Valle 2010^[9], 198), an activity that is used the way we are taught to use it (Bloor 1973^[9], 184). Thus, with this theoretical approach to technology, attention is directed towards dynamic social processes. This means that social enterprise media is not restricted to being modelled on representations of work and designed in ways that represent the user's working processes, as are other information system technologies used for working purposes and in working contexts (Orr 1996^[9]; Suchman 1995^[9]). Social enterprise media also represent a virtual space that needs to nurture the users' social situations and social interaction practices. Yet, the rules for social interactions are learned practices (Wittgenstein 1972^[9]; Giddens 1984^[9]; Goffman 1959^[9]) without universal meaning, as for example, sirens on emergency vehicles or the travelling process at airports with its universal practices such



as check-in, security control, transit, boarding etc. However, the micro-sociologist Goffman (1959^[9]) observed that some interaction practices are shared among people. Giddens is inspired by this work of Goffman when he is theorizing about 'time' and 'place', and he uses the concept of 'co-presence' (being together, here and now) to stress the interdependency of the close connection between 'time' and 'place' (Giddens 1984^[9]). When physically present with others, there is the opportunity to signal to the others when one chooses to withdraw from a conversation (looking away, turning your body from the others etc.). These are signs that are difficult to recreate with technology, although the design element of a green dot  aims to signal when a user is logged on, or when moving dots  represent that someone is responding in a conversation in real time, are examples of such efforts.

According to Giddens (1984^[9]), face-work (social facial cues) is fundamental to social integration in time-space. When people stand far from each other, they have to shout, and conversation partners miss out on important facial expressions. 'Enclosure' refers to a group that withdraws when conversation partners talk privately in front of others. 'Unfocused attention' is when individuals are aware that others are present and listening, even those standing behind them, leaving diffuse social cues with which to navigate interactions. Co-presence points to the importance of face-to-face interactions for meaningful conversations in which turn-taking occurs and social interactions that take place through everyday language. Giddens (1984^[9]) stresses that the number of people with whom one can engage in face-to-face encounters is strictly limited. Dunbar and Dunbar (1998^[9]) found that humans can comfortably maintain only 150 stable relationships. However, Brandtzæg, Lüdgers, and Skjetne (2010^[9]) find that having different circles of friends at Facebook induced a context collapse. This suggests that the kind of relationship plays a key role, rather than the number of relationships, for creating co-presence or meaningful engagement.

Face-to-face interactions and co-presence are key to the development of personal trust. Personal trust is the fabric of social activity and depends upon certain specific connections between individuals and their day-to-day social contexts (Giddens 1984^[9]). Zheng et al. (2002^[9]) tested the correlation between different features in communication media and the development of social trust. Their results clearly show that people who text-chatted benefitted from various kinds of prior activity that focused on social/personal

information. Seeing the partner (even a still photo) was very effective by itself, independent of whether or not personal information was disclosed (Zheng et al. 2002^[9]). Trust was found to be highest when people had met first, but engaging in a text chat beforehand about social things was nearly as good at establishing trust. Having a photograph was almost as strong as the social chat or meeting in person. The personal dimension in the development of trust and social relationships is clearly important. Establishment of 'trust without touch' stands in opposition to Giddens's view of the importance of co-presence to create trusting relationships. However, Giddens do acknowledge that co-presence is also possible to achieve with electronic communication, such as when people talk together via the telephone (Giddens 1984^[9]). This is due to reciprocity, which is key in integration processes, which have the ability to travel across time-space among those who are physically absent in time or space. Thus, relations that already have taken shape in a particular context can exist 'out of time and place', independent of the context in which they were once created. Giddens labels this process 'structuration'. For example, when meeting your manager in the grocery store, the same norms and codes of conduct that are at play in the workplace apply at the grocery store. Thus, once social relationships are established, they have the opportunity to be expanded across time and place (Pettersen 2016^[9]).

If conversation logics are valid regardless physical places, the virtual spaces also needs to share some key characteristics that fit these conversation logics. However, as said, organic information architectures pose challenges for users to find their way back to the same piece of content again (Garrett 2003^[9]), decreasing 'findability'—the capacity of an object to be found through search or browsing (Rosenfeld and Morville 2002^[9]). The virtual spaces should need to be constructed to nurture legitimacy, spontaneity, and privacy (Fayard and Weeks 2007^[9]), and to meet the communication logics observed by Goffman (1959^[9]). Yet, social architectures do not provide the overview of others, which is needed for privacy. On the contrary, transparency (i.e., they are fully open so everyone can observe everyone else's participation) is seen as a master key in social enterprise media (Tredinnick 2006^[9]), where everyone can take part and observe other's communications and interactions (McAfee 2009^[9]). This collides with Goffman's (1959^[9]) observations and with the characteristics of spaces that enable people to meet as described by Fayard and Weeks (2007^[9]), and needs further exploration.

The Case Study

The case used in this study is a knowledge-intensive organization with approximately 5,000 consultants and offices across Europe, the Middle East and North Africa. In this study, the company is anonymized as Tech Business Company (TBC). TBC operates where ICT and business intersect and offers services spanning consultancy and technology with a shared service portfolio, and social enterprise media would enable consultants working on similar

projects yet at different offices, to benefit from each other's work. The sample in this study is composed of consultants who provide the daily services that TBC offers.

Social Enterprise Media

TBC introduced social enterprise media (Jive Business Software version 4.5.2) globally in 2010 – 2011 as a replacement for local



intranets and other local initiatives (e.g., Yammer) in order to increase internal collaboration and knowledge sharing processes, amongst other goals. In Jive Business Software the user can personalize and choose what information blocks or elements the employee wants on his or her own front page. The information structure in the opening pages of the social enterprise media is personalized according to the specific platform-user and consists of a variety of: polls; overviews of projects; current popular

documents; colleagues asking for help; the groups the person is member of; activities—feeds from individuals the person follows; announcements and information concerning what is new in the platform; recent documents uploaded on the platform; and so forth. Algorithms are, as in social media, major keys in social enterprise media. The automation of individuals and content with shared or similar characteristics and the users' previous actions are embedded in the enterprise platforms model.

Methodological Approach

Because the overall goal was an in-depth understanding of the virtual space in social enterprise media and employees' understanding of it, a qualitative approach was chosen. Understanding employees' experiences requires research methods that access 'situatedness'—those that draw on observation, with whatever degree of participation, in generating data (Yanow 2006^[9]). Such interpretive methods call for fine-grained observational, conversational and/or documentary detail (Yanow 2006^[9]). The aim of this study is analytical, rather than statistical generalization, a distinction suggested by Yin (2012^[10]). All case studies are analytical constructions, and generalization of data is a question about theoretical and analytical logic, rather than volume.

A pilot study was conducted in 2010 at one of the offices (in Norway) before the social enterprise media was launched. Key informant methodology was used as a tool for obtaining information over time from individuals who knew the community well (Pelto and Pelto 1978^[11]).

One three-week ethnographic field study was conducted in May/June 2011 in one office in Norway, and a three-week field study was conducted in two offices in Morocco in July 2011. Participatory observations were done one day in London, three days in Copenhagen and one and a half days at the second office in Oslo, Norway. These observations took place between and after the field studies in 2011. The field studies in Norway and Morocco were repeated one year later to see if there had been any changes in employees' platform use or understanding over time, with three weeks of new field studies in each location.

27 open-ended, in-depth interviews with knowledge professionals from six offices in the UK, Denmark, Norway and Morocco were conducted in 2011. Eight of the participants (from two offices in

Norway and two in Morocco) were interviewed again in 2012 to see if they had changed their opinions or use with time. During the field studies, the researcher worked with in the office space with the other TBC employees. Coffee and lunch breaks were particularly important for informal conversations and for getting TBC professionals to share their insights and thoughts. Several informal meetings and talks with consultants, managers and middle managers were done during the workday. These informal conversations were not recorded but are notes in the field diary.

The entire platform (all the entities in TBC's 20+ countries) was thoroughly analyzed in regard to its technical features (information architecture, interaction design, search, information model, etc.), to the platform's content and employees online conversations in regular time lapses from 2010 to 2013. Two features were studied in-depth; the following functionality and the group functionality. Due to having a password and log-in details to the social enterprise media, the platform was studied closely over three years (2010 – 2013). However, the rich ethnographic data and the longitudinal perspective is only partly employed in this paper due to page limitations. The follow-up study in 2012, find that six of the eight interviewees used the social enterprise media less than they did in 2011. Two used it more, mainly as a closed work space. Due to this, the data used to address the research question is mainly from 2011.

To make sure low digital competence was not related to how employees experienced the social enterprise media, the 27 participants filled out a self-report form at the beginning of the interview. Twenty-two of the 27 participants scored 'very high' on digital competence, two scored 'high,' and three scored 'low.' This suggest that the findings is not related to low digital competence (lack of insights on how to use social enterprise media).

Findings

Becoming a Platform Member

When creating a network membership on social media sites (e.g., Facebook, Yammer, or LinkedIn), the user is guided through an introductory process which share some characteristics (Figure 1). First, the user agrees with the privacy consent to enable the

membership. When this first step is completed, the service provides the next important steps into the virtual site by suggesting relevant groups the user might want to look at or join, and potential relevant site members or colleagues to follow or add as contacts. After this process, which is illustrated in Figure 1, the software asks

for additional information so it may provide relevant content (e.g., list department, entity, other colleagues' email addresses etc.) when the user has entered the virtual space:

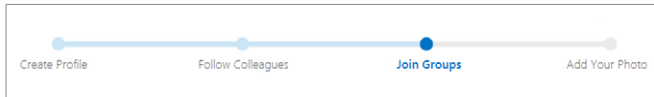


Figure 1: *Becoming a platform member. Becoming-a-member-process at Yammer, where adding your photo is the last step before the user enters the virtual space.*

When the virtual space process is complete, the site provides content that aims to spark interest and get the user started. Duyne, Landay, and Hong (2002^[9]) stress the importance of designing entries in virtual spaces as a process funnel, which consists of several steps based on the user's logics, similar to Giddens' (1984^[9]) theorizing on spatiality, stating that a room without doors provides no opportunities to leave or enter. Hence, virtual spaces also need to be constructed in ways that enables opportunities for action. The routines for platform membership in TBC, however, are via the IT department in the parent company located elsewhere. The IT department creates the TBC professional's user-profile and sends the login and password information to the employee via email. TBC-employees therefore never enter the social enterprise media via the important entry. Because the information model in social software is centered on people and dynamics from the users (what they share, 'Liked', who they are connected with etc.) and other individuals, the first steps into the social enterprise media platform are vital for getting a spatial sense and an idea of content and people available.

Making Sense of the Social Enterprise Media Space

The analysis reveals that the social enterprise media is experienced as difficult to navigate and search, as proposed by Rosenfeld and Morville (2002^[9]), and Garrett (2003^[9]). There are limited information structures that can assist the platform user in creating a spatial overview of the virtual social enterprise media space. One of the Danish consultants explains why he experiences the platform as difficult for finding information:

The social enterprise media is, in principle, only a bunch of self-organized information containers because there isn't any hierarchy. You can only get hierarchy in groups, so you can't see how things are related. Anyone can sit down and create a group, but the problem is that nobody finds their way back to it. The problem with the social enterprise media is that it has a black hole syndrome; one can put a lot of things in, but unfortunately, it doesn't come out again.

A number of employees have commented that it is difficult to get a spatial overview of the virtual space. The employees typically approach the social enterprise media with reference to the logic of media platforms they know, interpreting the unknown and

unfamiliar with past platform experiences, as this Norwegian consultant illustrates

I think it's difficult to find your way [in the social enterprise media]. If I want to find out who belongs to TBC-Norway, where do I start, what do I search for? A bit like how do I find that list with a picture, name, and a telephone number, like in the traditional intranet? Sorted on departments, with the entities in Norway presented as 'Here is Oslo 1, here is Oslo 2, here is [the third entity in Norway]'. Or sorted on disciplinary belonging, if we had the same groupings in the three places, then we could find everyone working within a given topic.

Hence, the employee has imagined how content should be structured in the virtual space. The consultant continues: 'in my head, content should be organized to look for such and such, but it might be that others placed it in another space they think it belongs, and then I will not find it.' This illustrates Wittgenstein's (1972^[9]), language-game, which shows how practices are routinized by repetition in everyday life. Language-games concern language and the actions into which it is woven and connected by family resemblance. Similarly, the consultant above does not make much sense of how information is organized in the social enterprise media space, and she compares it with past experiences. The new way of organizing content does not provide a family resemblance to that with which she is familiar. This illustrates Jarzabkowski and Pinch's (2013^[9], 11) argument that constructs as 'script' or 'antiprogram' is less helpful for complex social situations. The consultant does not point to issues related to functionality, but to structure: how content is organized or structured in the virtual space. Using past experiences when encountering new services or logics is also observed when the employees compare the social enterprise media with other similar online services they already know, but their expectations collides with their experience of TBC's social enterprise media. With Wittgenstein's (1972^[9]; 2000^[9]) lens: the virtual space is encountered with expectations from previous, learnt experiences. One consultant from the UK explains:

The social enterprise media was described to me as an internal social networking site. So, automatically, I'm thinking of the two major ones in my life: LinkedIn and Facebook. Which I think there's two extremely similar profiles with those two tools, separated by, you know, social and professional. I was expecting an internal LinkedIn.

New technologies are compared with previous patterns of practice and interpretation. Yet social enterprise media also differs from platforms such as LinkedIn and Facebook due to being used in a different context (the workplace) and as a tool closely related to the relevance of peoples work (Pettersen 2014^[9]).

The virtual social enterprise media space is referred to as 'a strange world' by many consultants, suggesting that its way of organizing



information and content is foreign to the employees. When information architecture is experienced as having poor navigation and overview, search functionality becomes critical. A number of employees explained that the search functionality does not provide relevant content and that they struggle to find information. One consultant from Norway explained:

That search is not working. It is so bad, things that are not relevant at all come up. I searched for something really foolish because I have created a fun and informal group. And then up came similar things [auto suggestions] on the page where someone's strategy came up, and I was thinking, 'No, this is not relevant you see, because here we are talking about jokes and fun stuff'.

Thus, the search functionality needs to be robust and linguistic smart (i.e., understand misspellings, similar words, etc.), which is not the case with TBC's social enterprise media. Tagging content with meaningful labels is important for helping search results. However, employees primarily use their native language when communicating and interacting in the social enterprise media. A dilemma, then, is not only how to make sure employees tag their content but also to get them to agree to what language they tag their content with in the virtual space, as well as determine the constructs that best represent the content. This is problematic because choosing which labels to represent and denote any given content does not follow a universal rule, as language is always tied to social practice (Giddens 1984^[9]; Wittgenstein 1972^[10]). TBC employees speak plenty of different languages and have different opinions about which words best represent and classify their content.

The Virtual Space is Constructed on Characteristics in the Physical World

The analysis of the social enterprise media platform finds that, despite its unstructured and social architecture, all the entities in TBC have constructed their own local semi-spaces in the social enterprise media (Pettersen 2016^[11]). These virtual spaces mimic how TBC entities are organized (e.g., sorted by geographical place, departments, topics and teams). These local semi-spaces greet the user with welcome pages and information about their specific unit (who they are, their areas of expertise, location, etc.), often with pictures of the unit, mimicking the reception areas in the entity's office buildings in the physical world. These welcome spaces signal to users where they have entered in the virtual space, similar to the boundaries that are set up in locales between regions by physical or symbolic markers, such as emblems or entry signs (Giddens 1984^[9]). In a way, these virtual spaces provide the opportunity to be together in a shared space or as a 'stopping space'. Conversations in these local social enterprise media spaces are mainly carried out in the mother tongue that is spoken in the offline TBC context, and a variety of languages are therefore spoken in TBC's social enterprise media. Hence, the virtual space is constructed as copies of both physical architecture and employees' language practices in their everyday settings.

Not Knowing the Social Enterprise Media Space

Groups in the social enterprise media require insights of the group's existence beforehand. This is also the case with the following functionality. One of the consultants explains that he does not use the social networking functionality because he finds it difficult to "know who likes what" that would be relevant to follow: "It's very difficult to know what people do. Why should I follow these people? If you had a better understanding of who these people are, then you'd have a better understanding of who you want to follow."

The consultant puts his finger on one important matter: It is difficult to know who to follow, who likes what, and which groups to join when such information is not provided by the software (as for example auto suggestions). A consultant in his twenties from Morocco explains that the social enterprise media does not spark his interest in paying it a visit:

Consultant: The social enterprise media doesn't help me to be interested in it. Interviewer: How can the platform make you interested? What are the tricks? Consultant: Normally the updates. I'm looking for international experience and opportunities.

The consultant illustrates what role 'relevance' plays for using the enterprise media. Another technical limitation is related to the networking functionality. Another consultant, also from Morocco, explains;

The networking part of the social enterprise media is pretty weak. You can follow people, but then it doesn't really show you the feed of what he's doing. It has never really shown me anything, because I did follow a couple of people who are working on subjects which I find interesting because of a project, but it didn't bring anything valuable.

Again, relevance plays a key role. And what counts as 'relevant' both differs from employee to employee, and changes with time because work is an ongoing process. Several have commented that the networking functionality does not give insights of what people are working on, as they know from the updates at the front page in LinkedIn or the news wall in Facebook, only actions made on static documents. For example, each time someone the user follows modifies a document, it is listed in the newsfeed. Many of the participants explain that they easily miss updates from others due to usability issues with the following functionality. Moreover, in order to receive updates from others, it logically implies that you follow these others.

Knowing the Group Members

Many participants explained that asking questions out in the open in a transparent virtual social enterprise media with no specific receiver or audience is unpleasant. Giddens (1984^[9]) terms this as 'unfocused attention'—the awareness that others are present and



listening, as when someone is standing behind you. This leaves diffuse social cues for conversation partners. However, smaller, semi-private virtual spaces provides a more trustful space because of a better overview of group members who are watching or participating in online conversations. To speak publicly online in front of everyone in TBC's enterprise platform is found to differ from speaking to a smaller group of people one knows. How one communicates in groups in the social enterprise media in a working context depends on the audience, as explained by a consultant in his 40s from Norway:

It depends on the group. We have a closed group for us here at the office, and we have a group for those working with [given topic] in Europe. They are very different settings. The office group has a funny name, and it is something totally different when I'm going to speak with people I sort of do not know at all. One puts on a seriousness filter in some of the virtual spaces.

Hence, what the group members share and how they communicate is closely related to whether, and in what degree, they know the other group members. This suggests that the kind of social relationship plays a key role, rather than the number of relationships present in the same virtual space, for creating co-presence or meaningful social interaction.

In addition, the group's context (e.g., formal or informal) affects what tone one uses in that group. This follows Giddens's further development of Goffman's (1959^[9]) theorizing. Face-to-face interactions and co-presence are keys to the development of personal trust (Giddens 1984^[10]). Trusting and personally knowing other communication partners are closely related and seem to play important roles in communication practices in the online enterprise space, as this consultant from Morocco explains:

Most of the discussions are in a professional tone. You do not know the other person. You have not collaborated in some projects, so you cannot be very personal with the person, so you try to avoid misunderstandings.

This corresponds with Quan-Haase and Wellman (2006^[11]), which find that a person's status within the hierarchy of the organization plays a key role in how messages are replied to. Some TBC-employees prefer moving their conversation from a public to a private channel for privacy from others who might be watching. Groups are smaller semi-spaces in the enterprise platform that might support a more in-group feeling because they provide virtual spaces that give a better overview of group members than the transparent social enterprise media. In virtual groups, members are listed so the user can see who the other group members are. In smaller groups offline, it is possible to relate to others, interpret social cues provided by the others and control the boundaries of the conversation (Fayard and Weeks 2007^[12]; Goffman 1959^[13]). The analysis of the social enterprise media and the interviews reveals

that most groups are closed, and in order to enter, employees need to apply for group membership as a way to get an overview of who has access to the virtual group-space. The statistics find that on a global scale, the number of groups in the social enterprise media has more than tripled in two years, from 500 in 2011 to 1640 groups in 2013. This increase can be explained in terms of usability issues (due to poor findability of previous groups people create new groups), privacy, and work related issues (teams create a virtual space in the social enterprise media for working purposes). Also, some virtual groups ends being relevant (e.g. when a project is finished), yet not all are deleted although the members are no longer active users.

Not Knowing Strangers

When strangers enter a group that was originally created for a specific local purpose (e.g., a team working on a project), a new situation is created for the group members to interpret. A consultant describes and shows a group she has created in the enterprise platform:

I have created a group so we can have a place to have documents. And here should everyone in the team be... [The participant pauses and studies closely the group members.] Well, there are more members here than the team. Him, for example, I have no idea of who he is or where he is from. [The consultant clicks on him and reads out loud his name] from [work topic name]. I have no idea of who this is. Here it says he is from [another entity]. Oh dear, how exiting. But I created it originally because I thought it should be our collaborative space.

The information structure and architecture of the social enterprise media makes it possible to join groups regardless of entity membership. When those who are not part of an offline social working group enter the virtual group space, it presents employees with an unfamiliar situation.

An interesting finding is that social (informal) content seems to engage employees by making them feel they are getting to know others personally. One consultant explains why she enjoys reading updates shared by the Danes:

When I enter the Danes' enterprise space, I feel, 'Wow, they update all the time. Now they have got new videos for rent. The last news about this and that person has been ill, now she's much better,' those kinds of things. Look: [she shows the platform] 'Birthdays in May, [name] is leaving the entity and seeks new opportunities at [another company], someone new started, competence development opportunities.' With these updates, I feel that I know a little more about what the Danes do.

Through social and informal everyday information, the employee feels that she gets to know her Danish colleagues, even though she has not met these individuals about whom she is reading about in person. Keeping an eye on social elements or how things are



while not being at the main office also plays for some consultants a nurturing role for social belonging. For example, one employee in his forties from Norway, explains that he uses the social enterprise media differently in 2012 than he did in 2011. In 2011, he was not in a project and worked from the main TBC-office:

I use the social enterprise media as a cigarette break. I log on to the platform now and then to get social updates about the local community in Norway. I use the platform less than a year ago, and I use it less for work matters and more of social reasons. I prioritize my time to my work project, and I check out the social stuff in the enterprise platform, like the group that arranged the summer party.

With social updates, the consultant gets a sense of life at his TBC entity. These observations correspond with the findings of Zheng et al. (2002^[9]). Personal elements seem to nurture a sense of

knowing others. Access to updates from other offices provides a kind of virtual 'stopping place' where it is possible to meet and get to know others. However, this is a peephole – a one-way meeting -, different from, for example, meeting others at the coffee machine or the bus stop. Getting to know others in physical settings is characterized by a balanced reciprocity in sharing personal insights and taking turns between conversation partners. As stated previously, reciprocity is key to both social (face-to-face) and mechanical (across time-space) integration (Giddens 1984).

Lastly, the transparent social enterprise media introduces several paradoxes. Employees' activity becomes visible to others, which simultaneously strengthen established and create new prejudices about others (for example active versus passive platform users), yet it also seems to shorten social distances (e.g., getting a feeling of life in-house while being at clients or a sense of personally knowing others in other entities).

Discussion and Concluding Remarks

The research question asked in this paper, '*How do knowledge professionals experience the virtual space in social enterprise media, and how do they interpret the organic logic of social information architecture at play in social enterprise media?*', was approached by unexplored corners of structuration theory where Giddens (1979^[9]; 1984^[9]) discusses spatiality (place) and temporality (time). In this theorizing, Giddens is inspired by the philosopher Wittgenstein (1972^[9]), the micro-sociologist Goffman (1959^[9]), and the time-geographer Hägerstrand (1975^[9]; 1978^[9]). Approaching the unit of analysis with this theoretical lens, a somewhat different window than many STS-perspectives (e.g. Akrich 1992^[9]; Latour 1992^[9]; Woolgar 1990^[9]) is opened. This enabled me to show that users' experiences, practices and routines play key roles when they are making sense of and using social enterprise media. Although some STS-scholars (e.g. Collins 2011^[9]) uses the perspective of late Wittgenstein, this paper illustrates how this literature offers a fruitful approach when studying technology. With this approach, dynamic social processes are included in our analysis, rather than studying functionality alone.

Understanding logics or systems, as well as the speaking of a language, is inextricably tied to the activity itself (Bloor 1973^[9]; Helle-Valle 2010^[9]), an activity that is used the way we are taught to use it (Bloor 1973^[9], 184), just as mathematics and logics are collections of norms (Bloor 1973^[9], 189). Thus, new user logics should be modelled both on characteristics that the users already are familiar with, and on logics from the physical world. This was illustrated in the paper where it was shown that employees experienced the organic logic of social information architecture in social enterprise media as difficult to understand, referring to it as a 'strange world'. Previous experiences with similar services were drawn upon when new ways to navigate and organize information were presented, illustrating that practices are learned (Giddens 1984^[9]; Wittgenstein 1972^[9]; 2000^[9]) and that previous experiences are employed by

participants, who are looking for family resemblances from the known when meeting new logics.

The conversation logics described in detail by Goffman (1959^[9]) and developed further by Giddens (1984^[9]) were shown to come to play in the virtual social enterprise media space. Employees reflexively monitored their conversations in accordance to the virtual context they were present in (e.g., smaller groups or open spaces). Groups in the enterprise platform provided trustworthy, smaller spaces and a better overview of the group members. Master keys in social enterprise media are inspired by characteristics from social groups and social interaction (e.g. conversations, sharing, presence (Kietzmann et al. 2011^[9]), yet the open virtual social enterprise media space lack key elements present in the physical world, such as the contextual settings that allows us to create and establish new relationships and future relationships, or to know who is listening to our conversations. Few spaces, to reference Giddens's (1984^[9]) ideas from Hägerstrand (1975^[9]), are provided in the platform to nurture the establishment of new meetings with the key characteristics that Fayard and Weeks (2007^[9]) list for nurturing informal conversations: spontaneity (a space that people naturally pass by), privacy (control of the boundaries of conversations) and legitimacy (a good reason for people to come by).

Who works where (what office) and with what is information that provides a spatial understanding of others for the employee. The virtual social enterprise media space do not provide any structure that enables such an overview of where other employees and other content reside. The flat structure does not assist the platform visitor with where he or she is, and where and who others are (except in groups). The social architecture is also experienced as difficult to navigate and search because it does not offer a spatial sense of where the user and content are located. This presents a



risk that employees do not find information or content, and one piece of advice to have in mind is that social enterprise media represent some key challenges to findability. These platforms should thus perhaps be a substitute to, rather than a replacement of, existing hierarchical intranets.

To conclude, key features in social enterprise media (e.g., transparency) collide with how space is constructed in the physical world (e.g. closing the door behind you to provide privacy from others or to lower your shoulders), and with the logics at play in conversations and social interactions (e.g. turn-taking in conversations and the opportunity to withdraw from conversations and to signal absence to other conversation partners). The social architecture and people-centric model in the virtual social enterprise media is not embedded by a spatial sense that makes navigation intuitive, nor does it provide logics that correspond with known and familiar logics or established communication and interaction practices among employees. This suggests that smaller interaction-spaces could be a next step for developers and designers to address; consideration should be given to features that nurture conversation logics as described by Goffman (1959^[6]) and further developed by Giddens (1984^[6]), as well as the importance of creating virtual spaces

that nurture spontaneity, privacy and legitimacy, as described by Fayard and Weeks (2007^[6]). The visibility of others' interactions nurtures a sense of co-presence and real-time. These are examples of what might be seen in the next versions of social enterprise media. Nonetheless, virtual spaces in social enterprise media need to be constructed in ways that enable opportunities for action and social interaction, and technical features need to be designed in ways that enable people to accidentally bump into others and meet new people.

This study is not without limitations. Although the logics in various social software share some key characteristics, only one social platform (Jive Business Software) was analyzed in this study. Future research should examine different kinds of social working tools used by teams or social platforms with a smaller scale of users.

Acknowledgments

This research was founded by the NETWORKED POWER-project supported by the Norwegian Research Council. I would like to thank Associate Professor Marika Lüders at IMK, UiO, which interviewed nine of the 27 participants in this study. In addition, I would like to thank the reviewers for very useful feedback.

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