

Understanding Usages and Affordances of Enterprise Social Networks: A Sociomaterial Perspective

Completed Research Paper

Galadrielle Ulmer

Dauphine Recherche en Management
(UMR 7088)
Paris Dauphine University
galadrielle.ulmer.11@campus.dauphine.fr

Jessie Pallud

EM Strasbourg Business School
HuManIs (EA 7308)
jessie.pallud@em-strasbourg.eu

Abstract

Recent studies have emphasized the potential of Enterprise Social Networks (ESN) for companies. However, so far, researchers have paid little attention to usages and affordances of ESN. To investigate this research issue, we anchor our analysis on Leonardi's Affordances Theory. A case study has been conducted in a large French company, where we conducted thirty-five interviews with users of an ESN. Content analysis of the interviews highlights multiple concepts related to affordances and sociomateriality. We identify both positive and negative affordances that guide, influence or constraint human action and determine the way in which social and material agencies work on each other. In comparison with traditional ICT, we argue that ESN require specific attention because ESN social features offer individuals new possibilities, new rules, and new modes of communication. Social agency is more than ever imbricated with material agency because of these social features.

Keywords

Sociomateriality, affordances, ESN, appropriation

Introduction

The emergence of collaborative information systems in organizations represents a new wave of change in IT usage (Aaron et al. 2010.). Following the success of and infatuation with public social media platforms, this new generation of information systems have also appeared in companies, namely with the development of Enterprise Social Networks (ESN). Richter and Riemer (2013, p. 2) define Enterprise Social Networking (ESN) as *“the result of applying technologies that emerged on the public Internet within organizations as a way of facilitating workplace communication and collaboration”*. These *“new technologies begin to proliferate across organizations”* (Leonardi et al. 2013, p. 2; Leonardi & Treem 2012; Leonardi 2011) because they enable relationship building, information sharing, problems solving, project management, and tasks coordination within teams (Riemer and Richter 2012). In a recent study, Altimeter Group (2012) interviewed 13 vendors and 185 end users and surveyed 81 IT decision makers from companies with more than 250 employees. Their results confirm that ESN software, when being properly used, can yield multiple benefits to companies, such as information sharing, efficiency improvement and greater coordination. Similarly, the McKinsey survey on how organizations are using social media technologies indicates that in 2013, 58% of companies had planned to increase their investment in social media over the next three years. However, top executives still need more knowledge on how to implement and use these tools. For instance, an IBM study outlines that 68% of Chief Marketing Officers feel under prepared to manage the key changes introduced by social media.

ESN have also contributed to the evolution of work practices: more precisely working habits and communication routines have been deeply changed with these new collaborative technologies. Indeed, users interacting with these information systems develop new IT usages and appropriation behaviors, which have increased the number of research dealing with ESN. Past research on ESN has examined this topic with the following perspectives: people sensemaking and relationship building (DiMicco et al. 2009), information sharing among coworkers (Leidner et al. 2010), connecting people (Boyd & Ellison 2007; Kobler et al. 2010), work practices (Riemer et al. 2012), modes of use and appropriation (Richter & Riemer 2009), microblogging behaviors (Zhang, Cody & Wu 2010; Stocker, Richter & Riemer 2012), and motivations for social networking usage (DiMicco et al. 2008).

Nonetheless, “*ESN as enabled by malleable, social technologies turns out to be quite different in different contexts*” (Riemer and Richter, 2013, p.10). Actually, ESN are quite flexible (Leonardi 2011; Richter & Riemer 2013); this flexibility does not necessarily stem from the technology’s inherent properties, but rather it depends on the context in which individuals can modify the technology to fit their needs (Leonardi 2011). As such, every technology and its usage are rooted in an organizational and human context: usages related to ESN are contextualized and need to be related to both technology and human action.

Leonardi et al. (2013, p.6) argue that “*our understanding of the role that ESM [enterprise social media] play in organizational life is in its infancy*”. Therefore, our research will shed light on this phenomenon by adopting a sociomaterial lens in order to better understand usages and user perceptions of ESN and their effects on ESN appropriation. Our research questions are the following:

- Does the relationship between affordances impact users’ appropriation of the ESN?
- How do ESN affordances contribute to the creation of new material and social structures within companies?
- How do these sociomaterial structures influence ESN appropriation?

This research aims at overcoming the opposition between technological determinism and social determinism that is why we adopt a sociomaterial lens to investigate the aforementioned research questions. Researchers who have examined user perceptions from a social point of view have generally excluded the technological aspects, as explained by Orlikowski and Scott (2008). Leonardi and Barley (2010, p. 11) made the same observation: “*in focusing so intently on how people perceive a new technology, these studies often ignore how the technology is used*”. Sociomateriality and its subsequent methodologies try to reintroduce the examination of technological and material structures in IS studies (Orlikowski & Scott 2008; Johri 2011; Leonardi 2012). As Orlikowski and Scott (2008, p. 456; 2013, p. 79) point out, « *sociomateriality is in its infancy* » and « *in the early stage of development* », therefore offering new and various approaches to re-examine the established dichotomy between the social and the material (Scott & Orlikowski 2013, p. 77). To investigate this research issue, we anchor our analysis on Leonardi’s Affordances Theory (2011, 2012, 2013a, 2013b).

This paper is organized into four sections. The first section presents a literature review on sociomaterial approaches. The second section describes the research methodology, while the third section summarizes the main findings of our research. The last section discusses the contributions and limitations of our study and suggests some research avenues for future studies.

Literature Review: from Giddens’ Structuration Theory to Sociomateriality

This research relies on sociomateriality to further our understanding of social network usages in companies. However, because sociomateriality draws from Structuration Theory, we will start this section by explaining the underpinnings of Structuration Theory. Then, we will introduce sociomateriality and motivate why this theoretical lens is appropriate to study user interactions with IS.

Structuration Theory

Giddens' structurationist theory (1979, 1984, 1987) offers an interesting perspective, as he places human action at the heart of his theory. This action is contextual and depends on actors' environment (organizational context for instance).

Orlikowski (1992) reused Giddens' theory, assuming technology is a social construct resulting from both human action and structural properties of organizational systems. IS users are the actors of this construction. Orlikowski (1992) introduces the notion of "interpretive flexibility" as a core component of IS appropriation process (i.e. tools, actors and structures adapt in a recursive relationship). This flexibility also reflects the multiple facets of IS usages. Giddens and Orlikowski consider human action as the main element contributing to sensemaking about information systems. When interacting with technologies, users adapt these tools to the structural and environmental properties of their organization, which can sometimes also lead to modifications of those properties.

Sociomateriality

Sociomateriality originates both from sociological studies, such as Callon's and Latour's works on Actor Network Theory (ANT), and from Giddens' Structuration Theory and from structurationist approaches that have followed Giddens' work. Sociomateriality as a theoretical background to study IS is still "*in its infancy*" (Scott & Orlikowski 2013, p. 79; Orlikowski & Scott 2008). However, different studies claiming to be 'sociomaterial' have been conducted; all these research commonly seek to reexamine the world by overtaking 'traditional' dichotomies established in IS research, especially the ontological separation/opposition between the material and the social. Doing so, sociomateriality offers to researchers novel perspectives to understand IS, people using technologies and the interactions between technologies and their environment.

Sociomateriality and sociomaterial approaches developed by IS scholars specifically aim at overcoming a limitation of traditional studies on IS usage (Orlikowski & Scott 2008; Johri 2011; Leonardi 2012): most of these studies do not take into account technology, and if they do, they treat technology as a minor component. As Leonardi (2012, p. 27) notes, "*the vast majority of studies of technology use in organizations never even described the technology that was under study*", emphasizing the social and paying scant attention to the material. Overall, researchers like Orlikowski or Leonardi point out an imbalance between social versus material treatment in IS studies. Furthermore, although technological change has been examined, the way technologies change organizations has been quite under-investigated (Leonardi 2008). As such, sociomateriality offers a way to overcome established opposition between social determinism and material determinism, considering both technology (material agency) and organization (social agency) as two components of a same underlying phenomenon (Leonardi 2009).

If the term of 'sociomateriality' includes multiple perspectives and various approaches, two main research streams tend to govern IS research, these streams being the views "*of two highly respected academics*" (Kautz & Jensen 2013, p.17). On one hand, sociomateriality foundations have been developed by Orlikowski (2007, 2010), Orlikowski and Scott (2008), Scott and Orlikowski (2009, 2013) whose theoretical foundation is agential realism. On the other hand, sociomateriality in IS studies has been structured by Leonardi's writings (2008, 2010, 2011, 2013a, 2013b) and Leonardi and Barley (2008, 2010) who rely on critical realism. Table 1 summarizes these two approaches.

	Agential realism	Critical realism
Main authors	Orlikowski (2007, 2010) Orlikowski & Scott (2008) Scott & Orlikowski (2009, 2013)	Leonardi (2008, 2010, 2011, 2013a, 2013b) Leonardi & Barley (2008, 2010) Leonardi & Rodriguez-Lluesma (2012)

Reality	“Both agree that there is a reality that exists apart from the humans that perceive it.” (Leonardi 2013, p. 69)	
Ontology	Relational ontology: “any distinction of humans and technologies is analytical only” (Orlikowski & Scott 2008, p. 456)	“Ontological separation of social from material accords with actors’ categorization and experience of phenomena” (Leonardi 2013a, p. 66).
Relations between the social and the material	<p><i>Entanglement</i></p> <p>“There is an inherent inseparability” between the social and the material (Orlikowski 2007, p. 1437; Orlikowski & Scott 2008, p. 434)</p> <p>Phenomena are “reciprocally and emergently intertwined” (Orlikowski & Scott 2009, p. 4)</p> <p>“Constitutive intertwining and reciprocal interdefinition of human and material agency” (Orlikowski 2010, p. 13)</p>	<p><i>Imbrication</i></p> <p>“The social and the material become sociomaterial as people imbricate social and material agencies” (Leonardi 2013a, p. 74)</p> <p>“Human and material agencies are distinct phenomena but they are fundamentally interdependent” (Leonardi 2011, p. 151-152).</p> <p>“Simultaneous interdependence and specificity of each the digital and the nondigital” (Sassen 2006, p. 345).</p> <p>“They have distinct contours yet they form an integrated structure through their imbrication” (Leonardi 2011, p. 151).</p>
Temporality	Absence of a theory of temporality	Inclusion of an explicit theory of temporality

Table 1. Comparison between Orlikowski’s and Leonardi’s Approaches

Based on Leonardi (2013a)

Leonardi’s imbrication metaphor enables IS scholars to conciliate the organization and technology mutually shaping nature: thus, the structure between individuals (e.g. human agency) and technologies (e.g. material agency) evolves as a sociomaterial creation (Leonardi 2008).

In addition, the imbrication metaphor allows researchers to take into account the specificity of human agencies, and yet not deny their interdependence: agencies “*work on each other [...] each maintains its distinct irreducible character*” (Sassen 2006, in Leonardi, 2011, p.151). Human and material agencies’ “*interdependence does not belie their distinct character [...], but ultimately, people decide how they will respond to a technology*” (Leonardi 2011, p. 151).

We decided to adopt Leonardi’s approach because his imbrication metaphor presents IT as constitutive of an organizational process that doesn’t stop at the implementation phase (Orlikowski 2007). Actually, it offers an analysis on the appropriation process and the evolution of IS usages over time. Furthermore, although “*the concept of sociomateriality is extremely theoretical*” (Leonardi 2013a, p. 60), critical realism as a theoretical foundation not only allows IS researchers “*to describe organizational processes, but to generate insights about how to improve them*” (Leonardi & Rodriguez-Lluesma 2012, p. 80). Therefore, the operationalization of Leonardi’s sociomateriality and the emphasis on managerial contributions is in line with our attempt to produce actionable results for managers.

Leonardi's Affordance Theory

Affordances theory was initially developed by Gibson (1977), who based his analysis of perception on the relationship between a living individual (whether this individual is a human or an animal) and her surrounding environment. Affordance was then a term used to define “*the possibilities and limits for action that a material object offers to an actor*” (Robey et al. 2013, p. 386).

Gibson particularly focuses on individuals’ adaptation to their environment, which is structured by the interactions that can occur between these two elements. Paul Leonardi applies this ecological theory to sociomateriality, and doing so, offers to researchers an original approach to study the relationship between individuals and collaborative technologies. Sociomaterial practices emerge where human and material agencies imbricate (Orlikowski 2010; Leonardi 2012, 2013a, 2013b). Those imbricated agencies mutually shape each other to set up a structure within which individuals and technologies evolve.

The imbrication metaphor recognizes human and material agencies as two distinct phenomena, which are “*fundamentally interdependent*” (Leonardi 2011, p. 151). Leonardi (2012, p. 37) notes that a material agency “*is a construction that depends, in part, on materiality but also depends on one’s perceptions of whether materiality affords her the ability to achieve her goals or places a constraint upon her*”. The chosen term of « imbrication » acknowledges the specificities of both human and material agencies. As Sassen (2006) states, “*they work on each other but they do not produce hybridity. Each maintains its distinct irreducible character*” (cited in Leonardi 2011, p. 151).

The construction of this structure is therefore based in part on material agency, and is defined and shaped by the materiality of the artifact and the constraints and opportunities of the environment in which it is built. Orlikowski grounds her analysis exclusively in practice; in order to provide “*better explanation of organizing as a process*” (Leonardi 2013a, p. 71), Leonardi introduces a theory of time to overcome the lack of “*any consideration of the structural or material precursors to that action*” (Leonardi 2013a, p. 71). Critical realism allows researchers to question the emergence of sociomaterial practices as “*people enter into the structuration process at a particular point in time*” (Leonardi 2013a, p. 73). Furthermore, by adopting an interpretative lens, we consider that organizations, individuals and technologies are continually changing (Klein & Myers 1999).

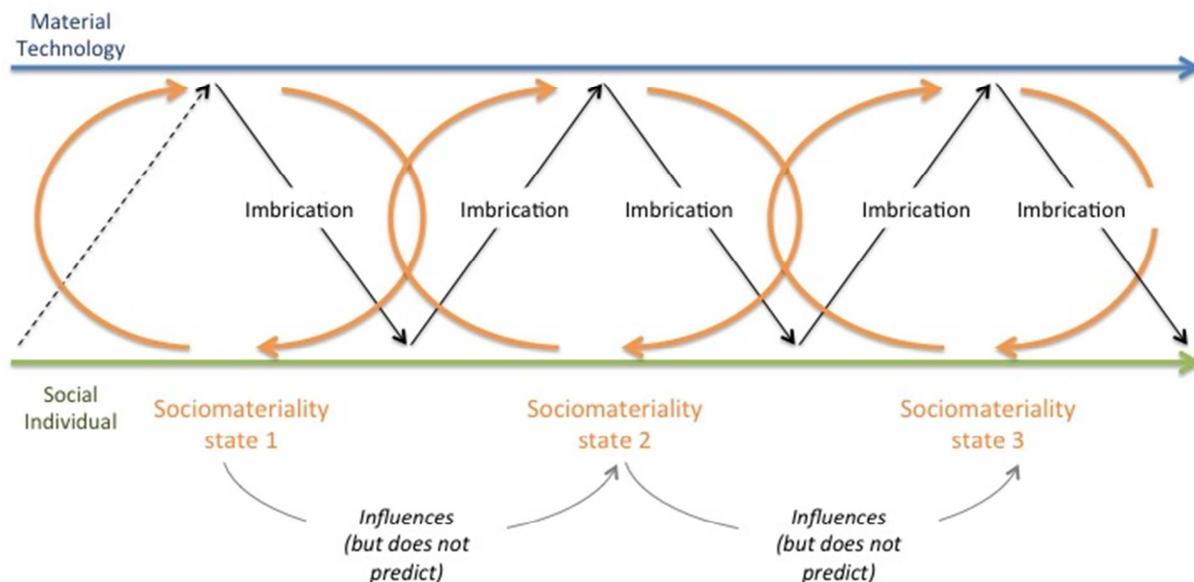


Figure 1. Sociomateriality According to Leonardi's Affordance Theory (2013a)

Methodology

Exploratory Study

From December 2012 to January 2013, a qualitative study was conducted in a French chamber of commerce that had implemented an enterprise social network in 2009. This chamber of commerce decided to adopt an enterprise social network after it had to merge with three other entities. Therefore, the ESN aimed at facilitating co-workers relationships and knowledge sharing. The ESN implementation began with a small-scale test: 25 users were participating on the platform from 2009 until Fall 2010. As the conclusion of the pilot study was positive, the project was extended: new collaborative features were added to the ESN and more users were invited to join the platform. During year 2011, 70 new users joined the ESN, and since 2013 there are now more than 200 users. The key features of this ESN are: documents sharing, microblogging, videos, newsfeed, 2.0 functionalities (i.e. people can 'like' or comment a contribution), online directory, profile pages and personal workspaces.

This exploratory study enabled us to conduct ten semi-structured interviews and to observe user interactions with the technology. Interviews were individual and lasted on average one hour. We met both users and non-users of the ESN. The non-users were people who decided not to use the ESN. Our main findings indicated that ESN usages and ESN integration with work practices evolve in relation to affordances, which continuously shape individuals and technology imbrication.

Case Description

Relying on the findings of the exploratory study, we started another field study in a large French telecommunication company, named Ellipse, which will be our main case study to examine sociomaterial practices. This company counts more than 9 000 employees. The social network deployed at Ellipse is based on one main application, namely online communities. The functionalities offered by these online communities are: collaboration features, project management functionalities, document sharing, editing functionalities and online publishing tools (such as wikis) especially useful for team work.

In order to gain a more comprehensive understanding on this project, we have interviewed several times one of the key actors of the social network project, the Chief Project Officer (CPO). He has given us insight on the project history and the implementation of the ESN. The decision to implement an ESN was taken by three departments at Ellipse - the Innovation Department, the Human Resources Department and the IS Department who all wanted to "*create more links between employees*" and to foster collaboration as explained by the CPO. Indeed, Ellipse has a long tradition of collaborative work and it has detected the potential of Web 2.0 tools for internal uses since 2008. Ellipse was in fact one of the first company to implement an ESN in France. In 2010, they started the deployment of the ESN relying on a strategy of viral communication by creating the buzz among the employees. In 2013, 4 000 employees had joined the ESN and more than 400 online communities had been created.

Data Collection

This setting has offered us the opportunity to conduct a case study where different types of data have been collected (i.e. internal documents, interviews, ESN usage policy, and screenshots of the ESN). Our principal methodology is qualitative since we decided to conduct individual semi-structured interviews with users of the collaborative platform. The participants of this qualitative study were recruited by a convenience sampling method. With the help of the CPO, we established a list of users who could be invited to share their perceptions and usages of the social network. Special care was taken to include people at different hierarchical levels and positions. Since January 2014, we have conducted thirty-five semi-structured interviews with functional managers, IS managers, top executives, and administrative assistants. We met both users and non-users of ESN in two different sites of Ellipse, one located near Paris and the second located in the East of France. The interviewing process is ongoing and will end during Spring 2014.

So far, our sample includes 31% women and 69% men. The length of the interviews ranged from 36 minutes to 96 minutes, with an overall mean duration of 52 minutes.

We conducted our interviews according to the sections of our interview guide presented in Table 2.

Themes	Objectives
User profile	<ul style="list-style-type: none"> ▪ Understand better interviewees' job and missions within their company (i.e., experience, hierarchical position, current responsibilities, etc.)
User perceptions of the technology	<ul style="list-style-type: none"> ▪ Determine why users started using the ESN (e.g.: obligation vs. free choice, perceived usefulness of the technology) ▪ Analyze user reactions towards the ESN (e.g.: emotional responses, user perceptions of the ESN usability)
Imbrication of IT with work practices	<ul style="list-style-type: none"> ▪ Examine how the ESN modifies work practices (e.g.: integration with work practices vs. destabilization of work practices) ▪ Show the imbrications of users with the ESN
IS usage	<ul style="list-style-type: none"> ▪ Describe the functionalities used by the participants and assess frequency of use (i.e. rich vs. lean usage) ▪ Show the influence of technological design on human computer interaction ▪ Identify the factors influencing (positively or negatively) ESN usage

Table 2. Main Themes Addressed by our Interview Guide

Main Findings

We followed the classical recommendations for qualitative data analysis (Miles and Huberman 1994). The first step of qualitative data analysis consists in data reduction, which is the “*process of selecting, focusing, simplifying, abstracting, and transforming the data that appear in written up field notes or transcriptions*” (Miles and Huberman 1994, p. 10). In order to implement data reduction, we followed the classical recommendations for qualitative data analysis by implementing open coding, which is the first step of content analysis (Strauss and Corbin 1998). Open coding helps to categorize the text by identifying relevant segments of texts that answer the research question and classifying them into codes. Breaking down the text into smaller categories is supposed to facilitate understanding and comparison between the different transcripts. In a second step, we applied axial coding, “which is the process of relating subcategories to a category” (Strauss and Corbin 1998, p. 114). We performed abstraction in order to connect the open codes and their respective dimensions to our theoretical framework. The software Tropes VF8 was used to highlight categories and connection between concepts. To perform content analysis, we will also use Nvivo in the next steps in order to create nodes and relationships.

The first set of codes refers to IS usage (see Table 3). These codes enabled us to better understand the technological context within which users evolve and to analyze their usages. Our respondents especially described the modules and related functionalities offered on the social network platform, and explained to us how these functionalities were useful or not to their work practices. For instance, some users appreciate the notifications that are sent when something new is published in a community they follow, while others regret the absence of a more powerful search engine in order to retrieve information more precisely. Consequently, most of the interviewees acknowledge the usefulness of the newsfeed, which seems also to be well aligned with their work practices. We also observed that this functionality is perceived as being more useful and more integrated in work practices when it is used by users' networks (i.e. team members, colleagues, supervisors). One respondent explained that network effects encourage the appropriation of the ESN. In contrary, sharing documents through online communities is still an under-used functionality. Our interviews also reveal habits and usage continuance. Indeed, the literature on post-adoption (Jasperson et al. 2005) has stressed that IS usage can increase or decrease over time, that regular users can become non-users or, in contrary, develop new habits with information systems (Limayem & Hirt

2003), which justifies the importance of considering this issue. As we conducted the interviews, it was interesting to learn how and when users accessed the ESN. Our respondents frequently mentioned using the ESN when being at the workplace only, some of the interviewees also admitted that they liked checking their newsfeed at home. Most users log to the ESN from their computer, but with the trend of Bring Your Own Device (BYOD), several users also mentioned personal smartphones and tablets as devices used to search information on the ESN.

Overall, these precisions on IS usage, technological features and location of use represent important information to understand the material structure.

Category	Codes	Subcodes
IS usages	Functionalities of the ESN	Usefulness
		Ease of use
		Modules
		Missing functionalities
		Limitations of existing functionalities
	Integration of the ESN in work practices	Alignment with work tasks
		Non integration in work practices
		Network effect
	IS usage continuance	Frequency of use
		Evolution of IS usage over time
		Level of usage
	Conditions of use	Media type
		Location of use
		Time of use

Table 3. IS Usages Coding Table

Our results confirm that the lack of sponsorship from top management unfavorably influences IS usage and users perceptions. As one user explains,

“Greater involvement of top management in the ESN could be an encouragement to users who spend time and try to do things right [...]. Users would say ‘well, managers view the ESN as something interesting and they know that using the ESN in a proper way requires energy and time’”.

Similarly, network effects represent another way to encourage IS use, but these effects can be limited when users adopt a passive behavior as described by another user:

I know that many people have an account on the ESN, they are pleased to obtain relevant information but they never publish anything. If there are only 10 users publishing information versus 200 receiving information, it’s nonsense”.

The analysis of our interviews highlighted multiple concepts related to affordances and sociomateriality (see Table 4). This coding table highlights both positive (e.g. ‘possibilities’) and negative (e.g. ‘limitations’) affordances that guide, influence or constraint human action and determine the way in which social and

material agencies work on each other. These affordances also highlight how users appropriate (or not) the ESN. In the following subsections we develop some of the concepts that we use to code our data.

Level of Affordances

Our findings especially point out different levels of affordances. As Leonardi (2013b) explains, some affordances are individual, enacted by a person and not a group. Collective affordances are “*collectively created by members of a group*” (Leonardi 2013b, p. 752) and may result from “*pooled individualized affordances*” (Leonardi 2013b, p. 752). Shared affordances are “*shared by all members of a group*” (Leonardi 2013b, p. 752) and differ from collective affordances because they represent “*similar use of the technology’s feature by all members*” (Leonardi 2013b, p. 752).

After assigning an ‘affordance level code’ to our verbatims (labelled categories in our table), we then attributed codes and subcodes. For example, a respondent said the following: “*we [him and his team] use the ESN to make information about our projects visible*”. This refers to a collective affordance (at the category level), but this quotation also gives information on ‘Visibility’ and more precisely ‘activity stream’. This is a positive affordance permitted by the ESN. On the contrary, when the user says “*the only difficulty I found in this ESN is that information does not come to me, I have to search for it*” is a negative affordance at the individual level.

On an individual level, job is an affordance that plays an important role: technical experts, who are not in an office with a computer, often say they can’t use the ESN because of the specificities of their job (they don’t have the time to use the ESN during their working hours). Other users explain they don’t have time to use the ESN because of their workload:

“I didn’t take the time to explore the ESN because I have a heavy workload, which is also unpredictable”.

On a collective level, small teams who work together in the same building all day long (as for example in the Alsatian site) often prefer face-to-face contact rather than using the ESN to discuss an idea.

“Nowadays, we spend our time speaking with people we don’t see, and we don’t see either people surrounding us. [...] I rather speak with everybody face-to-face: we share a coffee and we talk.

Information

The code ‘Information’ refers to the way information is disseminated and shared among users and across the organization. The ESN provides a new way to disseminate information across Ellipse. The interviewees explain that information is more widely spread, besides being centralized via a unique IS and being accessible at any time and any moment. This refers to the concept of persistence, which is defined as the accessibility of communication and information (Leonardi & Treem 2012).

“Before [the ESN implementation], if we wanted information, we had to search for it. It wasn’t easy to find new information. Now, it’s immediate; besides, we discover new things more easily, because everyone can post and share the news”.

Association

Association represents the “*established connections between individuals, between individuals and content, or between an actor and a presentation*” (Leonardi & Treem 2012, p. 162). It seems that ESN reconfigure some connections that exist between employees. For instance, some interviewees regret the loss of real interactions between employees despite embedded ‘social features’.

“I think we should not give up phone calls, because it is complementary to the ESN, and the relationship [with co-worker] is not the same. [...] I think we have to preserve this link.”

“Nothing will ever replace a direct contact. Nothing will ever replace head-to-head contact, even cell phones.”

Visibility

Visibility is “the ability to make behaviors, knowledge, preferences, and communication network connections that were once invisible (or at least very hard to see) visible to others in the organization” (Leonardi & Treem 2012, p. 150). Our interviewees interact with the ESN to disclose their projects by creating public online communities accessible to all users.

“Information spreads faster. E-mail was fast, but now when we need information, we visit the online communities and we get it. We ask a question, we get the answer; there is always someone to answer you.”

Editability

Editability characterizes “individuals who spend a good deal of time and effort crafting and recrafting a communicative act before it is viewed by other” (Leonardi & Treem 2012, p. 159). Users address this issue when explaining how they engage more of themselves in the social media platform because the ESN allows them to create detailed and customized profiles.

Moreover individuals can be constrained in how they use a system. Therefore, we created a code entitled control to capture policies and rules regulating IS usage. In fact, IS usage is generally subject to rules, which can be explicit or tacit, external or internal, and created by the organization or by users. We found that very few users read or knew about Ellipse’s IT policies. Indeed, users’ practices are based on a personal ethics rather than on “official” rules.

Category	Codes	Subcodes
Level of affordance Individualized affordance (IA) Collective affordance (CA) Shared affordance (SA)	Boundaries between private and professional life	Coping strategies
		Emotional reactions
	Imbrication of human and material agencies	Effect on work routines
		Effect on technology
	Association	Social connection
		Social disconnection
		Re-socialization
	Information	Sharing of information
		Selection of information
		Search of information
		Information overload
	(Re)creation of communication modes	New modes of communication
		A-temporal communication
		Impact on “face-to-face” communication
	Persistence	Information storage
Information accessibility		

	Visibility	Meta-knowledge
		Activity stream
		Project management
	Editability	Customized content
		Information quality
		Asynchronicity
	Control	Usage policy (charter)
		Explicit rules
		Tacit rules
		Influence on user behaviors
	Positive affordances	Efficiency
		Domino effect
		Network effect
		Sponsorship
	Negative affordances	Inefficiency
Misfit with work practices		
Sponsorship		

Table 4. Affordances Coding Table

Discussion and Conclusion

In conclusion, this research underlines some new phenomena, yet not studied in IS research. We especially point out that the imbrication between social and material agencies produces new structures. For instance, social and material agencies produce individual and tacit rules, which impact usages of enterprise social networks. In comparison with traditional ICT, we argue that ESN require specific attention because ESN social features offer individuals new possibilities, new rules, and new modes of communication that can be associated to positive or negative affordances. Social agency is more than ever imbricated with material agency because of these social features. This research also confirms some of the codes identified by Leonardi and Treem (2012) to question social media use in organization. Therefore, using sociomateriality and affordances theory enable us to take into account social and material structures to better understand IS appropriation through the imbrication metaphor. Our findings indicate that different appropriation behaviors and processes emerge according to the affordances encountered by individuals. In fact, ESN appropriation seems to be tightly bounded to users' sociomaterial context and experience. For example, as shown in our main findings, user's 'physical' environment (building, offices configuration, number of co-workers on the site) seems to be a significant factor, such as user's 'social circle' (his/her working team size, his/her communication habits etc.). When on a small site with few co-workers, individuals tend to prefer face-to-face communication and they ask their co-workers for information rather than searching on the ESN. On the contrary, when working in a larger workplace with hundreds of co-workers, users tend to prefer using the ESN to exchange point of views, to find information or to collaborate with their colleagues.

Considering our findings, it seems that two coping strategies emerge: the first is used by individuals who reject the pervasiveness of ESN and prefer giving priority to human-to-human interactions. Those users rather connect with others in face-to-face or seek information by asking directly their co-workers or knowledgeable people. Another strategy used to cope with the ESN consists in taking advantage of the ESN social features: then users rely on online communities, 2.0 profiles or notifications sent by the system to identify useful information and collaborate. These users perceive the ESN as a tool full of potential and possibilities.

Leonardi and Treem (2012) formulated several potential research questions to explore the relationship between social media affordances and organizational socialization processes. One of those questions focuses on understanding how “*the visibility afforded by social media affects decisions to seek information from others*” (Leonardi & Treem 2012, p. 169). Future researches could deeper investigate the role of social media affordances on socialization processes in organizations, and especially seek to determine how this relationship could influence ESN appropriation.

This research has limitations. First, we only have one case study, which is weak to generalize our findings. Second, with an interpretive case study we acknowledge the fact that “organizations are not static and the relationships between people, organizations, and technology are not fixed but constantly changing” (Klein & Myers 1999, p. 73). Therefore, our findings are closely related to Ellipse’s context and organizational history.

Our study contributes to research in several ways. First, both sociomateriality and ESN are recent phenomena in IS research, and few researchers have used a sociomaterial approach to specifically study ESN even if an increasing number of studies have focused on social media. Second, IS research on adoption and diffusion is still dominated by the positivism paradigm (74.8% of IS studies) and quantitative methodologies (64.8%) according to Williams et al. (2009). Third the French business context examined in this research could represent another opportunity for future research to see if there are cultural differences in ESN usages compared to Anglo-Saxon business environments.

Last, this research offers managerial contributions as well. By providing a thorough understanding of ESN usages and user appropriation of collaborative technologies, IS managers in charge of deploying these tools can adapt training, develop new functionalities or improve existing functionalities. Also, our study can provide some insights to better understand the particular role of users’ sociomaterial experience (personal context, former experiences, workplace, and working habits) to promote ESN and to get people interested by the ESN. For example, the interviewees often underline a lack of ‘real proof of usefulness’ of the ESN. Indeed, they have the feeling that this ESN doesn’t fit their daily work tasks and that it has meaning and usefulness only for a few workers. Our findings can also benefit Human Resource Managers who have to rethink work practices to improve well-being in the workplace.

REFERENCES

- Altimeter. 2012. *Making the Business Case for Enterprise Social Networks. Focus on relationship to Drive Values*, <http://www.slideshare.net/Altimeter/altimeter-report-making-the-business-case-for-enterprise-social-networks>.
- IBM. 2011. From Stretched to Strengthened: Insights from the Global Chief Marketing Officer Study, CMO C-Suite Studies.
- McKinsey, 2013, *Business and Web 2.0: An interactive feature*, http://www.mckinsey.com/insights/business_technology/business_and_web_20_an_interactive_feature, Accessed February 27th, 2014.
- Aaron, F. 2010. "Débat. Les usages des systèmes d'information dans les grandes entreprises : une retrospective", *Entreprises et histoire*, (3:60), pp. 170-184.
- Agarwal, R., and Karahanna, E. 2000. "Time Flies When You're Having Fun: Cognitive Absorption and Beliefs about Information Technology Usage". *MIS Quarterly* (24:4), pp. 665-694.
- Boudreau, M. C., and Robey, D. 2005. "Enacting Integrated Information Technology: A human agency perspective", *Organization Science* (16:1), pp. 3-18.
- Boyd, D. M., and Ellison, N. B. 2007. "Social network sites: Definition, history, and scholarship", *Journal of Computer-Mediated Communication* (13), pp. 210-230.
- Chen, W. and Hirschheim, R., 2004. "A paradigmatic and methodological examination of information systems research from 1991 to 2001", *Information Systems Journal* (14:3), pp. 197-235.
- Constantinides, P., and Barrett, M. 2006. "Large-Scale ICT Innovation, Power and Organizational Change", *Journal of Applied Behavioral Science* (42:1), pp. 76-90.
- DiMicco, J. M., Millen, D. R., Geyer, W., Dugan, C., Brownholtz, B., and Muller, M. 2008. "Motivations for Social Networking at Work", *Proceedings of the 11th Conference on Computer Supported Cooperative Work*, San Diego, p. 711-720.
- DiMicco, J. M., Geyer, W., Millen, D. R., Dugan, C., and Brownholtz, B. 2009. "People Sensemaking and Relationship Building on an Enterprise Social Network Site", *Proceedings of the 42nd Hawaii International Conference on System Sciences (HICSS '09)*, pp. 1-10.
- Gibson, J. 1977. "The theory of affordances", in R. E. S. J. Bransford (Ed.), *Perceiving, acting, and knowing: Toward an ecological psychology*. Hillsdale, NJ: Lawrence Erlbaum, pp. 67-82.
- Giddens, A. 1979. *Central Problems in Social Theory*, Berkeley, University of California, 234 p.
- Giddens, A. 1987. *La constitution de la société : éléments de la théorie de la structuration*, PUF, Collection Sociologies, 474 p.
- Jasperson, J., & al. 2005. "A Comprehensive Conceptualization of Post-Adoptive Behaviors Associated with Information Technology Enabled Work Systems", *MIS Quarterly*, (29:3), pp. 525-557.
- Johri, A. 2011. "The socio-materiality of learning practices and implications for the field of learning technology", *Research in Learning Technology* (19:3), pp. 207-217.
- Kautz, K., and Jensen, T. B. 2013. "Sociomateriality at the royal court of IS. A jester's monologue", *Information and Organization*, (23), pp. 15-27.
- Klein, H. K., and Myers, M. D. 1999 "A Set of Principles for Conducting and Evaluating Interpretive Field Studies in Information Systems", *MIS Quarterly Executive* (23:1), pp. 67-93.
- Leidner, D., Koch, H., and Gonzalez, E. 2010. "Assimilating Generation Y IT new hires into USAA's workforce: The role of an Enterprise 2.0 system", *MIS Quarterly Executive* (9:4), pp. 229-242.
- Leonardi, P. M. 2008, "Organizing technology: toward a theory of sociomaterial imbrication", *Academy of Management Proceedings*, pp. 1-6.
- Leonardi, P. M. 2011. "When Flexibles Routines Meet Flexibles Technologies: Affordance, Constraint, and the Imbrication of Human and Material Agencies", *MIS Quarterly* (35:1), pp. 147-167.
- Leonardi, P. M. 2012. "Materiality, sociomateriality, and socio-technical systems: What do these terms mean? How are they different? Do we need them?", in P. Leonardi, B. Nardi, & J. Kallinikos (Eds.), *Materiality and organizing: Social interaction in a technological world* New York: Oxford University Press, pp. 25-48.
- Leonardi, P. M. 2013a. "Theoretical foundations for the study of sociomateriality", *Information and Organization* (23), pp. 59-76.
- Leonardi, P. M. 2013b. "What Does Technology Use Enable Network Change in Organizations? A Comparative Study of Feature Use and Shared Affordances", *MIS Quarterly* (37:3), pp. 749-775.

- Leonardi, P. M., and Barley, S. R. 2010. "What's Under Construction Here? Social Action, Materiality, and Power in Constructivist Studies of Technology and Organizing", *The Academy of Management Annals* (4:1), pp. 1-51.
- Leonardi, P. M., and Rodriguez-Lluesma, C. 2012. "Sociomateriality as a Lens for Design", *Scandinavian Journal of Information Systems* (24:2), pp. 79-88.
- Leonardi, P. M., Huysman, M., and Steinfield, C. 2013. "Enterprise Social Media: Definition, History, and Prospects for the Study of Social Technologies in Organizations", *Journal of Computer-Mediated Communication* (19), pp. 1-19.
- Limayem, M., and Hirt, S. G. 2003. "Force of Habit and Information Systems Usage: Theory and Initial Validation", *Journal of the Association for Information Systems* (4:1), pp. 65-95.
- Miles, M. B., & Huberman, M. A. (2003). *Analyse des données qualitatives* (2 ed.), De Boeck.
- Orlikowski, W., J. 1992. "The Duality of Technology: Rethinking the concept of Technology in Organizations", *Organization Science* (3:3), pp. 398-417.
- Orlikowski, W., J. 2000. "Using technology and constituting structures: a practice lens for studying technology in organizations", *Organization Science*, (11:4), pp. 404-428.
- Orlikowski, W., J. 2007. "Sociomaterial Practices: Exploring Technology at Work", *Organization Studies* (28), pp. 1435-1448.
- Orlikowski, W., J. 2010. "The sociomateriality of organisational life: considering technology in management research", *Cambridge Journal of Economics* (34:1), pp. 125-141.
- Orlikowski, W. J., and Scott, S.V. 2008. "Sociomateriality: Challenging the Separation of Technology, Work and Organization", *The Academy of Management Annals* (2:1), pp. 433-474.
- Richter, A. and Riemer, K. 2009. "Corporate Social Networking Sites – Modes of Use and Appropriation through Co-Evolution", *Proceedings of the 20th Australasian Conference on Information Systems* (ACIS 2009), Melbourne, 10 p.
- Richter, A., and Riemer, K. 2013. "The Contextual Nature of Enterprise Social Networking: A Multi Case Study Comparison", *Proceedings of the 21st European Conference on Information Systems*, Utrecht, 12 p.
- Riemer, K., Overfeld, P., Scifleet, P. and Richter, A. 2012. "Oh, SNEP! The Dynamics of Social Network Emergence – the case of Capgemini Yammer", *Business Information Systems Working Paper*, Sydney, Australia.
- Riemer, K., and Richter, A. 2012. "S.O.C.I.A.L. – Emergent Enterprise Social Networking Use Cases: A Multi Case Study Comparison", *BIS Working Paper*, The University of Sydney, 18 p.
- Robey, D., Anderson, C. and Raymond, B. 2013. "Information Technology, Materiality, and Organizational Change: A Professional Odyssey", *Journal of the Association for Information Systems* (14:7), pp. 379-398.
- Scott, S. V., and Orlikowski, W. J. 2009. "Getting the truth: Exploring the material grounds of institutional dynamics in social media", *Working paper series*, 177: London School of Economics and Political Science.
- Scott, S. V., and Orlikowski, W. J. 2013. "Sociomateriality – taking the wrong turning? A response to Mutch", *Information and Organization* (23), pp. 77-80.
- Stocker, A., Richter, A. and Riemer, K. 2012. "A Review of Microblogging in the Enterprise", *it-Information Technology*, (54:5), pp. 205-211.
- Strauss, A., and Corbin, J. 1998. *Basics of qualitative research: Techniques and procedures for developing grounded theory* (2nd ed.), Thousand Oaks, CA: Sage.
- Treem, J. W., and Leonardi, P. M., 2012. "Social Media Use in Organizations: Exploring the Affordances of Visibility, Editability, Persistence, and Association". *Communication Yearbook* (36), pp. 143-189.
- Weick, K. E. 1990. "Technology as equivoque: Sensemaking in new technologies", in *Technology and organizations*, P.S Goodman., L.S. Sproull (eds.), Jossey Bass, San Francisco, pp. 1-43.
- Williams, M.D., Dwivedi, Y.K., Lal, B., and Schwarz, A. "Contemporary Trends and Issues in IT Adoption and Diffusion Research," *Journal of Information Technology* (24:1) 2009, pp 1-10.
- Zhang, J., Qu, Y., Cody, J. and Wu, Y. 2010. "A Case Study of Microblogging in the Enterprise: Use, Value, and Related Issues", *Proceedings of the 28th annual SIGCHI conference on Human factors in computing systems (CHI'10)*, New York, pp. 123-132.