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UNCERTAINTIES AS BARRIERS FOR KNOWLEDGE SHARING WITH ENTERPRISE SOCIAL MEDIA

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Research paper

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Abstract

Transferring knowledge has become a key challenge for global organizations and social media offers new opportunities to digitalize and support this process. However, the successful implementation of a social media based knowledge transfer environment is marked by several uncertainties that can become a barrier for the participants' adoption. There is only limited existing research studying the types of uncertainties that employees perceive and their impact on knowledge transfer via social media. To address this gap, this article presents a qualitative interview-based study of the adoption of the Enterprise Social Media tool Yammer for knowledge sharing in a large global organization. We identify and categorize nine uncertainties that were perceived as barriers by the respondents. The study revealed that the uncertainty types play an important role in affecting employees' participation and willingness to share. We further derive necessary critical managerial interventions that ensure a successful ESM implementation for knowledge sharing.

Keywords: knowledge sharing, enterprise social media, uncertainties, technology adoption, qualitative research

1 Introduction

Transferring knowledge has become a key challenge for global organizations (Lin et al., 2005; Oshri, 2008). It requires the ability to transcend internal boundaries between departments (Carlile, 2004). One important opportunity to address this requirement in new ways is the recent emergence of enterprise social media (ESM). ESM, as one example of electronic media, are particularly useful for forming networks of contacts (Cho et al., 2005; Trier and Richter, 2015), from which employees can draw resources to solve their business issues (Richter and Riemer, 2013), and to contribute to the competitiveness of the company. Further, such "online technologies of the web 2.0 generation …allow users to easily and inexpensively generate and share content" (Kaganer and Vaast, 2010, p. 2).

The adoption of such online environments is however not always successful. Researchers have investigated diverse *motives* to contribute to knowledge sharing systems, such as reputation, self-rated expertise or reciprocity in the contact network (e.g. Wasko and Faraj, 2005). Other acadmic inquiries investigated *barriers* that prevent successful ESM implementation (Ardichvili et al., 2003; David and Fahey, 2000; Kankanhalli et al., 2005), such as codification effort or viewing knowledge transfer as a loss of power (Kankanhalli et al., 2005). In the study by Ardichvilli et al. (2003) however, only a

minority indicated knowledge hearding behaviours. Instead, respondents worried about the relevance of their postings to others or their right to post on a company-wide system.

Many of the identified barriers point to *uncertainty* as a main underlying inhibitor of knowledge sharing. Hsu and Chang (2014) argue that uncertainties perceived by the employees negatively affect transaction costs of transferring knowledge so that the transaction is likely to be terminated. Drawing from previous studies of uncertainties in the context of online shopping (e.g. Pavlou et al., 2007), Hsu and Chang (2014) develop a theory-driven conceptualization of *antecedents of uncertainty* in a knowledge sharing context that include fear of opportunism on the receiver's side, concerns about the recipient's absorptive capacity, reciprocity concerns, and fear of losing knowledge power. However, not all factors of this list could be confirmed in their influence on knowledge transfer. The existing inconclusive results motivate a more detailed empirical analysis of the ways in which certain *types of uncertainties* emerge at the workplace in the context of knowledge sharing initiatives.

We further shed light on the increasingly relevant adoption of enterprise social media for supporting knowledge transfer. ESM provides a special context that affords highly visible and very transparent interactions, persistence of digital traces, and an intense degree of associating with other users (Treem and Leonardi, 2013). More insights are necessary to understand the role that uncertainties play in such an environment and how underlying aspects such as management, technology or people bring them about.

In contrast to the existing weakly confirmed deductive argumentation, our study contributes by adopting a qualitative inquiry in order to yield richer empirical insights into how people actually perceive uncertainties and how they attempt to reduce or avoid them. To shed light on these aspects, this article addresses the following research question:

RQ: Which types of uncertainties negatively influence (as barriers) the adoption of a social media based knowledge sharing environment?

We will now first present the main underlying concepts in the theory section. Then we introduce a global organization that serves as our case context before we discuss our research methods to gather and analyze the data. We then present 9 different uncertainty types that emerged from our interviews in the result section and continue with a discussion of the general implications of our findings. Finally, we offer a conclusion of our study and point to potential future research inspired by our findings.

2 Theoretical Background

Transferring knowledge between units of organizations has become a key challenge for global organizations that offer products and services adjusted to local markets while at the same time aiming at standardizing business processes and technologies (Lin et al., 2005; Oshri, 2008). The issue is exacerbated by the ongoing globalization with its strategic alliances and outsourcing, leading to companies that are more culturally fragmented with participants that do not have sufficient shared language and information about other groups in other parts of the world. Such diversity is complicating the coordination of interdependent work of the multiple parties via knowledge sharing, because knowledge is embedded in local work practices (Orlikowski, 2002). The local work practices give rise to local interpretations, interests, and local knowledge, making it hard for individuals to share knowledge across work boundaries (Carlile, 2004). However, researchers have argued that local knowledge can be shared if the organization has boundary objects (Carlile, 2004) or 'trading zones' (Kellogg et al., 2006) as places where "disparate communities meet and temporarily coordinate their activities" (O'Mahony and Bechky, 2008).

In this context, our research focuses on the preliminary process of how a globally implemented social media platform can become a potential such place for knowledge sharing and the *barriers* that may negatively affect the successful use of this environment.

Past research on barriers of (or motivational drivers for) knowledge transfer identified a large array of different influences (Wasko and Faraj, 2005). In our article, we focus on the fundamental *uncertainty*

associated with contributing, seeking and sharing experiences (Hsu and Chang, 2014) via a social media based knowledge sharing platform.

Uncertainty refers to the degree to which the future states of the environment cannot be accurately anticipated or predicted due to imperfect information (Pfeffer and Salancik, 1978; Pavlou et al., 2007). This occurs when something is doubtful or unknown, complicated, or unreliable; when information is inaccessible and inconsistent; and when people feel apprehensive about the state of knowledge.

In this article, we consider uncertainty as a person's perception about his/her own cognitions, and so if a person believes himself to be uncertain, then he/she is uncertain. In the context of knowledge sharing, researchers argue that a person may still perceive uncertainty even though he/she may actually hold a great deal of information (Brashers, 2001). Such uncertainties may then, e.g., be related to the interactions with other people grounding in beliefs about the communication skills of both participants, each other's goals, plans, and/or beliefs. Cultural differences can be a factor as well due to inadequate knowledge about cultural practices or difficulties with different languages. In work settings, uncertainties may be felt when workers are unsure about the need for formality when interacting with superiors, or they are not certain of their superior's leadership style (Brasher, 2001).

When dealing with uncertainty, the most apparent response is to reduce it or to remove it altogether. The focus of the related *uncertainty reduction theory* is reducing uncertainty through passive, active, and interactive strategies. According to the theory, uncertainty reduction is the gathering of information about others through observation and interaction so that the information seeker can predict the others' behavior (Berger and Calabrese in Antheunis et al., 2010: 101). Passive uncertainty reduction strategies involve observing the other person in different situations wherein he/she is interacting with other people. Active strategies require taking definite action to get to know the person of interest while being careful not to confront the person. One example of an active strategy is asking others about the person of interest. Finally, interactive strategies simply require communicating directly with the other person to gather missing information. When one reveals information about oneself, the receiver usually reciprocates, which can be regarded as an information-seeking strategy (Antheunis et al., 2010: 101). A benefit of coping with uncertainties in a social media based knowledge sharing context can be that the enterprise social media (ESM) platform offers the employee's new means to carry out such coping activities.

From the limited current academic research on uncertainty as an impact on knowledge sharing, Hsu and Chang (2014) proposed different uncertainty types and examined them a quantitative study. The authors found that the uncertainy if power is getting lost through sharing, and the uncertainty if the knowledge seeker is actually able to comprehend the contribution were both somewhat statistically influencing the efforts of knowledge transfer. They further theorized the uncertainty to get a favour in return and the uncertainty if the receiver behaves opportunistic. However, these latter two proposals were not confirmed to be relevant in a knowledge sharing context. That fact that only two out of four theoretically plausible factors would be influencing knowledge sharing in practice seems to suggest that there is still a demand to more comprehensively explore uncertainty types and their influence on knowledge sharing in the organizational work life, as perceived by the employees. Existing research does not yet provide a detailed explanation of the personal considerations people may have before they engage in transfer in an organizational setting and how these considerations ground in uncertainties. This is problematic as people might actively perceive uncertainties but at the same time use uncertainty reduction tactics to mitigate them, so that they do not affect knowledge sharing in the long run. Further, the scarce existing research is not looking at the special context of enterprise social media (ESM) as a place for knowledge sharing. The high degrees of vibility (and hence transparency), long persistence of digital traces and increased intensity of associating with others (Treem and Leonardi, 2013) provided in ESM contexts may affect and possibly also amplify the uncertainties that employees perceive when sharing knowledge.

In order to address these open questions, we are now introducing our empirical investigation of uncertainties for preventing the successful use of ESM for knowledge sharing in a real-life work context in a global organization.

3 Data and Methods

3.1 Data and Case Context

Our case company Tau is a large globally acting organization in the shipping industry that operates in this business for over 100 years in more than 30 countries with a fleet of over 300 ships. Tau has more than 3000 employees associated with regional main offices in 5 continents. The company has grown to its current size through a long series of mergers and acquisitions, as well as through establishing diverse joint ventures with local firms in a number of countries across many continents. Typically, regional offices were then established, and employees from the merged companies joined. With such a global profile, Tau is marked by employees from different corporate cultural backgrounds which leads to a high diversity in the reactions towards different corporate initiatives.

In the context of knowledge sharing, Tau uses several platforms for internal communication as well as for sharing information, such as e-mail, team sites, or an intranet for company announcements, staff movements as well as communicating other internal campaigns. Email plays an irreplaceable role in the daily work communications and it is regarded as the "formal" and "official" way of communication. Employees are expected to attend to their email all the time and all work-relevant information exchange should be conducted via email. Later, SharePoint was added to the portfolio as an online platform where functional and/or project teams can share their work files and documents. It serves as a work portal and repository to store necessary information and documents in hierarchical folder structures.

Finally, in 2015, Yammer was introduced globally as a communication tool between onshore and offshore employees. In various Yammer user groups, the workforce posted pictures of machines and ship vessels, or used Yammer for sharing operation, market information, daily business information, general experiences and viewpoints, as well as local and technical knowledge. In total, about 1000 employees use the platform at the time of our study in early 2016.

3.2 Methods

In order to assess uncertainties as the perceived barriers for knowledge transfer as they unfold in the everyday work context, we adopt a qualitative inductive research design. Data gathered for this study consists of primary, qualitative data from Yammer threads of 6 user groups and 11 individual interviews with Tau employees of different regions, working backgrounds and hierarchical statuses. In order to allow for theory development, the interviewees from various organizational levels and geographical locations were approached in order to maximize the diversity of their perspectives. The interviews were conducted in English language. The interview data was enriched by an observation of online behavior through Yammer threads within six user groups and individual interviews.

As our objective is to investigate employee engagement as well as knowledge sharing, we focused on six relevant Yammer user groups (out of 46 user groups), where the work duties of the members in these group required a high degree of professional knowledge. These employees also have a need to share experiences with co-workers, and the groups are active enough to have sufficient message threads for us to study. These six groups focused on Tau's finance, the operations, standards and three main software systems in use at Tau. The interviewees were chosen based on their level of activity in the six specific Yammer groups. We made sure to involve both active members and inactive members for individual interviews to counterbalance the activity level of knowledge sharing within the six Yammer groups and to avoid a positive bias of the key adopters.

Among the interviewees there was a Business Process Owner (BPO), a Safety Standards Manager (SSM), a Business Development and Implementation Manager (BDM), an IT Manager (ITM), a Financial Manager (FM), a Communication and Branding Manager (CBM), a Finance Student Assistant (FSA), a Chief Engineer (AD2), an Operations Manager (OM) a Standardization Manager (SM), and a Managing Director (MD). The interviewees came from different regions across the globe.

For our inquiry, we choose a semi-structured interview approach that was based on an interview guide that investigated, e.g., the respondents' main purposes for using Yammer, their reasons for posting in online groups and reasons for not participating sometimes. The guide was flexibly used to account for further aspects brought up by the respondents. A cross-sectional study design was adopted where the data was collected over a short period of time (Malhotra et al., 2012). Our sequential selection of relevant respondents follows a theory-driven sampling strategy. It is applied to account for new knowledge that comes with each new interview, allowing for constant comparison of data and helping refine the interview questions in order to explore new areas that had not been considered previously (Malhotra et al., 2012).

The interviews were carried out in spring 2016 and lasted between 15 to 35 minutes. Individual interviews are conducted either face-to-face or via Skype video call according to interviewees' physical locations across regions. The number of interviews reflects the various stakeholders involved and follows a theoretical saturation principle. All interviews were recorded and later transcribed. For the qualitative data analysis, we used the thematic analysis method formal coding (Ezzy, 2002). This enabled us to identify and categorize the key aspects within knowledge sharing via the internal social media platform Yammer.

4 Results

In the studied case organization, the initiating managers communicated a very straight forward objective of the Yammer implementation. They argue the software support will be all about: "sharing a lot of pictures on all kind of channels… So make it easy to share it with colleagues across time zones and countries, continents, etc." (CBM). However, even though the globally dispersed employees appreciated the value of knowledge sharing and appropriated the new means of interacting, they *articulated several barriers* in their everyday work context for a more successful adoption. In our analysis it emerged that *all* these barriers can be categorized as *9 different types of uncertainties*. We now present the types of uncertainties that emerged from our data analysis.

4.1 Uncertainties about the Audience's Level of Expertise

Employees have vocalized their concerns about using Yammer as a source of knowledge because they are not sure if the other members of the network possess knowledge or information about the topic and at the level they need: "I'm really unsure that everyone in the group who would be able to contribute" (SSM). This notion was amplified when the employees were already members of existing specialist groups: "For myself, if I need to know something, because our group is so special … I know basically all the superusers who have the good knowledge. If I really have a question, I will reach out to them directly via email, that's easier, you know, in more personal manner" (BDM). They simply saw no need to use the system, assuming transparency about the expert network. This implies that the other employees on the platform may not have the required proficiency. The benefit to find already known experts via the system more effectively was thus not noted.

The assumption about a lack of expertise among the employees in the system was further fuelled by the concern that employees do not yet know the other community members well and cannot evaluate their skills, but also do not feel comfortable relying on this extended contact base. This unknown quality of the contribution reflected back on the system and gave rise to an uncertainty on the level and truthfulness of the information shared: "So you can say that the validity of information that comes up through Yammer is also less… you know it's not… it's not always scientifically correct what comes

up on Yammer right" (FM). The remoteness of the participants and the unknown backgrounds of the others appears to result in lower efforts spent on producing high quality contributions. In addition, the respondents felt uncertain about the reasons behind the other people's postings and they started thinking about the hidden agenda of the poster.

4.2 Uncertainties about the Audience's Reactions

The employees' participation in the online knowledge sharing approach was affected by their concern about possible undesired reactions of the imagined audience. They worried about how the information they share will be received by the others. As commented by SSM, "When I want to gather that kind of information I do not go to Yammer, because then that would create an unnecessary noise. I would say, that 'hey things are not working' or anything like that". So for example, project owners were hesitant to post project updates on Yammer as they do not want to create unrealistic expectations in the audience: "I was trying to … talk about one of the upcoming major leaps … but I was discouraged from doing that because they didn't want to create false expectations" (ITM).

They were not sure of the reactions due to different factors such as peoples' individuality, the groups' cultures, or even the cultural background of the employees, as indicated by SM: "Sometimes when you write it, you interpret it in one way, when you read it, you may interpret it in another way. So I'd rather contact the person directly as I can quickly express and it will be in control" (SM).

Related to this reaction aspect is also the uncertainty about what the other people would say about their opinion, if it will be accepted or not, or if the reaction will be positive or negative. This could be the reason why some employees would just use the praise function instead of actually writing a comment in the thread, as one way of addressing the uncertainty. As one respondent notes: "It's not an area where I want to voice strong opinions or anything controversial. I think it should be used more for positive knowledge sharing but not so much … for arguments or long chains of to and fro" (OM).

Employees articulated that they were not comfortable with the group, resulting in a lower confidence to post real opinions, or, in being afraid of negative reactions (e.g. being flamed): "Say you posted something and me saying 'Ok, that is wrong' would create a negative debate on Yammer" (FSA). This lead to a preference to take the discussion offline without the broad online audience as expressed in this quote: "I maybe have an opinion, but then again because it's shared with the entire group I would not share my opinion in there…" (FSA) and further "I wouldn't post anything on Yammer, not even to say that it's incorrect. I will probably contact this person directly" (BPO).

Beyond avoiding negative reactions, participants were also concerned with creating embarrassment if no one can answer their question or the person who is expected to be able to answer turns out being unable to do so: "If it would cause some embarrassment to someone, I would probably contact him directly and point out things that I am not agreeing [with] at all… I'd rather save their face than bashing them directly on Yammer" (SM). The notion of saving faces featured also in this statement: "As I have been in [the organization] for some years, the whole thing is about saving face. There are regions that are not that open to criticism and discussions, pointing someone at their wrong and they can take it in the wrong way very quickly… People could be quite conservative and I rather run into people in another way than a clash on Yammer" (SM). This approach was also present in upper management levels, as shown in this statement: "If it becomes personal or any kind of people's roles and responsibility, then it's better to… I wouldn't answer. I wouldn't personally answer unless it was somebody in my team" (CBM).

One way to address the uncertainty about the reaction of the audience was to carefully select the appropriate words when posting on Yammer, especially in the 'All Company' group where everyone can access and read: "I will watch out doing jokes or using irony or something that can be misunderstood… Of course I consider how do I share things, and also there're a lot of different cultures" (CBM). However, while these reactions do not preclude the use of the online sharing platform, another way to reduce the uncertainty has shown to be a focus on only working with the existing personal net-

work in more private and exclusive online media, an effect that correlated with the tenure of working at the company: "Why would I ever not just go to people? I call people or I have them on Whatsapp, or I have them on Skype. If they are in the office, I walk to them and talk to them…. I would never use social media for that" (ITM).

4.3 Uncertainties on Whether People Will Respond

A further uncertainty mentioned by the respondents addressed the concern to receive any response at all. This was noted to be particularly relevant if important information is required: "If I really have something very critical, I wouldn't try my luck, you know, posting something and I don't know if anyone would help or reply at all" (BDM). Employees noted that there is no direct recipient hence no person would personally feel obliged to answer, as indicated in this quote: "In my view that [email] is the best way of doing because then you know that it hits the person's inbox and it will be immediately visible for that person" (FM). This response also illustrates how the respondents react by prioritizing other more direct communication tools that signal requests for information more personally and immediately so that employees are motivated to reply faster.

4.4 Uncertainties about the Coherence of Responses

In our investigation, we noted that some employees chose to use other fora for seeking information and communication because they are not sure if they would be able to arrive at a single solution in a timely manner. This concern was not only about response time, but about the risk that the high number of participants are posting conflicting information or just different ideas. This would also contribute to delays in verifying information needed by the original poster. New questions might also come up during discussion, which is good for knowledge sharing but will not help in the timeliness of getting to the answer. This uncertainty about a useful coherent outcome is illustrated in this statement: "I would never do that because it's a factual answer and I need it fast. I need a model name and maybe a price and exactly how to ask. Why would I crowdsource it? Why would I broadcast it? For me, Yammer is a broadcasting medium (ITM). Again, in the absence of a clear positioning of the platform, when facing such a situation, employees would go back to their initial approaches to reduce this uncertainty: "I would most definitely send them an email or call them as I feel that would be a quicker solution…" (FSA).

4.5 Uncertainties about the Local Applicability of Responses

While Yammer is framed as shared virtual workspace by the upper management, it is questionable whether this objective has actually been met. As the purpose of Yammer is not clearly communicated, the use of Yammer was flexibly interpreted by employees in some local groups, as exemplified in this quote: The group was "used quite quickly just to raise issues… by vendors and we would report back and put the ticket numbers and it just became a mailbox for tickets instead of actually a 'how do we do this'... standardizing and sharing of knowledge about how to execute things is not a priority in [our company] unfortunately" (ITM). These varying interpretations yielded confusion as they differed across locations so that "when somebody starts to ask [the] question 'how do you do this', they sometimes would get error responses from another region, whose practice for executing that particular process of a different one…that might be a best practice in Bahamas, but …we have different laws, we have different rules here. So it very depends on the sensitivity of the situation because if it's something [that] would be borderline illegal in other countries because of local laws, I will call on that person …Having experts helping other people figure it out how to do things… didn't work very well unfortunately…" (ITM). This illustrates how diverging local contexts create issues with the local applicability of gathered solutions, contributing to increased uncertainty about the viability of solutions from remote colleagues.

4.6 Uncertainties on Being Able to Find the Information Needed

Another uncertainty that employees feel in using Yammer is whether they would be able to find the information that they need in the networks. They applied the logics of tools that they were familiar with which lead to a concern with the informal approach to store information inside a conversation, as evidenced in this statement: "It is a very unstructured way, it is just as people see the need to or have the urge to share something, it's not very structured… So you know exactly what you are looking for and then you can go into the structure and find exactly where it is?" (FM, comparing Yammer with SharePoint). In consequence, these respondents would prefer the tool that they are more familiar with. This lack of a hierarchical ontological structure was accompanied by different groups in which content could be posted: employees did not stick with posting in their topical network group, but instead used their associated regional groups. However, the posted information then became restricted to regions and was not accessible for those in the topical network group, who might also be encountering the same problem. For example, one topical forum "started off quite informative on Yammer, but just recently that's not much news on [this] forum. … You can find most of the stuff you want in [the] Europe group" (AD2, also noting actual work-related reasons for this migration).

4.7 Uncertainties about the Purpose of the Platform

Despite existing general motivational formal statements about online knowledge sharing, the employees still perceived that the management has not communicated well enough the real purpose of Yammer and how it is supposed to be used in everyday operations. One issue was that the organization has several other existing platforms that are also offering means for knowledge sharing and it has not been made clear, if Yammer is supposed to replace them, becomes an add-on, or is meant as a more informal forum for communication. This yielded another uncertainty about appropriate ways to use Yammer next to the existing options, as this statement illustrates: "… the issue that we have in Finance, I don't know if they have it in other departments, is that we have a different platform. So we have [our intranet], then we have another SharePoint, and then we have Yammer, and then we have emails. So sometimes it's also difficult to keep track of all the communication in all these tools" (BPO). Others point out that informal help has always existed in the company: "We had a lot of discussions on Yammer before it was kicked off, so trying to figure out, is it a replacement for an intranet site, is it an add on, and if it is a replacement then do we just take away the intranet, decommission it, or do we have something else to put in place like some kind of document repository for document sharing, file sharing and then we use Yammer for the communication part or what do we do?" (FM). Since it was not clearly communicated whether Yammer is replacing the existing intranet or any other platforms, or even work emails, employees "don't think Yammer is the official channel" (ITM) and continued their use of email as the "formal way" to communicate work-related matters and share business-related information.

The important role of a clear formal position in the suite of organizational knowledge work systems is also illustrated in this viewpoint: "Yammer is … an option for social as I see it… I will never use Yammer for anything that I actually need an answer, an accurate answer and fast…it's an optional tool and a lot of people are using, are considering it's spam and noisy" (ITM).

This uncertainty is important as without a clear new purpose, the employees reacted by simply deciding to continue with their existing solutions: "[People] are also comfortable with the traditional way like email. Some colleagues share information with others in the same location when they meet, it's still the same [after we have Yammer…There's a skepticism towards social media in general here" (AD2).

4.8 Uncertainties about what is appropriate to share

While sharing was requested by top management, we found that on other levels of the organization, employees are concerned about what they can or cannot do on Yammer and what information can be

shared across departments on an operational level: "It also depends on the sensitivity of the information that I want to gather, whether I want to open it up for a larger audience or just want to keep it a closed one … So it's also difficult for us to choose what kind of information we're going to be publishing or commenting on" (BPO).

While the ESN is just used inside the company, employees had not a clear understanding of the appropriate behaviours with regards to security: "…first of all I don't know who can access what [in the global organization], so it could be security issue but the information is not that confidential that I will do it…" (BPO). We noted cases where this uncertainty was fuelled by power issues, where a community member intended to share (or shared) and later an influential other person would reprimand this employee, as next to security some elements are simply not shared for strategic reasons, even though it may be legally possible. Such a situation is expressed in the following statement: "I am not empowered to talk about everything I want to on Yammer. My business partners, they set the agenda for the systems right? While I want to tell people about all the good stuff that are coming, that's not necessarily in the carts of my business owners and they are the one to decide what should be cascaded to the business and not IT. So I was held back, I wanted to tell people more" (ITM). Such power relationships invoked further uncertainty about the local consequences of publishing material online.

Related to what should not be shared is the uncertainties about what is acceptable to post on the platform. It proved difficult for the employees to decide if Yammer is the proper forum for posting certain kinds of information and using it for certain types of communication. For example, while pictures of vessels and machines are one of the items that upper management wanted employees to share and thought that employees would enjoy reading about, some employees felt the opposite and considered them as spam. While the management thought: "We wanted to also capture some of the general things … … sharing a lot of pictures on all kind of channels, and we want to capture that in our internal channel, so make it easy to share it with colleagues across time zones and... countries, continents, etc." (CBM), employees noted that "somebody should be moderating and taking all of the … pictures out, honestly. I couldn't imagine anybody who would sit down and look at those pictures again, and again, and again. It should feel relevant, every single post should worth every single person's time, and then the input is valued and people would feel inspired" (ITM).

4.9 Uncertainty about the Reach of Employees via the Platform

Management believes they have already achieved the intended wide diffusion of the platform and build their communication on this assumption. However, in the previous sections, we reported various reasons that the workforce puts forward for not (or only occasionally) using the tools. The assumption of a successful implementation was also particular challenging with employees that work offshore: "For crew members that's an issue because a lot of the managers … are only under impression that all crew members can access Yammer …. But because Yammer is unique to your own [mail] address and crew members so far don't have their [individual mail] address…" (AD2). These members may "have seen the post, they have seen the information. But they are unaware of how to access it or what they need to do, individually" (AD2). Using a group e-mail is further limiting the activity as it adds to the uncertainty of what is appropriate to share. The management's overlooking this joint crew mail address is leading to the workers' assumption that "Yammer seems to be for shore side personnel really" (AD2). So while the upper management optimistically expects that Yammer can bring onshore and offshore employees closer together in order to communicate and share knowledge in this virtual workspace, the local context results in the opposite reaction: the perception of not being empowered to join the platform in appropriate ways with own contributions. Together with the various others' individual decision to use alternative platforms for critical interactions, this reveals a last derived uncertainty for top-down communication: it became unclear who can be reached by the medium and from whom can responses be expected.

5 Discussion

While the literature often focusses on successful implementations, the objective of our investigation was to identify the various barriers at the users' side. We noted that the opportunity to connect to remote colleagues across the globe is not only an opportunity but also raises several concerns that surfaced as a series of *uncertainties*, limiting the participants' willingness and activity levels. This even threatened the whole implementation project. Based on the interviews, we revealed a list of nine interrelated uncertainties that affected social media based knowledge sharing. These uncertainties could be categorized into three groups:

1. *Participant-related uncertainties.* A first group of participant-related uncertainties relates to interactions with unknown others. ESN participants are (1) uncertain in evaluating the audience's *level of expertise*, which made it difficult to estimate (2) the contents of the audience's *reactions*. For important issues, there was no confidence in (3) whether people would get *activated* and respond at all, as the employees found that the systems is not about asking someone directly.
2. *Response-related uncertainties.* A second group of response-related uncertainties relates to the results received from fellow employees. Asking questions was avoided sometimes in urgent situations as employees were (4) uncertain about how to deal with the *incoherence* of answers reflecting the different local approaches from across the globe. At the same time the quality of the answers was a concern as people were (5) uncertain about the *local applicability* of the proposed solutions. When looking through past answers, the informal conversation principle lead to (6) uncertainties of how to effectively search for and *find relevant solutions* in the platform.
3. *Platform-related uncertainties.* A third group of platform-related uncertainties relates to the abstract *positioning of the platform*. First, employees were (7) uncertain about the *purpose* and benefit of the platform, once they compared it to their tools in use. This had bearings on the selection of contents to share as users were (8) uncertain about what is *appropriate content* to share, in particular with regards to confidentiality. Confidentiality surfaced not only as a legal concept but also an instrument of power games, where information that could legally be shared was not posted to gain local advantages. A final derived barrier is the difference between the management's assumed dissemination level and the actual everyday use, leading to a (9) uncertainty related to the *reach* of the platform in terms of getting the attention of potentially relevant colleagues.

In comparison to past research, we noted that a qualitative inquiry gave us additional insights over and beyond existing theoretically deduced conceptualizations, e.g., offered by Hsu and Chang (2014): The authors bring the factor of opportunism, which did not feature strongly in our case. Our emerging category of uncertainty about the level of the audience's expertise is showing a more nuanced picture than just being about absorptive capacity limitations (as a limited ability to recognize the value of the provided knowledge). In fact, people are not only considering if others understand their postings, but at the same time point to the others' expertise as required for a useful interaction. Additionally the perceived access to an existing expert network outside the platform was considered. The notion of a missing reciprocity was in our study only an indirect issue deriving from uncertainties of whether people are approached directly enough to feel the obligation to react. The fear of losing power was also just an indirect and complex issue as this concern related mostly to the anticipated reactions from direct superiors, who had influence on the platform users and hence indirectly prevented the postings. Next to revealing more uncertainties as previously considered in academic studies, our qualitative inquiry was useful to better understand the underlying considerations in the context of the noted uncertainties and to emphasize the various interdependencies among the factors.

On a more general level, our data suggests that structuring the barriers as uncertainties provides a valuable approach for deriving necessary critical *managerial interventions* that ensure a successful ESM implementation for knowledge sharing by addressing and mitigating each uncertainty. For example, if

social media is to be adopted across the globe, management has to engage in developing an environment for trusting and appreciative relationship development among employees that have never worked with each other and come from different cultural backgrounds. The ESM can be used to make domains and levels of expertise highly transparent, e.g., by dynamic online profiles that capture sharing activities. The workforce needs to recognize, appreciate and discuss the many local differences of solutions, e.g. when it comes to legal aspects. This can give rise to improved best-practice adoption and standardization, or alternatively, to a better recognition of the harm that standardization would bring to certain domains of expertise.

Management should invest to provide dedicated means and training that help people gather, identify and appropriate the information collected over time in the ESM (as a repository, also compare for Trier, 2005). Moderators might be useful for fostering coherence of responses by making participants aware of the inconsistencies and reconcile the variety in the discussions. They could further mitigate the perception that it is not possible to find information in a systematic way by emphasizing tags, etc.

The other main resulting challenge is a clear indication of the intended purpose on a strategic level but also, even more importantly, on the operational level and in the realistic context of the intended users (e.g. blue collar work environments, access to computers, cultural assumptions). This purpose statement needs to address existing approaches (to knowledge sharing) that shall be replaced or augmented, in particular with regards to the use of e-mail. Another aspect is to give a clear statement about how to deal with confidentiality and also detailed examples of what content would be appropriate to discuss and share.

In our research, we further noted no intensive efforts of uncertainty reduction that make use of the various available ESM mechanisms. The uncertainties seem to be reduced mainly by moving to other more familiar channels or by avoiding intensive and deep use of ESM for knowledge sharing. This suggests further challenges for a successful ESM-based knowledge sharing initiative. If the ESM is accompanied by other existing opportunities for knowledge transfer, the uncertainties need to be actively addressed by the facilitators of the platform. Alternatively, functionalities need to be stressed that are actively inviting uncertainty reduction behaviours, such as showing people with tag clouds, similarities, reputation signals etc. Next to implications for management, our research hence also suggests implications for technical facilitation and design.

Finally, we want to point out limitations that future studies can address. Our inquiry was based on one large adoption of ESM for knowledge sharing. Other means of sharing can be considered in future research, or other organizations can bring further confirmation of our findings. On a more general level, working in a global organization also suggests cross-cultural barriers and uncertainties. While such a dimension was not directly problematized by our respondents, investigating cross-cultural aspects in more detail appears to be a relevant aspect for future research.

6 Conclusion

In an attempt to transcend beyond the current sparse research on the impact on uncertainties on knowledge transfer in an ESM context, we conducted a qualitative study of a large globally dispersed organization. We found that the concept of uncertainty is a powerful approach to understand reluctance in adopting corporate systems for knowledge sharing. In particular, we were able to identify nine types of uncertainties that create barriers to a successful adoption of ESM as a place for knowledge sharing. They fall into two categories, *interpersonal uncertainties* and *uncertainty of the managerial framing.* Managing these uncertainties and the uncertainty reduction behaviours is likely to become a major management objective of future organizations with more open communication environments.

The insights of our qualitative study are also informing current theory-based conceptualizations of uncertainties, so that future research could refine existing constructs for use in quantitative research or further augment them. We further noted that the avoidance of uncertainty reduction strategies via the ESM platform creates a secondary issue, which could be investigated in more detail in future research.

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