

MASTER'S THESIS

The Affordances of Enterprise Social Media for Knowledge Sharing of Teleworkers: A Case Study During the Covid 19 Pandemic

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Award date:
2021

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The Affordances of Enterprise Social Media for Knowledge Sharing of Teleworkers: A Case Study During the Covid 19 Pandemic

Degree program: Open University of the Netherlands, Faculty Science
Master of Science Business Process Management & IT

Course: IM0602 BPMIT Graduation Assignment Preparation
IM9806 Business Process Management and IT Graduation Assignment

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Identification number:

Date: 12/07/2021

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Version number: 11

Status: Final

Abstract

This explorative research provides insight in how and why Enterprise Social Media (ESM) can enable or constrain knowledge sharing of teleworkers. This research consists of a literature review, as well as a case study in the banking sector in the Netherlands. This study uses the perspective of affordances, a relational approach to understand the interaction between the technology and the user, and its individual, organizational and social context. The results suggest that the social restrictions resulting from the Covid-19 pandemic led to a significant increase in the use of collaboration platforms, as opposed to another type of ESM, Enterprise Social Network Sites (ESNSs). Moreover, the results show that the way knowledge is shared using the features of collaboration platforms is influenced by the directness of communication, the urgency and amount of the information and the group size.

Key terms

Enterprise Social Media (ESM), teleworking, affordances, knowledge sharing, banking organizations.

Summary

The trend of teleworking has accelerated significantly as a result of the social restrictions during the Covid-19 pandemic. It is important to understand how knowledge sharing of teleworkers is constrained or enabled as it is crucial for the competitiveness and continuity of the organization. To this end, teleworkers often use Enterprise Social Media (ESM): interactive platforms combining multiple communication features and functionalities.

The aim of the study is to understand the implications of ESM usage for knowledge sharing in teleworking contexts. The research question is: "how and why does ESM constrain and/or enable teleworkers' knowledge sharing?" This was studied through a literature review and a case study of the banking sector. To answer this research question, it is not sufficient to merely observe the features and functionalities of ESM: additionally, the relationship with the user's perception and individual, organizational, and social contexts needs to be studied. This is called the affordance approach and has often been used by researchers to study ESM. The literature review revealed five fundamental affordances: visibility, persistence, editability, association, and triggered attending. These were used in the analysis of the results.

Researchers often extend findings about one type of ESM to other types. However, this is often not appropriate. This is illustrated by the increasing interest in collaboration platforms since the pandemic: other types of ESM have not experienced this increase. Due to their recent emergence, collaboration platforms are underrepresented in the literature. This case study has validated the five fundamental affordances of ESM for collaboration platforms, although the significance of the affordances may differ. The study found visibility is extremely dominant, whereas associations that have barely been discovered are not dominant at all. This contradicts the consensus in the literature that ESM scores high on all affordances. For future research it is recommended to validate and extend literature about ESM for collaboration platforms.

In line with the literature, the results demonstrate that ESM allows the user to communicate more directly, as there are no physical barriers to approach someone and documentation is stored centrally and often in real-time. This leads to a higher variety and frequency of communication. This enables the user to be updated about new information by notifications. This can become distracting as well: to avoid this, the user can strategically disengage by changing their status to 'busy' or by turning notifications off. The three findings regarding constraining the user correspond to the literature as well. Firstly, the unlimited storage of information combined with the ongoing contribution of knowledge (which is stimulated by the ESM) can be perceived as overwhelming. Secondly, it often becomes unwieldy as there are no guidelines indicating how and where information should be stored. Lastly, open access to all users shows irrelevant information to the user. Thus, user guidelines and limiting access to associated groups can aid users that are searching for content.

Some factors that influence knowledge sharing have not been discussed in the literature. These factors are: amount and urgency of information and group size. When there is a lack of information, or when the urgency of information is low, the user chooses a feature that can share the message quickly without requiring immediate response. When there is a higher amount of information, or when the urgency is high, the user chooses a feature that allows for more interaction. The factor group size also has an impact on knowledge sharing: in small groups, users tend to make themselves visible by turning on their camera and microphone, thus stimulating interaction and team spirit; in larger groups, users tend to turn their cameras and microphones off as they feel uncomfortable or want to avoid the situation in which multiple people speak at once.

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1. Introduction

1.1. Background

Information Technology (IT) developments allow employees to work someplace else than the office. This is referred to as teleworking (Boell, Cecez-Kecmanovic, & Campbell, 2016). In the past decade, the increasing popularity of New ICTs, such as laptops and smartphones, stimulated teleworking as the barriers to work away from the office became smaller (Messenger & Gschwind, 2016).

Regardless, teleworking was not booming. Even the leading country in Europe regarding Teleworking (The Netherlands) saw an mere increase from 34% in 2013 to 39% in 2019 (CBS, 2018, 2020a; Eurostat, 2020).

However, due to the Covid-19 pandemic, the trend has accelerated since governments worldwide strongly advised to work from home to comply with the social distancing regulations. In the second quarter of 2020, the first peak of the pandemic in the Netherlands, 7.4 million people were working from home compared with 3.5 million people on average in 2019 (CBS, 2020a, 2020b). This increase in teleworking is expected to have a lasting effect: 40%-60% of the Dutch teleworkers expect to telework more often after the pandemic (Hamersma, Haas, & Faber, 2020).

1.2. Exploration of the Topic

Many knowledge workers are teleworking (Boell et al., 2016), as their job involves the use of a reasonable amount of theoretical and contextual knowledge (Hislop, Bosua, & Helms, 2018) which can be done anywhere with access to ICTs (Boell et al., 2016). Knowledge about work, tasks, products, services, competitors, customers, and expertise (Majchrzak, Faraj, Kane, & Azad, 2013) is a key resource for companies because it contributes to, among other things, their competitiveness (Taskin & Bridoux, 2010). This knowledge can be explicit or tacit. Explicit knowledge is objective and can be expressed, for example by writing it down in manuals, and can therefore be easily shared online. Tacit knowledge is subjective and harder to formalize as it includes beliefs, expertise and skill: thus, it is often shared through socialization (Nonaka, Toyama, & Nagata, 2000). To access knowledge, a worker must have sufficient organizational metaknowledge, defined as 'who knows what and who knows whom' (Leonardi, 2014, p. 797). The primary methods to develop metaknowledge is through experiential or vicarious learning (Kim & Miner, 2007; Leonardi, 2014). Experiential learning includes interacting explicitly with a co-worker to retrieve the information, for example by asking questions. Vicarious learning includes observing others communicate or perform tasks, even when this was not the goal (Kim & Miner, 2007).

Teleworking affects knowledge sharing (Taskin & Bridoux, 2010) because it complicates the interaction with and observation of others, as compared to being together in an office (J. N. Cummings, Espinosa, & Pickering, 2009). ESM recently emerged as an interactive platform to facilitate knowledge sharing of distanced workers, through multiple communication technology features (Gibbs, Rozaidi, & Eisenberg, 2013; Leonardi, 2014) such as instant messaging, posting and editing text and files, and connecting with co-workers through tags, 'likes', and subscriptions (Leonardi, Huysman, & Steinfield, 2013). Examples of ESM are Yammer, an Enterprise Social Network Site (ESNS), and Microsoft Teams, a collaboration platform. These platforms resemble public social media such as Facebook: the difference is that ESM is designed for organizational use only.

1.3. Problem Statement

Tensions arise studying the effects of ESM on knowledge sharing, because the same ESM tool can enable or constrain each user differently depending on the individual and organizational context (Gibbs et al., 2013; Oostervink, Agterberg, & Huysman, 2016). For example, studies show that ESM facilitates openness as it allows workers to share knowledge with a wide audience; in contrast, studies show that workers are selective in what and with whom they share knowledge (Gibbs et al., 2013). They could also be strategically presenting themselves to look like an expert (Leonardi & Treem, 2012). Therefore, it is not sufficient to merely study the features of ESM: the relationship between the technology and the teleworkers' perception needs to be studied as well, whilst considering the individual and organizational environment, to find all possible actions. This approach is also referred to as the affordance approach (Gibson, 2014) and has been used by many researchers to study ESM.

However, these studies usually focus on small samples in a specific organization, job function (Gibbs et al., 2013), workspace (e.g. in the office or globally distributed), and technologies (Leonardi & Treem, 2012). This limits the generalizability of the results. Additionally, research often focuses on the affordances or outcomes, but not how and why they occurred or are actualized (Strong et al., 2014). There is a need to expand the repertoire of case studies to substantiate and validate the existing research about the affordances of ESM and to deepen the understanding of how and why ESM enables or constraints knowledge sharing in different contexts (Gibbs et al., 2013). This is highly relevant since the pandemic caused a significant increase of distanced knowledge sharing and this will continue to evolve in the future.

1.4. Research Objective and Questions

It is important to clarify which type of distanced worker is studied because the circumstances can have an impact on knowledge sharing. For example, geographically distanced workers often never met face-to-face and consequently had less spontaneous communication and possibilities to observe each other to generate metaknowledge (J. N. Cummings et al., 2009). This research focuses on home-based teleworkers because many workers have moved from working full-time at the office to working full-time at home due to the social restrictions during the pandemic. Therefore, it has become a relevant area to study. These workers have had a chance to build personal bonds and a team culture with their co-workers, which influences their use of ESM while teleworking.

The research objective is to understand the use of ESM and its implications for knowledge sharing of teleworkers. The main research question is as follows:

How and why does ESM enable and/or constraint teleworkers' knowledge sharing?

Three sub questions are formulated to answer the main research question.

1. *Which contextual aspects of teleworkers can impact knowledge sharing using ESM?*
2. *How is ESM used for knowledge sharing of teleworkers?*
3. *What are the affordances of ESM for knowledge sharing of teleworkers?*

1.5. Motivation/Relevance

More than half of the organizations in Europe who transitioned to teleworking due to the social restrictions during the pandemic had no prior experience with teleworking. This is causing complications for employment, performance and the employee's well-being (Milasi, González-Vázquez, & Fernández-Macías, 2020). It is important to have the right ICTs to connect all

departments and teams safely and effectively to share knowledge while teleworking (Blount, 2015), especially since cross-boundary knowledge sharing is crucial for an organization's competitiveness, among other things (Van Osch & Steinfield, 2018). Hence, for companies interested in optimizing knowledge sharing of their teleworkers, it is important to understand the implications of ESM use for knowledge sharing by teleworkers.

Furthermore, this research looks at the affordances of ESM without extending the findings to other types of ESM, which has been identified as a common error in existing literature. Instead, this research relates the findings about the benefits and constraints to the context of the teleworker and the organization. As a result, this approach could reveal undiscovered benefits and constraints of ESM for knowledge sharing, which could resolve inconsistencies in existing literature about the effects of teleworking and ESM (Boell et al., 2016). Hence, this research contributes to the scientific body of knowledge about knowledge sharing and the role of ESM.

1.6. Main Lines of Approach

The research outline is as follows: chapter 2 looks at the existing scientific literature regarding the topics of teleworking, ESM, and affordances. This will lay the theoretical foundation for the case study. In chapter 3 the methodology of the case study is elaborated on, and its validity, reliability and ethical aspects are considered. Chapter 4 illustrates the results of the case study. Lastly, chapter 5 includes a thorough discussion of the results followed by a conclusion and recommendations for future research and practical applications.

2. Theoretical Framework

2.1. Research approach

The work of Boell et al. (2016), Gibbs et al. (2013) and Evans, Pearce, Vitak, and Treem (2017) was provided by the supervisor as compulsory literature for which a problem statement and research objective has been formulated. Other publications suggested by the supervisor included work from Blount (2015), Bernhard, Recker, and Burton-Jones (2013), Messenger and Gschwind (2016), Strong et al. (2014), Hislop et al. (2018) and Kodama (2020).

In addition to the suggested papers, relevant literature was found through backward snowballing (reviewing references of an article) and forward snowballing (reviewing articles that have cited an article). Additionally, the building blocks method was used when the snowballing methods were not sufficient. Building blocks are search terms connected via Boolean operators in a search query. For statistics and forecasts related to teleworking, governmental and institutional documents were used (CBS, 2018, 2020a, 2020b; Hamersma et al., 2020; Milasi et al., 2020). These were retrieved through their official websites.

2.2. Implementation

Backwards snowballing was the most frequently applied method and forward snowballing was only used to acquire more recent and different views on certain topics. For both snowballing methods Google Scholar was consulted because it was more successful at finding articles than the Open University Library. The results can be found in Table 2 in Appendix A. For the remaining gaps in the literature, the building blocks method was applied using the Business Source Premier (EBSCO). EBSCO has a smaller database than the Open University Library or Google Scholar, but it was chosen as it has a useful option to insert Boolean operators. The search criteria included peer reviewed academic articles and literature after 2010, because this is the period when New ICTs became

common and it is considered to represent the current technological developments (Messenger & Gschwind, 2016). The search strings and results from the building blocks method are summarized in Table 3 in Appendix A.

The results were scanned by observing the key words in the title and the abstract. For those that were considered relevant, the introductions, discussions and conclusions were read. The literature review consists of nineteen papers found using backwards snowballing, eight found using forward snowballing, and five found using the building blocks method.

2.3. Results and Conclusions

2.3.1. Which contextual aspects of teleworkers can impact knowledge sharing using ESM?

Boell et al. (2016) identified a paradox in the field of teleworking: on the one hand, researchers have argued that productivity of teleworkers is improved due to less interruptions (e.g. interrupting co-workers) (Greer & Payne, 2014); on the other hand, researchers suggest it increases number of interruptions (e.g. interrupting family members) and thus lowers the productivity (Leonardi, Treem, & Jackson, 2010). The paradoxical results are a consequence of oversimplification of the findings because the individual and organizational context of the teleworker can influence their work-life balance, productivity and job satisfaction (Boell et al., 2016). The paragraphs below elaborate on which contextual aspects of the teleworker have been identified in the literature to have an impact on their behavior when using ESM.

First, there should be a clear definition of the type of teleworker (Boell et al., 2016). This definition has often been oversimplified and incorrectly compared leading to conflicting literature (Neirotti, Paolucci, & Raguseo, 2013). For example, it should be considered whether the teleworker is self-employed or employed by an organization, because self-employed workers have more flexibility to make a work-schedule that fits with their private life than employed workers (Blount, 2015; Gold & Mustafa, 2013). Moreover, the location must be defined: working at a café might lead to less social isolation than working from home (Blount, 2015). The intensity of teleworking also matters, because teleworking more than 2.5 days a week could have a negative influence on the relationships with co-workers (Gajendran & Harrison, 2007). This research focuses on full-time, and workers employed by an organization and are working from home for more than 2.5 days a week, because this is standard during the current Covid-19 pandemic.

Furthermore, the individual's personal preferences and experiences with teleworking and ESM must be considered (Boell et al., 2016; Gibbs et al., 2013). For example, some people prefer to do administrative work at home whereas others prefer to do it at the office (Boell et al., 2016), and some people prefer more simplistic tools, such as Skype, than more advanced platforms (Gibbs et al., 2013). The preference and experience of the teleworkers can be influenced by the individual context, such as the home situation, individual characteristics (such as self-discipline), social context (for example the social restrictions during the pandemic) (Wang, Liu, Qian, & Parker, 2021), or organizational context (such as the team bond) (Blount, 2015).

Another important aspect of the organizational context to consider is the suitability of work activities for teleworking (Boell et al., 2016). On the one hand, tasks that require concentration or little collaboration are considered suitable for teleworking because the activity can be performed anywhere with access to ICTs require a quiet workspace. On the other hand, activities that require

collaboration, such as decision making, are less suitable because it requires interaction with co-workers which is considered limited during teleworking (Boell et al., 2016).

Lastly, the type of technologies is important to consider, as different hardware and software have different features, and this could lead to different behaviors and actions (Boell et al., 2016). For example, working on a PC requires a fixed working place as opposed to using New ICTs (Messenger & Gschwind, 2016) and Microsoft Teams can be used for scheduling activities and Skype cannot. Moreover, the adoption level of ESM must be taken into account, because the same technology used for the same work activity can lead to varying outcomes of knowledge sharing (Boell et al., 2016), for instance because the users are not aware of all features of the technology in use.

2.3.2. How is ESM used for knowledge sharing of teleworkers?

Distanced workers often use ESM for knowledge sharing objectives (Leonardi, 2014). Firstly, ESM can be used to capture tacit knowledge, i.e. subjective knowledge, for example when work tasks are discussed on organizational forums (Leonardi & Treem, 2012). This can be done through socialization, also defined as the process of transferring an individual's tacit knowledge into social interactions through sharing feelings, emotions, and experiences with other co-workers (Hislop et al., 2018). An example of this is an informal conversation among co-workers in which they complain about each other's work.

Secondly, ESM stimulates participation and knowledge contributions so the knowledge can be reused and does not get lost (Farzan, DiMicco, & Brownholtz, 2009). For example, receiving 'likes' on a post are a positive stimulus to encourage the user to post more. Some users restrict their participation and knowledge contribution because they want to use it as a source of power. They can use this to influence decision making by demonstrating they are knowledgeable, so others perceive them as valuable (Leonardi & Treem, 2012).

Thirdly, ESM can be used to expand organizational boundaries, as users can explore new relationships and gain knowledge from co-workers with different specialties (Leonardi & Treem, 2012). Because content is shared more easily through tagging and posting on a timeline, there is more exposure to activities of other co-workers (Farzan et al., 2009).

Lastly, ESM can be used to identify expertise, for instance when groups or pages about certain topics attract people with relevant knowledge or interest and form a community (Leonardi & Treem, 2012). Such communities can also collectively use knowledge, for example by using a poll in a relevant group to make a decision (Majchrzak et al., 2013).

The examples above show how knowledge can be shared. However, to learn all possible actions and behaviors when using ESM for knowledge sharing, the affordance lens is useful: it looks at the features of the platforms as well as the user's perception, and the individual and organizational environment (Gibbs et al., 2013).

2.3.3. What are the affordances of ESM for knowledge sharing of teleworkers?

According to Evans et al. (2017), affordances, or simply said 'possibilities for action', are often misunderstood or misused by scholars. The criteria of an affordance are that it cannot be a feature or an outcome of a technology and it is variable, i.e. have a range, because every individual can perceive an affordance differently (Evans et al., 2017; Gibbs et al., 2013). Bernhard et al. (2013) have developed a theoretical framework to outline different concepts of affordance including affordance existence, perception, and actualization.

First, an affordance emerges as a result of the interaction between the goal-oriented user and the technology (Bernhard et al., 2013). Second, the affordance is perceived when the user is made aware of the existence of a possible action by receiving information about the affordance (Bernhard et al., 2013). This information can be symbolic, when the technology is clearly indicating its use, or external, when another person or source provides the information about existing affordances. Lastly, the affordance is actualized when the perceived affordance is triggered by the effort of a goal-oriented actor or actors to achieve an expected outcome (Strong et al., 2014), and can be enabling or constraining (Bernhard et al., 2013). The amount of effort needed depends on the amount of training or experience (Bernhard et al., 2013). Strong et al. (2014) state that affordances can be interrelated and can interact over time when the actualization of one affordance can lead to the actualization of another.

The aforementioned concepts are illustrated by the following example: Thomas was not aware of the existence of the affordance association of Jive, an ESNS, as it can suggest relevant profiles based on his current friend list. When the suggestions page drew his attention (via symbolic information) he perceives the possibility of this action. The affordance is not actualized until Thomas decides to follow a co-worker (called Kevin) the affordance is actualized. In this case, the affordance association is enabling: it helps Thomas to establish new relationships which can contribute to the feeling of organizational engagement and his metaknowledge. The actualization can be interrelated with the actualization of triggered attending, because Kevin will receive a notification about the friend request of Thomas. However, when Thomas does not utilize the suggestions because he perceives it as irrelevant, it becomes constraining because it distracts him while using Jive. Kevin on the other hand uses the suggestions page regularly and has created a larger online network than Thomas, hence the variability of the affordance association differs for Kevin and Thomas.

As Gibson (2014) states: "The central question for the theory of affordances is not whether they exist and are real but whether information is available in ambient light for perceiving them." (p. 132). Thus, many affordances exist independently of the user's perception, but what is important are those affordances that are perceived and actualized. Moreover, the research question looks at how and why ESM constrains and enables teleworkers, but when an affordance is not perceived or actualized, it cannot constrain or enable teleworkers. Thus, this research is focused on the affordance perception and actualization.

Many researchers have proposed numerous overlapping affordances of ESM, often in the context of knowledge sharing. A list with fundamental affordances of ESM has been selected based on three literature reviews (Oostervink et al., 2016; Sun, Zhou, Jeyaraj, Shang, & Hu, 2019; Wagner, Vollmar, & Wagner, 2014). It is illustrated in Table 1 and summarized in the following paragraphs.

Table 1 Groups of Associated Affordances from the Literature

Affordance	Associated Affordances
Visibility	- Visibility (Leonardi & Treem, 2012) - Searchability (Boyd, 2010) - Scalability (Boyd, 2010)
Association	- Association (Leonardi & Treem, 2012) - Network-informed associating (Majchrzak et al., 2013) - Metavoicing (Majchrzak et al., 2013)
Persistence	- Persistence (Boyd, 2010; Leonardi & Treem, 2012) - Reviewability (Faraj, Jarvenpaa, & Majchrzak, 2011)
Editability	- Editability (Leonardi & Treem, 2012) - Replicability (Boyd, 2010)

<i>Triggered Attending</i>	<ul style="list-style-type: none"> - Recombinability (Faraj et al., 2011) - Experimentation (Faraj et al., 2011) - Triggered attending (Majchrzak et al., 2013)
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Visibility

ESM affords the ability to see behaviors, knowledge, preferences and communication network connections that used to be hidden (Leonardi & Treem, 2012). The scalability of visibility of ESM can become very high, but this is not guaranteed (Boyd, 2010). For example, when many users are sharing the content, the visibility becomes high. Some features associated with visibility are personal profiles, content publishing, friend lists, search engine results and the ‘like button’. The level of visibility depends on how easy it is for someone to access or create the information (Leonardi & Treem, 2012). Moreover, ESM affords searchability of information about people or the organization (metaknowledge) which could lead to identifying potential collaborations (Boyd, 2010; Leonardi & Treem, 2012). Users of ESM are often aware of the consequences of using and posting content on ESM and are using this in their favor (Danis & Singer, 2008): for instance, by making oneself invisible by changing the status on an ESM platform to ‘offline’ to avoid disturbances from other co-workers (Gibbs et al., 2013).

Association

Social media allows for association between individuals and association between individuals and content (Leonardi & Treem, 2012), for example when users follow each other or when users are commenting on or ‘liking’ entries. The user’s ability to react and interact with content and profiles, and in doing so adding knowledge to the platform, is also referred to as metavoicing (Majchrzak et al., 2013). This affordance could result in the system suggesting connections with other users or presenting relevant information to the user based on relational content ties outside the user’s network (Leonardi & Treem, 2012). This is called network-informed associating (Majchrzak et al., 2013). Kane, Majchrzak, Johnson, and Chenisern (2009) argue that there’s a potential risk associated with this, called ‘group thinking’: the risk of users following the consensus of the group, instead of forming their own opinion (Van Alstyne & Brynjolfsson, 2005).

Persistence

Generated content on social media is often persistent as the information remains available and unchanged (Leonardi & Treem, 2012; Majchrzak et al., 2013) and can be reviewed over time (Faraj et al., 2011). Features of this affordance are history of activities, past content found through the search engine, and a profile’s timeline. A potential risk of the ongoing addition of unchanged and preserved knowledge is that it could become unmanageable and unorganized over time (Leonardi & Treem, 2012).

Editability

This affordance refers to the communication that is formed by an isolated individual and produced at a different time than the moment the information is received but also to the content that can be modified after the publication date (Leonardi & Treem, 2012). Editability includes replicating content or recombining existing content with new knowledge, which is considered one of the strengths of social media (Faraj et al., 2011). For instance, a programmer modifies code he found on a blog whereafter he publishes this new code on a blog for use and understanding of other programmers. Recombination and replication of content can become a disadvantage when it becomes difficult to trace the original source of the information or when the modification is difficult to allocate (Boyd, 2010). Moreover, editability allows for experimentation as the editor can publish an unfinished piece

of content and ask for contribution from other users, such as feedback and ratings, to help him develop the content further (Faraj et al., 2011).

Triggered Attending

The last affordance of ESM is related to the employee's attention allocation in order to stay up-to-date about information and to interact with co-workers, for example via notifications (Gibbs et al., 2013; Majchrzak et al., 2013). A negative effect of the triggered attending affordance occurs when the user only responds to notifications and does not explore new knowledge or information (Kane & Alavi, 2007) or when users are strategically disengaging themselves by ignoring the information stream or triggers to reduce disturbances (Gibbs et al., 2013).

2.4. Objective of the Follow-up Research

By not solely looking at features of the technology, but additionally considering how the individual's perception and organizational environment can lead to different actions and behaviors, the literature review points out that the affordance lens is useful for describing how and why ESM can benefit or constrain knowledge sharing in different contexts. The follow-up research will empirically validate the five affordances of ESM (Table 1) in a teleworking context in a case study and analyze how and why a teleworker chooses to actualize a perceived affordance or not.

3. Methodology

3.1. Conceptual Design

The main research question is focused on 'how' and 'why' ESM constrains or enables teleworkers and this implies it is an explanatory research (Saunders, Lewis, & Thornhill, 2019). To answer this question, a qualitative research in the form of a single holistic case study was performed (Saunders et al., 2019). This method allows for a fundamental understanding of the teleworker's real-life context, motivation, opinion, and needs. These insights will help to understand the relationship and interaction between ESM and the individual users, the affordance approach. The case in this research is the banking sector. The study is holistic because there was no differentiation between sub-units, such as departments.

This research is a mono method qualitative study because it uses a single data collection technique of semi-structured interviews (Saunders et al., 2019). Semi-structured interviews have pre-identified themes and questions to make sure all areas are covered, such as the teleworkers' contextual aspects and the five affordances of ESM. This also allows for deviation from the structure, for example by asking for further elaboration. This will be useful to understand underlying motivations and contexts and to explore for unforeseen insights. The interview guide can be found in Appendix C: Interview Guide.

3.2. Technical Design

The financial sector was chosen as the subject of this case study, as it has a relationship with the prevalence of teleworking: some sectors are more suitable for teleworking than others (CBS, 2020a). In the Netherlands, the financial sector is second leading in teleworking: 54% of their workforce are teleworkers (CBS, 2020a). Due to their high suitability for teleworking and experience with ESM, banks are a suitable focus area of this study.

Eight interviews were conducted at two major banks with employees with varying roles to generalize the outcomes to the banking sector instead of to a specific role, team (culture) or technology. The

participants were found through the social network of the researcher. All participants switched from working fulltime at the office, to fulltime at home during the pandemic. The communication with their co-workers takes place through ESM. The list with participant descriptions is found in Appendix D: Overview Participants.

3.3. Data Analysis

The interviews were held face-to-face or on Microsoft Teams, Microsoft Teams, which was chosen for its safety and the participants' familiarity with the platform. The interviews were recorded and F4Transkript was the program used for transcription. The transcripts were uploaded for coding into Atlas.ti. This is a type of Computer Assisted Qualitative Data Analysis Software (CAQDAS): tools that support analyzing qualitative data (Saunders et al., 2019). The coding process consisted of three stages (Strauss and Corbin (1998) as cited by Saunders et al., 2019). The first stage is open coding, in which the data is categorized. Next is axial coding, the process of identifying relationships between these categories. Finally, by selective coding, a theory is produced based on these relationships. The interviews were held in Dutch, the native language of all participants, but the assigned codes are in English. A summary of the codebook is included in Appendix E: Codebook.

3.4. Reflection of Methodology

Research is internally valid only if the researcher appropriately interpreted the knowledge and experience gained from the interviews, which means the interpretation aligns with the intent of the participants (Saunders et al., 2019). To ensure internal validity, three types of bias are considered (Saunders et al., 2019). First, interviewee bias can occur because the researcher chose the participants from her social network. On the one hand, the participants could be subject to social pressure, but on the other hand they may feel more comfortable to be open about their opinions due to the bond of trust with the researcher. To reduce the interviewee bias, anonymity was assured to the participants. Second, even though the interviewer was not familiar with the organizations of the participants, she could have been subject to interviewer bias when wrong prejudices were made. To minimize the interviewer bias, the participants were asked to read and, if necessary, correct the transcribed interview. Lastly, participation bias can arise when the participant's willingness to take part is reduced when the interview becomes very lengthy. Hence, all interviews were set to take approximately one hour.

External validity refers to the generalizability of the research findings in other relevant settings or groups (Saunders et al., 2019). The external validity is maintained by using a literature review as the base for the empirical research. Moreover, the results are not influenced by a specific job function, work-culture, and technologies because the participants are from different departments across two different banks. However, the external validity is limited by the small sample group of eight participants. Additionally, the effects of the Covid-19 pandemic need to be considered. The participants are currently working full-time at home for nearly a year. Therefore, the results can only be generalized to situations where full-time teleworking is the case.

A research is reliable when replication leads to the same results (Saunders et al., 2019). A characteristic of semi-structured interviews is that the data and questions are not fully standardized. Thus, it is unlikely that the results from replicated research will lead to the same results. To maximize reliability, detailed reasoning is provided for all choices and considerations, such as choices for research methods and literature review procedures. Also, the data collection, analysis and preservation are explained in detail to illustrate the path to conclusions, also referred to as the 'chain of evidence' (Yin, 2008). Moreover, the considerations and steps taken to reduce the

interviewer, interviewee and participation bias improve the reliability: it is more likely to find the same results in a replicated research when there is little to no bias.

To assure ethical compliance, at the beginning of the recording, the participants are informed about their anonymity in the research and the possibility to discontinue at any time during or within reasonable time after the interview. Additionally, they are asked to confirm their voluntary participation to the interview. Lastly, the two major banks are anonymous to avoid any negative impact on their reputation caused by the findings of this research.

4. Results

4.1. Contextual Aspects of the Interviewees

At the time of the study, all interviewees were working full-time from home between four to five days a week since the start of the pandemic in April 2020. Before the pandemic, they had little to no experience with teleworking "*I never worked from home, so it is completely new for me not going to the office anymore so suddenly.*" (R3) The switch to full-time teleworking has therefore been a big transition. In the following paragraphs the individual, organizational and social context and the technical adoption level of ESM will be discussed.

4.1.1. Individual Context

Since all interviewees were working from home, their home situation can have an impact on their effectiveness. On the one hand, they said their productivity was reduced: for example, because of children running around the house causing distractions (R3), because working and sleeping in the same room made them feel dull (R6), or because of other personal issues. On the other hand, four interviewees also showed signs of improved productivity and a better concentration because they all had a quiet workspace, such as a home office. Moreover, two interviewees noticed that lower commuting time has been beneficial for productivity as well, because there is more energy left to spend on working. Still, all interviewees are longing to have a better balance between working from home and at the office: "*I think teleworking has many benefits, but especially when you're new and do not have too many distractions at home it can become very boring. Two days a week to the office would be perfect.*" (R4)

4.1.2. Organizational Context

The organizational context, such as the team bond and work activities, can also have an impact on how teleworking is experienced.

All eight interviewees described the team bond as good and professional. However, there are some differences that can impact the team bond. Four out of eight interviewees joined the team during the pandemic when working from home was already the norm. This impacted the team bond because several interviewees stated they felt like missing out on important and spontaneous communication when working together online. "*The spontaneity is gone, because you do not meet someone coincidentally at the office and have a quick chat to get to know each other. You also do not overhear what co-worker A says to co-worker B anymore.*" (R4) Two out of those four interviewees do not strive for a close team bond as they are external consultants. The other four interviewees who worked at the office together before the pandemic know their team members more personally and had a chance to create a team culture.

Six interviewees' main work activities are suitable for teleworking. The activities include programming, analyzing, writing, and testing systems. The two remaining interviewees are mainly

concerned with work activities that are less suitable for teleworking because it requires communication and guidance of internal and external partners. Regardless, all eight interviewees have mentioned their days contain many meetings or activities to share knowledge because all beforementioned activities have knowledge sharing as an input or output. “*So, I’m doing a lot of online desk research, but this also involves talking to customers to retrieve information, and then the results must be shared again through presentations with co-workers.*” (R2)

4.1.3. Technological Integration

During the interviews, it became clear that there is a significant difference between the integration of collaboration platforms, such as Microsoft Teams and Jira, and Enterprise Social Network Sites (ESNSs), such as Yammer and Connections.

All interviewees were aware of the affordances of the ESNS, but only three interviewees have said to actualize the affordances every now and then. For instance, the affordances visibility and association were actualized when searching the contact details of co-workers in the user networks. The other two users actualized visibility and persistence, as they search and explore for supplementary knowledge and information, for example about HR and IT related topics. “*If I have some spare time, I scroll a bit on the timeline of Yammer to see if something nice has been posted.*” (R8) All interviewees agreed that the main reason they do not use the ESNS often is because they had no interest or time, the content was irrelevant for their work activities or there was an overload of information because of open access and no feature to filter the information. “*Because a lot what is on there is not relevant. For example, a picture of the office building in the snow, and that is why it is discouraging to use it. You cannot filter on your department or certain topics, because everything is visible.*” (R4)

In contrast, collaboration platforms are intensively used by all interviewees on a daily basis for communicating, sharing knowledge, and collaborating online. In all eight interviews, participants indicated they are using Microsoft Teams as their main collaboration platform for communication, such as video calling, document sharing, messaging, and giving and receiving status updates. Five interviewees also use the collaboration platform Jira, which is a workflow management tool in which tasks with or without deadlines can be posted, edited, assigned, and updated. This tool can be linked to another tool made by the same software provider, Confluence, in which documents can be saved, edited, and shared. Thus, to keep the results reliable and comparable, the concept ESM has been narrowed down for the remaining sections of chapter 4 by focusing on collaboration platforms.

4.1.4. Social Context

Six employees confirmed the impact of the pandemic on both society in general as well as the increasingly intensive use of collaboration platforms. This could mean that the frequency can become less again when the pandemic is over: “*I think working from home is easy now because you know everybody else is working from home and therefore online on Teams. When everybody works 2 or 3 days at the office again it might be more difficult to plan in online meetings as easily as it is now.*” (R5). There is consensus among all interviewees that collaboration platforms are essential during the pandemic and outweigh the benefits of traditional communication technologies, such as e-mail and phone, because collaboration platforms are a central point of contact and therefore stimulate fast, frequent and efficient communication: “*I think the benefit of Teams is that everything is in one app and therefore you always have it open because you need it for so many things and reasons on a day. That means you will use it more easily and more often.*” (R2)

4.2. How and Why ESM Affords Knowledge Sharing

The following sections explain how and why ESM, in particular collaboration platforms, enables or constrains knowledge sharing by applying an affordance lens. The affordances considered are visibility, persistence, editability, triggered attending and association. These were adopted from the literature study.

All interviewees have perceived the affordances of the collaboration platforms intuitively through exploring symbolic information, as well as (in lesser extent) observing external information. None of the interviewees have been trained or received a manual.

4.2.1. Direct Access

Collaboration platforms allow for a more direct approach to the source of information, such as a person or a document, compared to working at the office. A user is enabled by direct access to information when consulting and modifying a document in real-time in a shared environment, actualizing editability. *"It helps with a faster collaboration and no miscommunication about which file is the most recent or avoids a delay because the files do not need to be sent by e-mail."* (R8). Moreover, a person can be approached more directly because there are no physical barriers anymore. It is no longer necessary to search for someone physically at their desk, or have difficulties finding a meeting room. *"Nowadays it is easier to plan when we have our meetings, because the meeting rooms always used to be full."* (R1) Instead, the user can actualize the affordance visibility by checking the other person's online status and by comparing the online agendas to find a suitable date for a meeting. Hence, the direct approach of collaboration platforms enables fast and easy access to information.

Consequently, four interviewees noticed that fast and easy access to people leads to communicating with a larger variety of people, but also to a higher frequency of communication and therefore a larger number of notifications about new updates, actualizing the affordance triggered attending. *"You are approached more easily which also means you get more requests for information, and that is constraining."* (R8) On the one hand, this is perceived as constraining when the notifications contain irrelevant information and distracts the user from their work. All interviewees were aware they can turn off or minimize notifications to enable a better focus on their work activities, however, only one has taken the effort to turn off the pop-up notifications, while leaving the other notification symbols active. All other interviewees chose to minimize the notifications by strategically making themselves invisible by changing the status to 'busy' on moments they need to concentrate on work and did not want to be distracted. On the other hand, notifications are enabling if the notifications are relevant and informative, which also helps to decide if an action is needed: *"I think the pop-up notification is useful because I can see what the message contains without opening the Teams app so I know if I should reply or not. It saves time."* (R4) The users are aware that they can minimize the triggered attending for the whole group by notifying only those that need to be informed: *"For example, if I need 3 out of the 7 people, I tag those three in the group chat. If I do not, they usually do not read the message because you do not get a notification."* (R3)

Another constraint of direct access is difficulties with time management. Two interviewees have noticed their online meetings take longer than a meeting at the office, because there are no time slots needed for meeting rooms anymore which force them to stay within the time limits. Two other interviewees mentioned there is no need to plan in physical movements between places and this led to rushing between meetings *"People schedule meetings in very tightly and it happened sometimes I have one meeting after another for three hours straight. That is not very nice. Now I try to plan in 5 minutes between the meetings to have coffee."* (R6)

4.2.2. Urgency of Communication

The urgency of information is another reason that impacts how and why an affordance is actualized for knowledge sharing by teleworkers. This can be observed in an analysis of the thoughtful consideration between using the microphone or chat during online meetings, depending on the extent they want to actualize the affordance visibility. If the message is not urgent enough to disturb a presentation or meeting, the chat is used, actualizing visibility and editability: *"If the meeting is about a certain topic and I want to add something but not disturb the conversation, I use the chat. Then others can reply on that message in the chat."* (R2) Depending on the perception of the user, the urgency can be too low to send a chat message, which results in the knowledge not being shared at all *"I noticed today at the office I asked my manager some small things I have been wanting to ask for a while but I did not do it online."* (R7) However, in some cases it depends on whether the user wants to bring a more complex matter into the discussion for which the microphone is more suitable *"It is easier to ask a question via the microphone rather than the chat because the downside of the chat, especially in large groups, is you always doubt how the message will come across and is interpreted. But if you say it, you can explain it better."* (R3) To facilitate this decision, two interviewees mentioned the presenter often specifies which feature is preferred to ask questions. Thus, these considerations show that the users are aware of the different variabilities of the affordance visibility.

4.2.3. Amount of Information

Another factor that influences knowledge sharing is the amount of information. One interviewee explained that a lack of information was the reason he did not share the knowledge: *"Since we are working from home, I first try to find the solution by myself, for example for a system error. (...) The barrier is high to shoot in a meeting for something you do not know all facts about than tapping someone on their shoulder and quickly inform them there is an error."* (R6) In this example, the user decides to keep the knowledge invisible because he did not have enough information.

Moreover, the amount of information shared also has an influence on the consideration of which feature is used to share knowledge in an informal setting. Informal communication is often a spontaneous and subconscious way of knowledge sharing without a specific purpose *"The spontaneous talks are gone now because you do not meet someone somewhere coincidentally or do not sit next to each other anymore."* (R4) All interviewees mentioned that since teleworking became the norm, spontaneous and informal communication is done using the chat function of ESM. The reason for this is that it is quick and that such messages can be sent spontaneously as recipients does not have to be available to read it immediately. This way, the affordances editability and visibility are actualized. Contrarily, when the informal message is large and requires more interaction, two interviewees have said to plan a video call because the barrier is higher and therefore losing the spontaneity.

4.2.4. Group Size

The group size influences how different variations of the affordance visibility are enabling or constraining during online meetings. All interviewees have said they are enabled by making themselves invisible in large online meetings by turning their camera off: *"There is an interesting balance. The more people are in a call, the more likely it is people turn off their camera."* (R6) In large meetings there is less interaction which allows the user to multitask, for example answering e-mails. Moreover, three interviewees explain they turn the camera off in large meetings because they are uncomfortable with how they look or are afraid to make a bad impression. The only exception is when they are presenting, as non-verbal communication aids them in getting the message across. In

smaller groups, users are enabled by turning on their camera to stimulate interaction and non-verbal communication and to improve the team spirit. All interviewees considered it odd if someone deviates from this behavior. Interestingly enough, the interviewees had different opinions about what is considered a small group: one considered a maximum of two, another a maximum of three, and another interviewee a maximum of seven to nine. Two participants stated that, if the group is larger than their personal maximum, they would follow the group behavior. Nevertheless, all interviewees collectively agreed that the camera is always on in one-to-one meetings. Still, most interviewees have said the camera does not fully replace the non-verbal communication. *“Even with the camera I miss the non-verbal communication because you cannot make eye contact with each other or give an eye wink to one person in the group.”* (R1)

The group size can also constrain the user during large online meetings. This is the case when the knowledge that is shared is not relevant for the whole audience. *“This is a meeting for circa 60 people and every team does a presentation. I think it exceeds the goal because they forget the audience they are talking to and use their own technical vocabulary and go too much into detail, which I find unnecessary.”* (R1) Another constraint is when having discussions in larger groups in informal and formal settings: when multiple people speak at the same time, it becomes unintelligible. This is confirmed by four interviewees who argue it is difficult to replace a real-life group discussion or conversation. *“It is difficult to have discussions during online meetings with more than two people, because you cannot predominate each other. It becomes unintelligible when multiple people speak at the same time. (...) So perhaps you have something useful to say, but you cannot find a moment to jump in.”* (R8) Most interviewees have said they prefer to remain quiet and thus be more passive in the discussion.

4.2.5. (Un)organized Information

In collaboration platforms, the shared information and knowledge is persistent, and this enables the user to reuse the knowledge, even when did not foresee using this information again. However, because collaboration platforms are filled with the continuous addition of knowledge and information generated by the users, it can become unstructured. Unstructured documentation can lead to an overload of irrelevant information, constraining the reviewability and searchability of information afforded by persistence and visibility. *“The search functionality in Confluence is chaotic. If you search you get lots of irrelevant information, and it is not sorted on relevance.”* (R4) Moreover, it can be difficult to locate the documentation due to a complex folder structure or misleading file names.

To enable and facilitate reviewing and searching for the information as afforded by persistence and visibility, the information must be organized and managed well. One way of doing this is by creating user guidelines, such as proposing universal folder structures for all teams. Another way of preventing an overload of persistent information is by restricting access to predefined groups, which actualizes the affordance association. *“In Teams everything is limited to what your Team is assigned to, which is good. Especially in a large organization you do not want to see things that are none of your business.”* (R2) Lastly, the log of activities related to folders and files affords visibility of other people’s work and behavior, and this enables the user to be informed about recent changes, for example because *“You can ask that person why something has changed.”* (R8) or because *“I can see when it has been updated for the last time.”* (R5)

Reviewing the chat history is also constrained due to unstructured information: *“When a lot of people reply in the chat it is hard to find what someone has said because you need to scroll a lot, and this is not always solved by using the search functionality.”* (R3) It is however more difficult to structure

chats as compared to structuring files because it cannot be archived in folders or be easily filtered or named. Therefore, users are aware of persistence of knowledge in the chat but do not always actualize reviewability because the searchability is constrained.

5. Discussion, Conclusions and Recommendations

5.1. Discussion – reflection

5.1.1. Discussion

The literature review highlights the importance of having a clear definition of the type of teleworker to have comparable and reliable results. It must consist of the teleworker's location, whether the teleworker is self-employed or employed, and the intensity of teleworking (Blount, 2015; Boell et al., 2016). The results show that further research into the difference between externally and directly employed teleworkers is necessary, as these behave significantly different in a teleworking environment. Consultants make less use of SNSs because of a lower feeling of engagement with the company and use collaboration platforms strictly for professional communication and knowledge sharing as they do not wish to invest time in team bonding. Presumably, this leads to sharing less tacit knowledge and less organizational metaknowledge.

Moreover, studies show ESM is especially suitable for knowledge sharing activities among distanced workers (J. Cummings & Dennis, 2018; Leonardi, 2014; van Osch & Bulgurcu, 2020). Thus, it would be a logical consequence that the transition to teleworking due to the pandemic is related to a higher intensity of ESM use. The results only partially support this: although the popularity of collaboration platforms increased significantly, the popularity of ESNSs remained unchanged. Researchers often study one type of ESM and generalize the outcomes for the other types. Because collaboration platforms are relatively new in the field of ESM, they have been underrepresented in the literature (Kodama, 2020). Therefore, it can be argued that research about ESM is outdated and must be extended by verifying the generalized conclusions about ESM for collaboration platforms.

To prevent outdated literature, Leonardi and Treem (2012) suggested studying the affordances of ESM: these do not focus on a particular technology, but on the possible actions afforded by the features of the technology. They argue ESM scores high on the affordances visibility, editability, persistence and association, as opposed to traditional communication technologies such as e-mail, which score high on one or two affordances. However, the results show that for collaboration platforms, the affordance association was scarcely discovered, and the affordance visibility was very dominant, compared to the other affordances persistence and editability. Hence, all four affordances from the literature review have been verified for collaboration platforms. However, the statement from Leonardi and Treem (2012) is debatable: the affordances have different degrees of applicability to collaboration platforms.

The study of affordances pointed to some reasons for the actualization of a perceived affordance and how this constrains or enables the user, which were in line with the literature. The first finding is that, due to the lack of physical barriers, users can approach the source of information (such as people and documentation) more directly. This allows faster and easier communication. This leads to communication with a greater variety of people, which is confirmed by Leonardi and Treem (2012), contributing to greater metaknowledge of the user. Additionally, this leads to more frequent interactions and updates between co-workers, and consequently more triggers of notifications. Consequently, the response to these triggers found in the results are in line with the work from Gibbs et al. (2013), who claim that a tension arises between engagement and disengagement. On

the one hand, the user is engaged as they are informed and updated by responding to the triggers. On the other hand, the user can choose to disengage themselves as these triggers can be distracting. This can for example be done by changing their status to 'busy' (Gibbs et al., 2013) or disabling some or all notifications. as demonstrated by the results.

Another similarity is found between the results and the literature when observing how the actualization of persistence and visibility can constrain or enable the user in searching for knowledge stored in ESM. In general, the user is enabled, because knowledge remains available and can be reused and reviewed. This is confirmed by Leonardi and Treem (2012) who argue information in ESM is robust, i.e. difficult to change, and is therefore a reliable source of knowledge. It can become constraining when it is difficult to search for persistent information. First, this is the case when the information becomes too scalable and overwhelming (Leonardi & Treem, 2012), because contribution of knowledge is stimulated by the design of ESM (Farzan et al., 2009). Second, there are often no guidelines for storing information and this makes it difficult to allocate the needed information. Lastly, when the information is not restricted to a specific audience, the user is slowed down by irrelevant information. The results from the case study demonstrated a high appreciation of actualizing the affordance association by creating social ties between people in the form of a group (Leonardi & Treem, 2012), which can be used to give exclusive access rights and as a way to exercise control and not overload all users with irrelevant information, which is confirmed by Gibbs et al. (2013).

The results cast a new light on three factors influencing the behavior of knowledge sharing through ESM: the amount and urgency of information and the group size. The amount and urgency of information are two separate factors influencing how knowledge is shared: their effect on behavior is however similar. When the amount of information is little or the urgency is low, the user uses the method of communication with the lowest barrier. At the office this could be a tap on the shoulder of a co-worker. At ESM, the lowest barrier is sending a chat message. This actualizes editability because it is quick and can be sent at any time: the message is crafted and received asynchronously. Interestingly enough, depending on the person's perspective, the barrier to send a chat can be greater than tapping someone on the shoulder: this could lead to not sharing the information at all. When the amount and urgency of information is high, the microphone is used as this allows for more interaction, and in some cases assisted by non-verbal communication through the camera.

Third and foremost, the results revealed that the group size influences behaviors of users. In larger groups, such as in online group meetings, users are enabled because they have the opportunity to turn off their camera and microphone. They can make themselves invisible if they are, for example, uncomfortable about the way they look or insecure about their contribution. Moreover, meetings with a large group of people tend to be less to-the-point: due to the large number of participants, chances are topics will be discussed that are not relevant or informative for everyone. As a result, participants often perform other activities in the meantime, for which they do not wish to be seen. Another reason users may not feel comfortable to speak during group meetings is because it is difficult to jump into a discussion with a lot of other users: it becomes quickly unintelligible when multiple people speak at the same time. The main reason the user turns on the camera and microphone in a large group is to add non-verbal information when the user is presenting. The opposite is true for group chats and online meetings in small groups, because the topics and knowledge shared are often more relevant and require interaction. The users are more active in the individual and small group chats and turn on their camera and microphone to add non-verbal communication and to improve the team spirit because showing one's face is seen as more personal.

5.1.2. Reflection

This section critically reflects a number of gaps and shortcomings of this study.

The process of searching literature has been documented closely for replication purposes. A close examination shed light on a weakness of the literature review: the backwards snowballing method was dominant, as it was perceived as the easiest and most intuitive way to find relevant literature. Since the supervisor provided fundamental articles, it seemed even more sensible to use this approach. Because this method looks back in time, literature older than seven years was often used and this can be considered a weakness. Technological developments have changed rapidly since and thus, the relevance of those articles can be questioned. Still, the articles were perceived as sufficiently generalizable for the current period; yet a deeper focus on collaboration platforms would have been a useful attribute to the literature review since this type of ESM has been underrepresented due to its increasing popularity in the last few years.

A strength of this study was that interviewees all felt comfortable to speak openly because the researcher was from outside the organization: this meant there was no threat to their job security. Additionally, there was a personal bond between the researcher and interviewee, and the interviewees were guaranteed anonymity in the research. This was beneficial to the discovery of underlying reasons for their behavior. To make sure the researcher did not misinterpret the interviewees, the transcriptions were shared with the interviewees to be validated. However, the interviewees have admitted they have merely scanned the transcriptions as they did not want to spend more time on it. Thus, the interviewer bias is not fully eliminated.

Interviewees had difficulty with answering general open questions, such as 'how does ESM constrain you?'. They were overloaded with the openness and were often very feature focused or made general statements. The researcher had to change the interview questions by adding the affordances as themes to trigger more focused and specific answers, for example 'how does visibility within ESM constrain you?'. In the first two interviews, this lack of focus was discovered, after which the questions in the final six interviews were adjusted. This change causes a limitation, as it can be argued the final six interviews were steered in the direction of the affordances.

5.2. Conclusions

Based on this empirical research an answer can be given on the research question:

How and why does ESM enable and/or constrain teleworkers' knowledge sharing?

The results provide evidence that collaboration platforms are the most dominant type of ESM used for knowledge sharing of teleworkers. The five affordances of ESM, visibility, editability, persistence, association, and triggered attending, have been verified on collaboration platforms, yet they have differences in relevance, as opposed to consensus in literature.

ESM allows direct access to content and people. This enables the user to communicate faster and easier and with a greater variety of people. Thus, their organizational metaknowledge of 'who knows what and who knows whom' is improved. A consequence is that the user is triggered more often because of the increased frequency of interactions. This enables the user as they are constantly kept up to date by the latest information, but they are also constrained when the updates are irrelevant or when they need to focus on their work activities. However, as a response, the user can choose to strategically disengage themselves by changing their status to 'busy' or by disabling some notifications when they need to concentrate.

Information at ESM is persistent and often visible for anyone with access. However, the more scalable and unstructured information becomes, the more the user is constrained by difficulties of searching and reviewing information. By giving exclusive access to associated groups, agreeing to user guidelines, or by using the log of activities, the user's searchability and reviewability of information are enabled.

Three new factors have been discovered in the analysis of the results. Two factors influence in a similar way the behavior of knowledge sharing: urgency and amount of information. When the urgency is low and amount of information is small, i.e. incomplete, the barrier of sharing that piece of information must be low, for which the chat is often used. When the urgency and the amount of information is high, the user prefers to use the microphone during a videocall, because there is interaction required and the visibility of non-verbal communication helps bringing the message across. Lastly, and most significantly, the group size appears to be an important factor to influence knowledge sharing of teleworkers. People are more likely to make themselves visible in a small group by turning on their camera and microphone during a videocall, because this stimulates interaction and team spirit. The opposite is true for large online meetings or group chats, where the users make themselves invisible by turning the camera and microphone off, because they are less comfortable and are afraid to make a bad impression on the group. It must be noted that this is also influenced by technical constraints: the conversation can become unintelligible due to the large number of participants, which makes it hard to find the possibility to jump into the conversation.

The conclusion of this research is that direct access to people and content, organization of information, amount and urgency of information and group size influence how and why knowledge sharing of teleworkers is enabled or constrained.

5.3. Recommendations for practice

Some practical recommendations follow from the literature review and the empirical research, which aim to improve the effectiveness of knowledge sharing via ESM of full-time teleworkers.

The results indicate that large group meetings are often unproductive because the knowledge shared is not relevant for the whole audience. Group discussions in which users use the microphone easily become unintelligible. Therefore, it is recommended to keep the groups for online meetings smaller than ten people to stimulate active participation and to keep the knowledge shared relevant. In informal online videocalls for team bonding purposes, the level of interaction required is higher: thus, it is recommended to reduce the group size further to less than four participants.

Based on the finding that people often do not share knowledge when the knowledge is not complete or not urgent enough, because the barrier to send a chat or schedule in a videocall is too high. Thus, it is recommended to integrate a moment in the daily structure with the whole team to share the information which has not been shared for the beforementioned reasons.

Considering the unlimited capacity of storing information in collaboration platforms, and the ongoing addition of information, it is recommended to the management to implement universal guidelines for folder and title structures and assign access privileges to groups of people to improve the searchability and reviewability of information.

5.4. Recommendations for further research

Studies about collaboration platforms are underrepresented in the field of ESM as it has emerged in the past few years, also noticed by Kodama (2020). Therefore, it is recommended to shift the focus towards collaboration platforms when studying ESM and the affordances.

Moreover, three new factors have been found which influence how knowledge is shared through ESM: amount of information, urgency of information and group size. These factors have not been explicitly discussed in existing literature and thus it is recommended to verify these in different sectors and contexts and to further expand the list.

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Appendix

Appendix A: Schematic Overview of Literature Review

Search Criteria

- Academic articles
- >2010
- Document (pdf) available

Table 2 Results Snowballing Methods

Article	Research Approach	Articles found	Relevant Articles	Articles Used
Boell et al. (2016)	Backward snowballing	61	9	(Boell, Cecez-Kecmanovic, & Campbell, 2014; Gajendran & Harrison, 2007; Gold & Mustafa, 2013; Harmon & Mazmanian, 2013; Leonardi et al., 2010; Neirotti et al., 2013)
Gibbs et al. (2013)	Forward snowballing	259	6	(Van Osch & Steinfield, 2018)
	Backward snowballing	45	5	(Leonardi & Treem, 2012; Majchrzak et al., 2013)
Strong et al. (2014)	Backward snowballing	60	2	0
Bernhard et al. (2013)	Backward snowballing	48	8	0
(Blount, 2015)	Backward snowballing	207	3	0
(Evans et al., 2017)	Forward snowballing	329	10	0
	Backward Snowballing	62	6	(Gibson, 2014)*
(Leonardi & Treem, 2012)	Forward snowballing	157	23	(Bélanger & Allport, 2008; Leidner, Gonzalez, & Koch, 2018; Leonardi, 2014; Leonardi et al., 2013; Oostervink et al., 2016; Sun et al., 2019; Wagner et al., 2014)
	Backward snowballing	160	8	(Danis & Singer, 2008)
(Majchrzak et al., 2013)	Forward snowballing	633	15	0
	Backward snowballing	85	12	(Faraj et al., 2011; Kane & Alavi, 2007; Kane et al., 2009; Van Alstyne & Brynjolfsson, 2005)
(Greer & Payne, 2014)	Backward snowballing	43	1	0
(Sun et al., 2019)	Backward snowballing	70	7	(Boyd, 2010; El Ouirdi, El Ouirdi, Segers, & Henderickx, 2015)
(Taskin & Bridoux, 2010)	Backward snowballing	120	5	(Nonaka et al., 2000)

(Leonardi, 2014)	Backward snowballing	72	3	(J. N. Cummings et al., 2009; Kim & Miner, 2007)
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*Due to unsuccessful allocation of the article from Gibson (1979), the more recent work from Gibson (2014) was used.

Table 3 Results from Building Blocks Method

	Date	Search string	Found articles	Relevant articles	Articles used
1	20/11/2020	((Aspects) OR (Factor*) OR (Influence) OR (Context)) AND ((Telework*) OR (Virtual Work*) OR (Virtual Teams) OR (Telecommut*) OR (working from home OR (Remote Work))	118	3	0
2	20/11/2020	((Enterprise Social Media) OR (Social Network Sites) OR (Electronic Social Network)) AND ((Telework*) OR (Virtual Work*) OR (Virtual Teams) OR (Telecommut*) OR (working from home OR (Remote Work))	26	3	(J. Cummings & Dennis, 2018; Mukherjee & Natrajan, 2019)
3	22/11/2020	((Telework*) OR (Virtual Work*) OR (Virtual Teams) OR (Telecommut*) OR (working from home OR (Remote Work)) AND ((Benefit*) OR (Challenge*) OR (Constraint*) OR (Advantage*) OR (Disadvantage*))	94	4	(Greer & Payne, 2014)*
3	22/11/2020	((Enterprise Social Media) OR (Social Network Sites) OR (Electronic Social Network)) AND ((Telework*) OR (Virtual Work*) OR (Virtual Teams) OR (Telecommut*) OR (working from home OR (Remote Work)) AND ((Affordances) OR (Feature*) OR (Functionalit*)))	0	0	0
4	30/01/2021	(Affordance*) AND ((Perception) OR (Perceiv*)) AND ((Actualis*) OR (Actualiz*))	2	1	0
5	18/03/2021	(Telework*) AND ((Knowledge Sharing) OR (Knowledge Transfer))	4	1	(Taskin & Bridoux, 2010)
6	13/03/2021	((Telework*) OR (Remote Work)) AND ((Covid-19) OR (Pandemic) OR (Corona))	53	3	(Wang et al., 2021)

*(Greer & Payne, 2014): Only used for further backwards snowballing.

Appendix B: Invitation E-Mail to Participants in Dutch

Beste deelnemer,

In het kader van mijn afstuderen voor mijn master aan de Open Universiteit doe ik onderzoek naar **het gebruik van Enterprise Social Media tijdens telewerken**. Middels deze brief wil ik je informeren over het onderzoek en interview waarvoor je gevraagd bent om deel aan te nemen.

Onderzoek

Sinds de corona pandemie werken er veel mensen thuis om zich aan de maatregelen te houden van de overheid. Werken op afstand door middel van technologieën wordt ook wel telewerken genoemd. De traditionele technologieën om in contact te blijven met collega's voor overleg en beslissingen maken zijn bijvoorbeeld e-mailen en (video)bellen en worden de ontvangers vooraf bepaald en beperkt tot enkele personen. Om open kennisdeling en netwerken te stimuleren binnen het gehele bedrijf wordt er tegenwoordig steeds meer gebruik gemaakt van Enterprise Social Media. Dit zijn platforms waarbij alle gebruikers inhoud kunnen plaatsen, maar ook kunnen reageren, 'liken' en delen van de berichten en inhoud van anderen. Het daarmee dus vergelijkbaar met publieke sociale media, zoals Facebook, Reddit en online blogs, echter is Enterprise Social Media gericht voor gebruik binnen organisaties. Voorbeelden van Enterprise Social Media zijn Yammer, Microsoft Teams, Jive en Chatter from Salesforce.

Het doel van dit onderzoek is om te begrijpen waarom en hoe Enterprise Social Media gebruikt wordt door telewerkers en hoe dit de telewerker belemmert of juist bevordert.

Interview

Het semi-gestructureerde interview kan online worden gehouden via een programma naar keuze (bijv. Teams, Zoom, Google Meet). De datum en tijd wordt onderling afgesproken en vinden in de maanden maart tot en met mei 2021 plaats. Ik streef ernaar om het interview binnen 1 uur af te ronden. De volgende onderwerpen komen aan bod:

- Jouw werksituatie
- Telewerken
- Gebruik van Enterprise Social Media

Het gesprek wordt opgenomen zodat het later getranscribeerd en geanalyseerd kan worden. De transcriptie van het gesprek wordt voor goedkeuring naar je toe gestuurd en waar nodig kan het gecorrigeerd worden. De opnames van de interviews worden getranscribeerd zonder specifieke persoonsgegevens te vermelden, zoals namen van jou zelf, collega's of de organisatie, om de anonimiteit te garanderen. De transcriptie wordt alleen gelezen door mij, en indien nodig de visitatiecommissie en enkele citaten of samenvattingen van het interview zullen worden gebruikt in mijn scriptie die gelezen wordt door mijn begeleider, examinator(en) studenten van de Open Universiteit. Er zal geen enkele mogelijkheid zijn om de identiteit van personen of een organisatie te achterhalen zowel in de transcriptie als in de scriptie. De transcriptie moet 10 jaar worden bewaard door de Open Universiteit op een veilige wijze. Voor meer informatie over de verwerking van persoonsgegevens kan je de site van de Open Universiteit raadplegen op www.ou.nl/privacy.

Je deelname aan dit onderzoek is uiteraard vrijwillig en gratis. Je bent vrij om de deelname af te zeggen of te stoppen op ieder moment zonder dat je dit moet rechtvaardigen. Het volledig afronden wordt natuurlijk wel op prijs gesteld. Bij interesse kunnen de belangrijkste onderzoeksresultaten met je gedeeld worden. Dit zal beschikbaar zijn in augustus 2021.

Bijgevoegd vind je een formulier met de toestemmingsverklaring waarin nog eenmaal de belangrijkste punten worden samengevat. Als je hiermee akkoord gaat ontvang ik graag een bevestiging door te reageren op deze mail of (digitaal) de toestemmingsverklaring te tekenen en terug te sturen. Hiermee geef je aan dat je de toestemmingsverklaring hebt gelezen en stem je in met de deelname aan het onderzoek.

Je deelname wordt enorm gewaardeerd. Bij voorbaat dank!

Met vriendelijke groet,

Merel van Straaten

Appendix C: Interview Guide

Interview ID:	
Role:	
Date and time:	
Location/program:	
Impression atmosphere during interview:	

Introductie:

Ik wil je alvast bedanken voor het deelnemen aan dit onderzoek. Ik zal nog eenmaal het doel van het onderzoek herhalen en wat er tijdens dit interview besproken wordt.

Het doel is om te onderzoeken hoe en waarom telewerkers gebruik maken van Enterprise Social Media voor het delen van kennis (expliciet en tacit) en hoe dit hun belemmerd en bevorderd.

Het interview duurt een uur en we bespreken eerst je werkzaamheden en werkomgeving, vervolgens de telewerk situatie en tot slot het gebruik van Enterprise Social Media.

Dit interview wordt opgenomen. Je bent niet verplicht om overal antwoord op te geven als je je daar niet prettig bij voelt, alhoewel ik wil benadrukken dat alles betrouwbaar wordt verwerkt en alles anoniem is. Je mag het interview altijd afbreken.

Heb je de toestemmingsverklaring getekend of bevestigd via mail?

Heb je nog vragen voordat we beginnen? Dan ga ik nu de opname starten.

Table 4 Interview questions

Vragen		Probing-vragen
<i>Werkomgeving</i>		
1	Hoe lang ben je in dienst van deze organisatie en wat is je rol?	<ul style="list-style-type: none"> - Wat houdt je werk in? - Wat zijn je verantwoordelijkheden? - Hoeveel dagen werk je? - Op wat voor contractbasis werk je? (onbepaald, bepaald, freelance).

2	Hoe kan je je team beschrijven?	<ul style="list-style-type: none"> - Hoe groot is je team? - Hoe is de hiërarchie? - Hoe is de onderlinge band? - Hoe vaak heb je dagelijks contactmomenten met je team? - Hoe vaak heb je contact momenten buiten je team? Wie zijn dat?
<i>Telewerken</i>		
3	Wat is jouw telewerk situatie?	<ul style="list-style-type: none"> - Waar werk je? - Wat is je thuissituatie? - Heb je een aparte ruimte/kantoortje? - Hoe ervaar je het? - Wat heeft je voorkeur (telewerken/op kantoor) en waarom?
4	Hoe ziet jouw werkdag eruit?	<ul style="list-style-type: none"> - Zijn er verder nog maandelijkse of jaarlijkse activiteiten/handelingen? - Welke handelingen/activiteiten doe je in teamverband of met collega's? - Wat kan je me vertellen over de frequentie?
5	Wat is je ervaring met telewerken voor de pandemie?	<ul style="list-style-type: none"> - Wat zijn de verschillen met nu? - Hoe ervaarde je het toen?
<i>ESM en affordances</i>		
6	Wat versta je onder ESM?	(Aanvullen waar nodig)
7	Welke ESM-platforms gebruiken jullie?	<ul style="list-style-type: none"> - Wat zijn de kenmerken van elke platform? - Welke gebruik je het meest? (hier op focussen in volgende vragen) - Welke andere communicatietechnologieën worden er gebruikt? (controleren of dit ook ESM zijn)
	Hoe wordt ESM ingezet door het bedrijf?	<ul style="list-style-type: none"> - Voor welke organisatorische doeleinden wordt het gebruikt? Geef voorbeelden. - Voor welke handelingen/activiteiten is dit bedoeld? Voorbeelden? - Hoe wordt het gebruik door het bedrijf gestuurd/gestimuleerd? (trainingen, guides...) Geef voorbeelden.
8	Hoe wordt ESM gebruikt door jou en waarvoor?	<ul style="list-style-type: none"> - Voor welke persoonlijke doeleinden wordt het gebruikt? - Hoe heb je geleerd het te gebruiken? Geef voorbeelden. - Voor welk publiek wordt dit gebruikt (team/afdeling/hele bedrijf).

		<ul style="list-style-type: none"> - Wat kan je me vertellen over de frequentie van je gebruik? - Welke functies gebruik je bewust <u>niet</u> en waarom? - Gebruik je ESM ook voor informeel gebruik?
9	Wat maakt ESM mogelijk voor jou wat niet mogelijk zou zijn zonder ESM?	<ul style="list-style-type: none"> - Waardoor komt dit? - Heb je hier voorbeelden van? - Hoe bevordert zichtbaarheid jou? - Hoe bevordert persistentie jou? - Hoe bevordert bewerkbaarheid jou? - Hoe bevordert associatie jou? - Hoe bevordert aandacht activatie jou?
10	Wat zijn de belemmeringen van ESM voor jou?	<ul style="list-style-type: none"> - Heb je hier voorbeelden van? - Waardoor komt dit? - Hoe belemmt zichtbaarheid jou? - Hoe belemmt persistentie jou? - Hoe belemmt bewerkbaarheid jou? - Hoe belemmt associatie jou? - Hoe belemmt aandacht activatie jou?
11	Wat is jouw mening over ESM gebruik?	<ul style="list-style-type: none"> - Hoe zou er meer uit gehaald kunnen worden? - Wat zou je het bedrijf of andere bedrijven aanraden m.b.t. ESM gebruik of implementatie?
12	Hoe blijf je op de hoogte van nieuwe mogelijkheden van ESM?	<ul style="list-style-type: none"> - Hoe word je op de hoogte gebracht? - Hoe wordt dit gecommuniceerd? - Heb je hier voorbeelden van?
13	Is je ESM gebruik anders/veranderd dan voor het thuiswerken tijdens de pandemie?	<ul style="list-style-type: none"> - Is hierdoor je mening ook veranderd?

Samenvatting en afronding:

- Zijn er nog dingen die je wilt bespreken, vragen of toevoegen?
- Samenvatting en controleren of het goed is om de transcriptie later op te sturen voor controle.
- Bedanken voor deelname.
- Opname stoppen, opslaan en back-up maken.

Appendix D: Overview Participants

Table 5 Description of Interviewed Teleworkers

Nr.	Role	Work experience	Work contract	Location	Personal situation	Prior experience teleworking	Team size	F2F contact team	Team bond	Main Work activities
R1	Business Analyst	>10 years	4 days a week; fixed contract	Home office	Personal issues. Living alone.	Occasionally	12	Yes	Good	Giving training and recruitment, analysis and writing system improvement requests
R2	Sector Analyst	5-10 years	5 days a week; fixed contract	Home office	Personal issues.	Occasionally	30; sub-team of 4	Yes	Informal and good	Desk research, writing articles
R3	Innovator	2-5 years	5 days a week; fixed contract	Home office	Living together with kids.	No	35	No	Good	Preparing meetings, collaboration with external partners
R4	Client Support Officer	<2 years	4 days a week; fixed contract	Living room	Living alone. Personal issues.	No	7	Yes	Good	Internal and external communication
R5	Logistical Management	2-5 years	5 days a week; fixed contract	Bedroom	Living together.	No	17; sub-team of 7	Yes	Good	Writing procedures
R6	PowerBI Developer	<2 years	5 days a week; external consultant	Bedroom	Living together. Personal issues.	1 day a week	9	No	Professional	Programming and analysis
R7	Data Scientist	<2 years	5 days a week; external consultant	Home office	Personal issues.	Occasionally	24	No	Good with direct co-workers	Programming and analysis
R8	Business Analyst	<2 years	5 days a week; 1 year contract	Living room	Living together.	Occasionally	30; sub-team of 15	No	Good	Planning and system testing

Appendix E: Codebook

Table 6 Codebook

Code group	Code	Grounded	Interviewee ID	Quotations
Contextual aspects	Organizational context - Diversity of work – suitable	13	R7	Ik schrijf modellen, SQL, campagnes en analyses over klanttypen.
			R8	Plannen uitwerken, planningen maken, reageren op mails, functioneel testen van opleveringen
	Organizational context - Diversity of work – unsuitable	18	R1	Of naja, ik denk dat dat niet belangrijk is maar ik ben betrokken bij het inwerken van nieuwe mensen binnen het team.
			R2	R: Het ligt er heel aan hoeveel meetings ik heb die dag. Ik heb dagen, vooral aan het begin van de week, waar ik vol zit met afspraken en vergaderingen. Dan heel veel met Teams overleggen met collega's
	Organizational context - Team bond	9	R5	Goed. Ook het sterkste binnen het kleinste team omdat je daar vaker mee samen werkt, ook voor de pandemie al natuurlijk. In de afdeling ken ik de meeste gezichten wel maar niet goed.
			R7	Nou ik heb sommigen amper gesproken, misschien 2 keer maar. Met ongeveer 3 personen spreek ik intensief en regelmatig. Daar is de band wel goed mee.
	Individual context - No prior experience teleworking	8	R1	Heel beperkt. Alleen als ik een keer naar de dokter moest midden op de dag
			R7	Ik werkte eigenlijk amper thuis. Voor een extern project was het wel de norm en dat was erg fijn. Normaal gesproken dus niet, maar als je dan wel eens een dag thuis mocht werken voelde dat wel als een extraatje.
Individual context - Productivity/motivation		8	R4	Ja dat is waar, maar ik ben wel op zoek naar een nieuwe baan trouwens, maar dat terzijde. Ik vind het niet interessant genoeg en hierdoor heb ik niet altijd zin om te werken. Robotics wel en daar probeer ik nu een full-time baan te krijgen.
			R6	Ik kan soms op de zolder zitten en soms is dat niet mogelijk en zit ik op mijn slaapkamer. Dat betekent dat ik best wel veel uren in een ruimte zit en dat heeft wel impact op mij door een beetje suf ervan te worden.

	Individual context - View about teleworking	11	R8	Ups and downs. Ene dag is het super fijn om thuis te werken andere dag niet. Aan de ene kan mis ik de sociale contacten maar op een andere dag helpt het juist om alleen thuis te werken. Dus een beetje parodoxaal.
			R4	Dus ik vind het veel voordelen hebben maar, vooral als je nieuw bent en niet veel afleidingen hebt zoals ik heb, dan wordt het wel snel saai. Dus twee dagen per week naar kantoor zou perfect zijn.
	Individual context - Workspace	8	R3	in een apart kantoorje
			R7	Ik ben sinds kort verhuisd en soms werk ik in het kantoorje en soms mijn vriendin. Dat is wel erg prettig.
	Technological context - hardware	5	R8	Laptop, toetsenbord, extern beeldscherm en bureau met goede stoel
			R3	op mijn laptop met een extra scherm
	Telework definition – full-time	7	R2	Ik werk momenteel volledig vanuit huis.
			R6	Ik werk nu al anderhalf jaar full-time vanuit huis en ik ben geen enkele keer op kantoor van de bank geweest.
	Telework definition – location	8	R5	Ik zit thuis op de slaapkamer
			R8	In de woonkamer.
	Telework definition – work agreements	8	R7	Ik werk 5 dagen keer 8 uur I: Op wat voor contractbasis? R: Ik ben extern want ik ben consultant. Ik heb wel een vast contract bij de consultancy.
			R3	Vijf dagen. I: En op wat voor contractbasis? B: Vast.
	Social context - influence pandemic	9	R1	Oh en we werken eigenlijk pas sinds de pandemie met Teams.
			R6	Het is echt bedoeld om in Teamverband te werken en kennis te delen onderling op een efficiënte manier om eigenlijk de f2f contact te vervangen en te overbruggen nu we thuis werken.
ESNS	Reason not using - alternative	3	R2	Wat je ook wel merkt is dat een deel van de functies van Connections overgenomen is door Teams
			R8	In Yammer is het meer globaal en heel erg open en dan is de informatie ook globaler. Daarom zie ik Yammer als 'last resource' als niemand binnen mijn Team het meer weet. De openheid van Yammer belemmt mij om er gebruik van te maken.
		13	R2	Dat was het probleem met Connections. Ik had geen reden om het op te starten en als je het niet opstart dan ga je het niet gebruiken

	Reason not using - irrelevant or no interest		R7	Ik ben toch een externe dus het is iets minder relevant voor mij. Ik heb niet dezelfde CAO en voel me toch iets minder betrokken bij de bank. Het kost ook tijd, dus dat vind ik onnodig.
	Reason not using - overload of information	5	R4	Omdat veel wat erop staat niet relevant is, bijvoorbeeld die foto in de sneeuw, dat ontmoedigt om erop te gaan kijken. Je kan niet filteren op bijvoorbeeld jouw afdeling of bepaalde onderwerpen, alles is zichtbaar.
			R5	Het belemmert me er namelijk in dat je op zoek moet naar die informatie en als ik het daarvoor zou willen gebruiken dan weet ik nooit of ik compleet ben in de analyse. Het is te veel informatie door één lange time line te hebben.
	Reason using - access to information	10	R4	Ik post er nooit wat op maar soms is het handig om iets op te zoeken over algemene onderwerpen, zoals informatie over je CAO of over wat voor webcam er wel of niet op je computer werkt.
			R2	De enige keer dat ik er nog kom is omdat daar nog wel de contactgegevens van collega's staan.
	Usage - low/no frequency	12	R2	Maar Connections heeft bij mij nooit echt aangeslagen.
			R5	Door ons wordt Yammer dus niet echt veel gebruikt.
Features	Predefined group	6	R2	Ja maar het is wel iets anders, want Teams is meer op een team gericht en beperkt de zichtbaarheid voor mensen daarbuiten.
			R3	Omdat ik dan zeker weet dat ik iedereen bereik in de mail van de afdeling. In de mail hebben we een 'groep' die je kan selecteren.
	Tagging	4	R3	Ik tag de mensen die ik moet aanspreken als ik in een groep chat zit. Als ik maar één persoon moet aanspreken dan rechtstreeks naar die persoon. Maar als ik er 3 van de 7 mensen moet hebben dan tag ik ze wel in een groep chat.
			R7	In Teams hebben we ook een board waar we de retrospectives in uitvoeren. Dan kan je een item aanmaken met wat je vond dat goed ging en wat niet. Dat is wel handig. Je kan dan ook mensen daaraan linken en op reageren
	Modification	5	R1	Nou we hebben sinds kort twee Confluence pagina's gemaakt waarin je dat kan vinden. Voor twee afdelingen is dat. De Confluence pagina's helpen wel alleen is het wel belangrijk om dat bij te houden want iedereen switched constant van rol of team.
			R4	Voor gedeelde bestanden is het de enige oplossing die ik ken om er gelijktijdig in te werken en voor communicatie en meetings is het ook heel makkelijk.

	Posting information	18	R2	Ja ik merk wel in Teams, zeker als je in grotere groepen zit dat je minder snel dingen post.
			R8	Ja al heb ik daar soms wel spijt van omdat het de grens tussen werk en privé is vertroebeld. Laatst stuurde een collega om 10 over half 1 's nachts een berichtje en daar heb ik op gereageerd. Maar dat had ik niet moeten doen achteraf gezien.
	Recombining content	13	R2	In Teams zetten we documenten die we delen met elkaar en werken we met meerdere mensen tegelijkertijd in. Laatst, bijvoorbeeld, moesten ik een presentatie voorbereiden met vier andere mensen en nadat we hadden afgesproken wie wat deed werd het langzaam door iedereen gevuld in Teams.
			R4	Voor bepaalde bestanden moet je met meerdere mensen tegelijkertijd erin werken en dat is handig in Teams
	Replicating content	3	R2	Soms werkt dat wat lastig. Je hebt bijvoorbeeld een optie dat je het kan downloaden en dan hebben mensen het niet door dat ze het bestand niet meer 'live' delen op dat moment. Je merkt dat mensen die optie moeilijk vinden om hem te openen in de app zonder dat het delen te stoppen.
			R3	Teams is vaak gesloten voor iedereen buiten een Team. Dus niet iedereen kan daar dingen vanaf plukken die nog niet af zijn. Je kan daarmee jezelf beschermen dat mensen aan het meekijken zijn of je afleiden terwijl dingen nog niet helemaal af zijn.
	Log of activities	6	R8	Vaak kan je ook wel zien wie er in bepaalde documenten heeft gewerkt, in een historisch log. Dan kan je ook terecht bij die persoon om te vragen waarom er iets veranderd is.
			R4	Hiervoor werkte ik bij de bank in studententeams en werkte je in gezamenlijke bestanden en zette je expres je naam erbij om te laten zien dat je iets gedaan hebt zodat ze weten bij wie ze moeten zijn als het niet klopt. Dat is in een andere setting want dan is het werk inhoudelijk met mensen die je goed kent en dat is anders als je met 250 mensen in een groep zit
	Camera	24	R5	met videobellen met de camera en microfoon aan want dan is er een actievere houding en gevoel van interactie en het voelt ook veel natuurlijker.
			R3	Aan de andere kant is het ook fijn om je camera uit te zetten want er zijn soms meetings dat je met 70 man bent en dan denk ik van daar hoef ik niet actief in deel te nemen. Ik luister wel maar dan doe ik ook andere dingen dus dan doe ik de camera uit. In een grote groep is het breder en is het meer overkoepelend dus niet altijd even relevant of hoef je niet actief in deel te nemen

	Chat	43	R2	Je kunt toch een beetje via de chatfunctie informeel communiceren
			R4	Zeker daar ben ik me bewust van en dat vind ik nog steeds moeilijk. Via de chat komt alles heel koud over en je wilt niet overal 6 emoticons erachter zetten.
	Search functionality	21	R5	Dat is in Teams lastiger want dan moet je eerst een nieuwe chat starten en dan iemand opzoeken, dan krijg je iemand naar boven en dan pas kan je de gegevens raadplegen. Bij Skype kreeg je gelijk de details die je zocht.
			R6	Je moet dus wel een beetje onderscheid maken wat je in zo'n chat zet en wat niet. Bijvoorbeeld zo'n bestandje kan wel in een chat gezet worden maar in een email met een duidelijke titel is wel makkelijker terug te vinden. Dan kan je wel ctrl+f gebruiken om het te zoeken, maar in outlook kan je bijvoorbeeld filteren op afzender en bijlage of titel.
	Status	10	R3	Ja dat is een nadeel van Teams je kan elk moment gebeld worden en vaak ben je wel zo aardig om op te nemen (lacht erbij). Dus als ik echt even moet concentreren dan zet ik mijzelf inderdaad op bezet of 'niet storen'. Daarmee bescherm ik mijzelf van afleidingen.
			R7	Ook gebruiken we de statussen waarbij het toch een soort ongeschreven regel is dat als je op 'do not disturb' staat dat je elkaar niet lastigvalt.
Affordances	Videocalling	39	R5	Ik heb wel het idee, dat als je met z'n allen aan het videobellen bent je toch soms door elkaar heen gaat praten en het chaotisch wordt terwijl in een echte meeting je dat niet hebt en je beter kan aanvoelen wie wilt spreken. Dus dat merk ik wel met groepen. Dat is denk ik het enige wat ik kan bedenken
			R7	Maar soms bellen de mensen ook wel eens spontaan met video. Dat vind ik dan heel vervelend, want meestal ben ik geconcentreerd bezig met scriptjes schrijven. Ik heb liever dat ze eerst even een chatberichtje sturen dat ze willen bellen met of zonder video. Meestal neem ik wel op hoor en gelukkig doen de meeste het niet, maar sommigen doen het wel.
	Perception - external information	4	R7	We leren door te doen maar ook zie je natuurlijk hoe anderen het systeem gebruiken.
			R8	'Trial and error'. Er is niemand geweest die mij een cursus Team gebruiken heeft gegeven. Er zal vast iemand een stukje kennisoverdracht hebben gedaan over welke pagina's ik moet volgen, maar verder wijst het programma voor zich.
		8	R1	Oh gewoon klikken.

	Perception - symbolic information		R5	We hebben het dus gewoon geleerd door intuïtief gebruik.
Visibility	109	R1	Ik zet de videocamera alleen aan als ik één op één praat of in kleine groep een meeting heb.	
		R2	Als ik echt een vraag wil stellen die relevant genoeg is op dat moment dan steek ik wel mijn hand op. Maar ik heb ook wel eens dingen in de chat gevraagd of gezegd, bijvoorbeeld als iemand iets vraagt over hoe het weekend was van iedereen en dat je daarop reageert in de chat omdat anders iedereen door elkaar gaat praten.	
Persistence	51	R1	Persoonlijk vind ik Teams wel eens lastig om iets terug te vinden. #00:42:14-2# _{PPSEP} A: Hoe komt het dat het lastig is terug te vinden? #00:42:24-7# _{PPSEP} B: Het staat in de bestanden en dan weer in sub folders van sub folders. Heel complex.	
		R2	Dat is dus het voordeel als je een overleg hebt met iemand en iemand zet iets in de chatfunctie kan je het later teruglezen	
Triggered attending	30	R8	Ik krijg een pop-up bij elk bericht. Ik weet niet of ik dit uit kan zetten, maar meestal scan ik het bericht wel vanuit de pop-up en afhankelijk van hoe druk ik ben reageer ik direct of later. Het leidt me wel af alhoewel het vaak ook fijn is dat ik snel kan reageren omdat ik een pop up krijg. Als er geen notificaties zouden zijn zouden ik en alle anderen pas veel later reageren	
		R6	Bij de bank heb ik weinig notificaties, dus het is wel fijn om daar notificaties voor te krijgen omdat het dan altijd wel relevant of belangrijk is.	
Association	12	R4	Liken en reageren gebruik ik niet omdat ik de toegevoegde waarde er niet van zie.	
		R3	In Teams hebben we ook wel een afdeling met iedereen erin maar als ik terugkijk naar hoe ik informatie naar de hele afdeling stuur dan is het altijd wel via mail. Eigenlijk weet ik niet waarom, gewoonte denk ik.	
Editability	31	R1	De confluence pagina's helpen wel alleen is het belangrijk om dat bij te houden want iedereen switched constraint van rol of team.	
		R3	Ik vind dat Teams sneller werkt dan e-mail. Dus als ik iemand nog niet eerder heb gesproken stuur ik gewoon een chat van 'hee ik hoorde dat jij mij hierbij kan helpen'.	
ESM Usage		9	R2	Het voordeel dat alles bij elkaar in één app zit is dat je het toch wel open hebt voor meerdere redenen en iedere dag. Dan ga je er dus ook makkelijker gebruiken.

	Reason using ESM - central point of communication		R8	Ik heb het idee dat de telefoon een stuk minder belangrijk is geworden. Vroeger werd ik 20 keer op een dag gebeld via de telefoon, en nu gaat dat allemaal via Teams. Dus het middel is veranderd en meer gecentraliseerd
Reason using ESM - facilitate collaboration	13	R3	Door Jira en Confluence wordt het samenwerken, organiseren van taken en kennisdeling gefaciliteerd	
		R7	Je hebt niet echt een keuze. Het is simpelweg de werkmethode. Je kan er namelijk niet echt omheen dat je je taken in Jira moet updaten omdat je tijdens de meetings er met z'n allen naar kijken.	
Reason using ESM - no alternative	4	R4	Zonder Teams zou het heel ingewikkeld worden	
		R5	Ik kan mij niet meer voorstellen hoe we zonder Teams kunnen. Voorheen deden we het via Skype maar Teams is veel overzichtelijker	
Reasons using ESM - user friendly (e.g. starts up automatically)	5	R2	Daardoor kostte het meer moeite om Connections op te starten terwijl bij Teams het programma automatisch opstart als ik mijn computer aan zet.	
		R3	Voor Teams ben ik altijd wel ingelogd elke ochtend omdat het automatisch open springt. Confluence en Jira ook wel.	
Better concentration	7	R3	Ja dat is een nadeel van Teams je kan elk moment gebeld worden en vaak ben je wel zo aardig om op te nemen (lacht erbij). Dus als ik echt even moet concentreren dan zet ik mijzelf inderdaad op bezet of 'niet storen'. Daarmee bescherm ik mijzelf van afleidingen.	
		R5	Er zijn ook wel eens momenten dat ik het fijn vind dat de status op bezet staat omdat ik het wel nodig heb om te concentreren op taken en dat je niet gestoord moet worden	
Distractions	22	R3	je hebt bijvoorbeeld 'notify watchers' in Confluence en Jira bij pagina's. Elke keer als je iets aanpast op de pagina dan krijgen alle volgers een notificatie. Dat is de default, maar soms zet ik dat bewust uit omdat ik me kan voorstellen dat het voor mensen ook irritant is om steeds een notificatie te krijgen, met name als het niet heel belangrijk is om te zien.	
		R4	Als er een actieve chat is dan zijn de notificaties toch wel vervelend omdat het je afleidt en vaak niet relevant is. Dat kan je wel uitzetten maar dan moet je daar toch weer moeite in steken.	
Chat vs microphone	6	R2	Als ik echt een vraag wil stellen die relevant genoeg is op dat moment dan steek ik wel mijn hand op. Maar ik heb ook wel eens dingen in de chat gevraagd of gezegd,	

				bijvoorbeeld als iemand iets vraagt over hoe het weekend was van iedereen en dat je daarop reageert in de chat omdat anders iedereen door elkaar gaat praten.
		R3		Ik vind het makkelijker om te praten dan in de chat vragen te stellen of opmerkingen. Want het nadeel van de chat is, al helemaal met grote groepen, dat je altijd gaat twijfelen hoe iets overkomt. Hoe gaan mensen dit interpreteren? En als je het gewoon zegt kan je je beter uiten en verder uitleggen.
Multiple people speaking becomes unintelligible	5	R2		Als ik echt een vraag wil stellen die relevant genoeg is op dat moment dan steek ik wel mijn hand op. Maar ik heb ook wel eens dingen in de chat gevraagd of gezegd, bijvoorbeeld als iemand iets vraagt over hoe het weekend was van iedereen en dat je daarop reageert in de chat omdat anders iedereen door elkaar gaat praten.
		R8		Het is moeilijk in een online meeting om discussies te hebben met meer dan twee mensen, omdat je niet echt elkaar kan overheersen. Het wordt onverstaanbaar als er twee mensen tegelijkertijd gaan praten, terwijl in het echt je nog wel onderscheid kan maken als je je focust en kan je je makkelijker inhaken in de discussie.
Technical constraints	18	R3		Vooral als het internet overbelast is dan bellen we rechtstreeks. Dat is een van de frustraties als je in een Teams meeting zit en het internet hapert waardoor je je camera uit moet zetten.
		R2		Een collega die ging dan binnen Teams in documenten werken en probeerde een grafiek in een bestand in Teams te kopiëren, maar dat lukte alleen als plaatje. Dat zag er niet professioneel uit en heeft uiteindelijk veel moeite gekost om het er goed in te krijgen.
Direct access	6	R5		Ik hoor dit ook veel dat mensen veel meer mensen spreken dan voor corona omdat het zo gemakkelijk is om even te bellen en elkaar te zien.
		R8		Niet mijn directe collega's maar de verscheidenheid van collega's is verhoogd. Dus meer cross team in plaats van dat je een contactpersoon van een team benaderd benader je nu de persoon directer waarvan je het antwoord van nodig hebt.
Fast and easy communication	30	R8		Je kan vrij snel vragen op iemand afvuren. Je hoeft dus niet naar de goede kamer te lopen voor meetings of om mensen te vinden. Daar bespaar je tijd in en bevordert het je. Aan de andere kant word je ook sneller benaderd door anderen dus je krijgt meer informatieverzoeken te verwerken en dat is belemmerend.
		R5		en ook toegankelijkheid van iemand snel aanspreken via de chat
Formal communication	6	R1		Als ik een berichtje wil sturen naar het hele team stuur ik dat meestal per mail. Of informeel via whatsapp naar de groep.

		R2	Maar als ik echt een officieel bericht wil sturen, dan gebruik ik toch liever de mail in plaats van de chatfunctie en taggen, zeker als het naar meer mensen is, dan zou ik mailen omdat dat wat serieuzer voelt.
Group size	41	R1	Ik zet de videocamera alleen aan als ik één op één praat of in kleine groep een meeting heb.
		R6	Ja dat is wel een interessante balans. Hoe meer mensen er in een call zitten, hoe meer mensen hun camera uit zetten. Ik denk als een meeting een presentatie is, dan verwacht je niet heel veel interactie of gesprek, dan zet ik meestal mijn camera uit, ook als er 100 mensen in de chat zitten dan is het ook niet handig voor de verbinding kwaliteit
Informal communication	20	R2	Kijk als het informeel is dan stuur ik wel een chat bericht omdat dat wat toegankelijker is en sneller. Bijvoorbeeld als je zegt van 'hee ik heb net overleg gehad en ik hoorde dit, misschien is het interessant voor je'. Dus als het om iets gaat wat je normaal bij de koffieautomaat zou zeggen, dat kan nu makkelijk via de chat.
		R8	Een chat gaat sneller dan de e-mail. Teams is in die zin voor informeel gebruik met collega's waarmee je al bekend bent.
Irrelevant or no interest	25	R3	Aan de andere kant is het ook fijn om je camera uit te zetten want er zijn soms meetings dat je met 70 man bent en dan denk ik van daar hoef ik niet actief in deel te nemen. Ik luister wel maar dan doe ik ook andere dingen dus dan doe ik de camera uit. In een grote groep is het breder en is het meer overkoepelend dus niet altijd even relevant of hoef je niet actief in deel te nemen
		R4	Liken en reageren gebruik ik niet omdat ik de toegevoegde waarde er niet van zie.
Knowledge can be reused	5	R2	En Teams gebruik ik wel steeds vaker dat ik een document moet terugzoeken die toch wel relevant is. Of dat iemand iets had gepost waarvan ik later denk van 'oh dat is toch wel relevant' terwijl ik het op dat moment niet dacht. #00:46:44-7# ^[P] _[SEP]
		R6	Stel je werkt met een directe collega en je hebt daar een grote chat mee in Teams, dan worden sommige dingen wel eens ad hoc in een chat gezet wat later belangrijk kan zijn, bijvoorbeeld een matrix die je nodig hebt om een bepaald iets op te zoeken.
Less interaction	6	R3	Dus in een grotere groep is de interactie veel moeilijker omdat niemand wil reageren. Dat vind ik soms ontzettend ongemakkelijk.
		R8	En er is minder interactie, want bijvoorbeeld als de presentator een vraag stelt dan reageert er meestal niemand.

	More interaction	5	R6	Als je een discussie of gespreksvorm hebt tijdens een meeting dan zet ik hem wel altijd aan
			R7	Bij meetings met minder dan 3 personen doe ik meestal wel de camera aan omdat er dan wel interactie is en je een groter onderdeel bent van het gesprek. In meetings van middelgrote laat ik het meestal afhangen van of de rest het doet
	Limited access	7	R2	Bijvoorbeeld als je een project hebt waar maar 3 mensen inzicht mogen hebben is Teams handig om een afgeschermd omgeving te creëren waar je kan samenwerken.
			R4	In Teams is het gedeeld met een kleinere groep dus dan is het minder streng of nodig om alles geordend te houden.
	Amount of information - high - planning communication	5	R1	Maar voorheen op het werk had je het sneller dat je even naast elkaar gaat zitten. Al is het voor iets kleins en nu gaat het veel formeler. Dan moet ik echt wat inplannen en als ik met iemand wil praten om te vragen of ze even kunnen helpen 'want dit vind ik lastig'.
			R6	Nu moet je echt in iemand zijn agenda een uur blokken om één op één te hebben.
	Amount of information - low - not approaching others	6	R1	Maar voorheen op het werk had je het sneller dat je even naast elkaar gaat zitten. Al is het voor iets kleins en nu gaat het veel formeler. Dan moet ik echt wat inplannen en als ik met iemand wil praten om te vragen of ze even kunnen helpen 'want dit vind ik lastig'.
			R7	ik merk wel dat ik vandaag op kantoor wat dingen aan mijn manager vroeg die ik al een tijdje wilde vragen maar niet deed online. Dat was dus wel handig dat ik daar nu de mogelijkheid voor had.
	No physical constraints	5	R1	omdat we via scrum werken hebben we een vast aantal scrum events. Tegenwoordig is dat wat makkelijker te plannen wanneer dit is, omdat voorheen altijd alle meeting rooms vol zaten. Dat was echt wel afstemmen met andere teams. En nu is het veel makkelijker. We waren ook al overbevolkt op de afdeling...
			R3	Je kan snel schakelen met mensen. Dus voorheen was het wat lastiger om mensen te pakken te krijgen voor een meeting en nu is het best wel snel. Je hoeft bijvoorbeeld niet iemand fysiek meer te vinden op kantoor aan z'n bureau en dan waren ze weer ergens anders en was je ze kwijt.
	User guidelines	9	R4	Bijvoorbeeld als je een map aanmaakt voor een robot dan kan je die niet noemen 'robot datum en je naam' maar dat moet dan 'wrr_NL&AF' enzovoorts zijn en dus dat is vooraf gespecificeerd.

		R6	In onze Teamsomgeving hebben we een tabblad met documenten en die worden op het hoogste niveau onderverdeeld in bepaalde groepen en dat wordt genummerd qua map structuren. Daaronder worden alle bestanden onderverdeeld. Dus dat is wel goed geregeld.
No user guidelines	8	R3	Het gevaar is dus wel de warboel wat er kan ontstaan omdat iedereen iets kan toevoegen op zijn of haar manier.
		R4	Aan de ene kant is Confluence goed georganiseerd, maar tegelijkertijd is het minder toegankelijk omdat niet alle pagina's dezelfde layout en opzet hebben waardoor je iets moeilijker terug kan.
No lack of F2F communication	4	R5	Ik vind de camera heel fijn en dat ik zichtbaar ben. In het begin was dat wat meer een drempel om altijd een camera aan te hebben. Inmiddels vind ik het fijn me zou ik me storen als mensen hun camera niet aanzetten want ik merk vrij weinig van dat je bijvoorbeeld non-verbale communicatie mist ondanks je niet met elkaar in dezelfde ruimte zit. Dus ik vind videobellen super goed werken
		R4	Ja, bijvoorbeeld als ik in de dagstart zit dan is het tegenovergestelde. Dan heeft iedereen z'n camera en microfoon aan en is het gek als je dat uitdoet omdat je dan de interactie mist en de non-verbale communicatie.
Overload of information	13	R6	Een belemmering die daarbij komt kijken is dat het soms zo groot wordt dat het moeilijk wordt een bestand te vinden. Hoe meer bestanden er in zo'n omgeving staan hoe lastiger het wordt
		R8	Er zijn altijd wel een paar collega's die van alles in Teams gooien, zoals bestanden. Dat is wel belemmerend omdat het een teveel aan informatie is die gedeeld wordt. Maar in het algemeen is de openheid een bevordering van de communicatiestroom
Relevant/important	6	R4	Ik vind de pop-up notificatie van een chat wel handig want dan zie je zonder dat je in de Teams app moet al wat het berichtje inhoudt. Dan kan je dus zonder Teams te openen al weten of je moet antwoorden of niet, bijvoorbeeld als iemand gewoon een 'duimpje' stuurt dan hoef ik daar niet meer op te reageren. Dat scheelt weer tijd.
		R6	Bij de bank heb ik weinig notificaties, dus het is wel fijn om daar notificaties voor te krijgen omdat het dan altijd wel relevant of belangrijk is. Iedereen heeft dat gevoel ook. Maar dat komt dus omdat ik maar in een klein projectje zit en hierna weer naar het volgende bedrijf ga.

	How you look/feel	3	R7	Nou ik vind het gewoon niet altijd prettig om met mijn gezicht in zo'n grote groep zichtbaar te zijn. Dan moet ik helemaal voor één zo'n meeting mijn haar gaan doen, of dan ga ik er op letten wat ik met mijn gezicht doe en ga ik steeds bewegen.
			R5	Als ik van mijn plek afga dan verander ik de status wel naar 'be right back', bijvoorbeeld als ik ga lunchen. Als ik mijn computer uitlog dan gaat dat automatisch. Ook omdat je je bewust bent van dat je zo'n status hebt en als je gewoon wegloopt staat er 'inactief' en dat ziet er toch wat minder netjes uit dan wanneer er een officiële statusverandering is
	To inform and take action	12	R5	En we gebruiken ook tags in de chat zodat de mensen weten als ze genoemd zijn en ze notificaties krijgen.
			R6	tags in berichten gebruiken we wel trouwens omdat je dan een notificatie krijgt of pop up, dus dat is wel fijn. Dus dat doe je niet zomaar maar alleen als je wilt dat die persoon snel reageert.
	Urgency of communication	6	R2	Je ziet dat tijdens vergaderingen met videobellen er een chatfunctie is waar mensen tijdens de meeting gebruik maken. Als het tijdens een meeting over een bepaald onderwerp gaat en ik wil niet per sé de discussie of het gesprek onderbreken maar wel iets zeggen, dan doe ik dat altijd in die chat.
			R4	Bij grote meetings met meer dan 200 man, kan je wel eens via een bepaalde moderator functie vragen invoeren zodat de moderator vooraf filtert wat er besproken wordt in de chat of tijdens de meeting. Dat is wel handig.

