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Emergence Antecedents of Enterprise Social Media Networks: A Literature Review and Directions for Future Research

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EMERGENCE ANTECEDENTS OF ENTERPRISE SOCIAL MEDIA NETWORKS: A LITERATURE REVIEW AND DIRECTIONS FOR FUTURE RESEARCH

Research in Progress

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Abstract

What drives the emergence of enterprise social media (ESM) networks? This question cannot be fully answered without studying the scattered body of knowledge. The current research in progress paper addresses this question by means of a preliminary literature review. Precisely, it synthesizes 34 literature findings into a preliminary literature review, which will be further refined and augmented by a research agenda in the future steps. The main theoretical contribution of this paper is to describe 21 antecedents that drive ESM network emergence. In practice, knowledge about these emergence antecedents can be used for various application cases. Examples include developing ESM recommender systems, creating ESM network simulation models, and planning and conducting organizational interventions to optimize ESM networks.

Keywords: Enterprise social media, Enterprise social media networks, Emergence antecedents, Social network research, Social network analysis

1 Introduction

Enterprise social media (ESM) (Leonardi et al. 2013) include platforms such as HCL Connections, Jive, and Atlassian Confluence. ESM enable employee interactions, akin to Facebook, Blogger, or Wikipedia on the internet (Kaplan and Haenlein 2010). Many organizations have implemented ESM to support communication, collaboration, and knowledge exchange among employees (Wei et al. 2020). This trend has been exacerbated by the COVID-19 pandemic, during which numerous organizations resorted to ESM to support remote work (Robbins et al. 2020). Nowadays, ESM have become a driving force of organizational digital transformation (Feitosa et al. 2020), and it is expected that the ESM market will continue to grow (Research and Markets 2018). Through the lens of social network research or social network analysis (Wasserman and Faust 1994), ESM can be reinterpreted as ESM networks. More precisely, ESM can be reinterpreted as social networks (sometimes also referred to as social graphs) consisting of employee actors who use the ESM and are interconnected via ESM ties (Kane et al. 2014). Research suggests that the structural emergence of ESM networks is not random but rather driven by certain antecedents (Kim and Kane 2015).

Various studies have explored the emergence antecedents of ESM networks, and the resulting insights are relevant for three application cases in particular. The first is the development of recommender systems; these are systems that suggest new employee contacts in ESM networks to increase structural capital (Kane et al. 2014). Such recommender systems rely on various approaches, one of which builds on emergence antecedents (Brzozowski and Romero 2011). The second application is the creation of models that simulate ESM network emergence (Abbas 2013). These models enable studying ESM networks without the need for empirical data, which tends to be scarce. Here, emergence antecedents are often programmatically implemented in the models to enable realistic simulations (Madey et al.

2003). The third application is the planning and conducting of organizational interventions. Such interventions are initiated by organizations to optimize their ESM networks. Here, knowledge about emergence antecedents can be used, for instance, to avoid isolated subnets that impede knowledge transfer or to identify potential future key users (Wiesneth 2016). These key users may then be supported and guarded against information and social overload (Chen and Wei 2019).

Studies on the emergence antecedents of ESM networks are commonly empirical and address specific subtopics. Moreover, so far, no literature review has been conducted to unify these studies. This research gap has theoretical and practical shortcomings. From a theoretical perspective, the absence of a literature review obfuscates the current understanding, particularly concerning what has already been discovered to date, how the various findings might be interrelated, and where further research is necessary (Webster and Watson 2002). These limitations can diminish scientific progress (Webster and Watson 2002), particularly in a highly dynamic research area such as ESM networks (Wehner et al. 2017). From a practical perspective, the absence of a literature review hinders the three aforementioned application cases and others. This is because such cases build upon emergence antecedents, which must currently be gleaned beforehand from a scattered body of knowledge. To address these shortcomings, this paper reviews and synthesizes the literature on the emergence antecedents of ESM networks. It further seeks to identify directions for future research. Thus, the following two research questions (RQs) are addressed: (1) What are the emergence antecedents of ESM networks (RQ1)? (2) What are promising directions for future research (RQ2)? The second research question will be fully answered in the completed research paper, which will follow this research in progress paper.

Answering these research questions contributes to theory by providing a synthesized overview of the emergence antecedents of ESM networks and illustrating theoretically sound directions for future research in this area. It would further contribute to practice by supporting the aforementioned and other application cases by providing a well-founded overview of the emergence antecedents, mitigating the effort and necessity to fully study the scattered body of knowledge. To answer the research questions, this paper follows the methodology of Vom Brocke et al. (2009) and guidelines from Webster and Watson (2002). First, the scope of the paper was defined; then, the paper's topic was conceptualized within that scope to establish a concept matrix. A systematic literature search was conducted to populate the matrix with relevant literature findings. This was followed by a synthesis of the concept matrix, leading to a preliminary literature review that answers the first research question. In the completed research paper, the populated concept matrix and established literature review will then be used to identify directions for future research, thus answering the second research question.

The remainder of this paper is structured as follows. Section 2 provides a theoretical background on social network research on emergence antecedents, followed by a theoretical background on ESM and ESM networks. This is followed by Section 3, which describes the applied methodology in detail. Section 4 describes the preliminary literature review. The paper concludes with Section 5, which discusses the future steps, as well as expected theoretical and practical contributions.

2 Theoretical Foundations

2.1 Social Network Research on Emergence Antecedents

According to social network research or analysis, social networks or graphs consist of a finite number of actors connected via a finite number of ties (Wasserman and Faust 1994). Examples include friendship networks, in which friends are connected by friendship ties, and kinship networks consisting of family members connected by family ties. Social network research can be separated into two categories (Borgatti and Foster 2003). The first category focuses on the consequences of social networks for embedded actors. The second category is concerned with the emergence antecedents of social networks, which is in line with this paper. Emergence antecedents refer to the causes of complex social network structures, such as the attributes of the embedded actors, prevalent tie formation tendencies between employees, or pre-existing social network structures (Contractor et al.

2006). Research on the emergence antecedents of social networks falls into three categories, each category addressing a different social network level from which emergence antecedents can originate (Contractor et al. 2006). These levels are explained in the remainder of this subsection.

The first level is the actor level. This level refers to the emergence antecedents that originate from the individual actors embedded in social networks. For example, a commonly explored emergence antecedent at this level is an individual actor A's tendency for structural autonomy. This term refers to an actor's tendency to establish ties with otherwise unconnected actors to obtain certain benefits (Burt 1992). Depending on the relevance of this antecedent, many or few structural holes may emerge in the underlying social network. Structural holes refer to gaps between network clusters that are connected through only few actors (Burt 1992). The second level is the dyadic level. This level relates to emergence antecedents that originate from connected or unconnected actor pairs. For instance, an often explored emergence antecedent at this level is homophily, which is the tendency of two similar actors, A and B, to form mutual ties at the cost of less similar actors (McPherson et al. 2001). The relevance of this antecedent largely determines whether the emerging social network is generally segregated, containing closed clusters of rather similar actors, or generally inclusive, containing open clusters of actors with varying similarity. Finally, there is the global level. This level relates to the emergence antecedents originating from the overall social network consisting of all actors and ties. An example of a common emergence antecedent explored at this level is preferential attachment. This term refers to the collective tendency of actors embedded in a social network to establish ties with central actors, rendering these actors even more central over time (Johnson et al. 2014). Depending on how pronounced this tendency is, the emerged underlying social network may primarily follow an even structure, in which many actors are similarly strongly connected, or a power-law structure, in which the network is skewed toward a few actors who have disproportionately high connectivity (Ravid and Rafaeli 2004).

In the context of this literature review, it is necessary to consider each of these levels for two reasons. First, doing so promotes a complete overview of the emergence antecedents by addressing the main levels (Contractor et al. 2006). Second, it promotes a theoretically sound overview by categorizing each emergence antecedent to the correct level, which is not always an easy task (Contractor et al. 2006). Hence, this paper's concept matrix conceptualizes the literature findings based on the three levels actor, dyadic, and global.

2.2 Enterprise Social Media and Enterprise Social Media Networks

Kaplan and Haenlein (2010, p. 61) define social media as "*a group of internet-based applications that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange of user generated content*." Social media examples are Facebook, Blogger, and Wikipedia (Kaplan and Haenlein 2010). While social media have their roots in the internet, organizations have also implemented social media for internal purposes, which are then referred to as ESM (McAfee 2006) and integrate various features (e.g., social networking sites, wikis, or blogs) (McAfee 2009). Synonyms are "enterprise social networks" and "enterprise social software" (Wehner et al. 2017).

Nowadays, many organizations use ESM to support their internal communication, collaboration, and knowledge exchange (Veeravalli and Vijayalakshmi 2019). In line with Leonardi et al. (2013, p. 2), ESM can be defined as "*web-based platforms that allow workers to (1) communicate messages with specific coworkers or broadcast messages to everyone in the organization; (2) explicitly indicate or implicitly reveal particular coworkers as communication partners; (3) post, edit, and sort text and files linked to themselves or others; and (4) view the messages, connections, text, and files communicated, posted, edited and sorted by anyone else in the organization at any time of their choosing.*" ESM have four main affordances that, taken together, can influence how employees collaborate, communicate, and exchange knowledge in ESM and in the organization in general (Treem and Leonardi 2012). The first affordance is visibility, which means that employees can reveal their ESM activities, behaviors, and knowledge to the other employees using the ESM. The second is editability, which means that employees can edit their content before making it accessible in the ESM.

The third affordance is persistence, which means that the content an employee publishes in ESM remains accessible even after the employee logs out of the ESM. The final affordance is association, which means that employees can connect with relevant employees or content within the ESM.

From the perspective of social network research, the collective of collaboration, communication, and knowledge exchange activities among employees can be reinterpreted as ESM networks, which refers to networks consisting of employees interconnected via ESM ties (Kane et al. 2014). Kane et al. (2014, p. 11) argue that ESM networks encompass four essential features. Employees respectively ESM users embedded in an ESM network "*(1) have a unique user profile that is constructed by the user, by members of their network, and by the platform; (2) access digital content through, and protect it from, various search mechanisms provided by the platform; (3) can articulate a list of other users with whom they share a relational connection; and (4) view and traverse their connections and those made by others on the platform.*"

3 Methodology

The goal of this paper is twofold. First, it seeks to synthesize literature on the emergence antecedents of ESM networks. Second, it intends to provide directions for future research. These goals are congruent with literature review research, which aims to synthesize past literature and provide directions for research (Webster and Watson 2002). Thus, this paper uses literature review research to achieve its goals. This is realized by following the guidelines from Webster and Watson (2002) and the methodology from Vom Brocke et al. (2009). Accordingly, the methodology comprises four main steps, summarized as follows. In the first step of the methodology, the scope of the paper was first defined (vom Brocke et al. 2009). The scope covers the emergence antecedents of ESM networks. Next, the topic of this paper was conceptualized within this scope to establish a concept matrix (vom Brocke et al. 2009; Webster and Watson 2002). It was conceptualized that the emergence antecedents of ESM networks can be explored across the three levels (Subsection 2.1) of ESM networks. Hence, the concept matrix categorizes the literature findings based on the explored ESM network level, meaning actor level, dyadic level, or global level.

In the second step of the methodology, the concept matrix was populated with literature findings through a systematic literature search that encompassed five activities (vom Brocke et al. 2009). In the first activity of the literature search, three inclusion criteria were defined. First, to comply with this paper's scope, only empirical literature addressing the emergence antecedents of ESM networks was considered (inclusion criterion 1). Only empirical literature was considered, as exploring how ESM networks emerge usually implies the application of empirical research methods (Kane et al. 2014). Second, only empirical literature published in 2004 or later was considered, as first empirical literature on ESM appeared at this time (Wehner et al. 2017) (inclusion criterion 2). Third, to increase the validity of the findings, only peer-reviewed literature was considered (vom Brocke et al. 2009) (inclusion criterion 3). As ESM is a global and dynamic phenomenon (Wehner et al. 2017), literature was included irrespective of the publication country or outlet type. In the second activity of the literature search, the literature sources were selected. The eight sources named in the Association for Information Systems (AIS) Senior Scholar's Basket of Eight (Association for Information Systems (AIS) 2011) were selected, and these were augmented by the four main AIS conference sources. This initial list was enriched by adding the 12 most relevant ESM sources named by Wehner et al. (2017), excluding five already identified sources. This resulted in 19 literature sources: ACIS, AMCIS, BISE, CHI, CSCW, ECIS, ECSM, EJIS, HICSS, I&M, ICIS, ISJ, ISR, JAIS, JIT, JMIS, JSIS, MISQ, PACIS.

The third activity of the literature search was selecting a database and keywords to browse the literature sources for relevant literature. Various databases were evaluated, and the Scopus database was selected as it contains all the identified literature sources, has strong search reproducibility, and is generally well suited for systematic literature searches (Gusenbauer and Haddaway 2019). Based on the insights in Subsection 2.2, six keywords were selected, which can be divided into two categories. The first encompasses the pivotal ESM keyword, including synonyms (i.e., enterprise social media, enterprise social network, and enterprise social software) (Wehner et al. 2017). The second category

encompasses keywords for the ESM networks' different underlying ESM types (i.e., social networking site, blog, and wiki) (McAfee 2009). The plural forms of the keywords were included.

In the fourth activity of the literature search, the keywords were used to query the database. This query revealed works whose titles, abstracts, or keywords matched at least one of the search keywords. The query resulted in 1,106 works, of which 29 fulfilled all inclusion criteria. This large reduction can be attributed in large part to the inclusion of the selected keywords "blog" and "wiki", as these keywords revealed many public social media works in addition to ESM works. The reduction can be further explained by the fact that many of the derived works did not address the emergence antecedents of ESM. Table 1 displays the distribution of the 29 identified works along different characteristics.

Literature sources												
ACIS	AMCIS	BISE	CSCW	ECIS	HICSS	ICIS	ISR	JIT	JMIS	MISQ	PACIS	*Total*
2	1	1	4	4	3	5	1	2	4	1	1	*29*
Publication years												
2008	2009	2011	2013	2014	2015	2016	2017	2018	2020	*Total*		
2	1	1	3	6	5	5	2	3	1	*29*		
Research methods												
Quantitative: 25 works			Qualitative: 1 work		Quantitative and Qualitative: 3 works					*Total: 29 works*		

Table 1: Distribution of the derived works

The literature sources and publication years not listed in Table 1 did not reveal any works that met all three inclusion criteria. These 29 works were then studied, resulting in 34 literature findings. To clarify the difference between a work and a literature finding, the following example is illustrative. From the work of Schneider and Meske (2017), two findings were derived, one related to the actor level and the other to the dyadic level. In the final activity, the concept matrix was populated with these findings (vom Brocke et al. 2009; Webster and Watson 2002). The third step of the methodology was to establish a preliminary literature review based on the populated concept matrix (vom Brocke et al. 2009). This step was achieved by synthesizing the derived literature findings within the concept matrix's ESM network level categories (Webster and Watson 2002) via a coding process. In this coding process, similar findings within each category were first grouped. Afterward, the established groups were abstracted into 21 distinct emergence antecedents (Corbin and Strauss 1990; Dittes and Smolnik 2017). For instance, the works of Kim and Kane (2015) and Hacker and Bodendorf (2017) revealed literature findings regarding whether employees in ESM networks prefer to establish ties with employees who have similar business functions. These findings were grouped and then abstracted into an emergence antecedent labelled "functional homophily" (Kim and Kane 2015). In a future step of the methodology, the populated concept matrix and established literature review will be studied to derive directions for future research (vom Brocke et al. 2009).

4 Preliminary Results

Of the 21 distinct emergence antecedents, 8 were actor-level emergence antecedents (Table 2), another 8 were dyadic-level emergence antecedents (Table 3), and the remaining 5 were global-level emergence antecedents (Table 4). Each antecedent is described in the remainder of this section.

4.1 Actor Level

Actor-level emergence antecedents			
Hierarchical level	Communication activity	Gender	Social browsing
Profile diversity	Culture	General usage intensity	Sentiment

Table 2: Abstracted actor-level emergence antecedents

Three findings indicate that actors at medium to high *hierarchical levels* tend to have the most reciprocal ties (Riemer et al. 2015; Stieglitz et al. 2014), highest centralities, and most structural hole-closing and boundary-spanning ties (Behrendt et al. 2015) in ESM networks. Two findings indicate that high *communication activity* is also associated with more reciprocal ties in ESM networks (Riemer et al. 2015; Stieglitz et al. 2014). Hence, actors at medium to high hierarchical levels who display high communication activity are commonly the best connected in emerged ESM networks. Various findings address further actor traits as emergence antecedents. One finding indicates that *gender* is relevant, with women tending to have relatively high centralities and relatively low structural hole-closing ties (Schneider and Meske 2017). Another finding indicates that actors often exploit an ESM's visibility affordance (Leonardi et al. 2013) for *social browsing*, that is, discovering and connecting with other users (DiMicco et al. 2008). This promotes the emergence of weak ties, which can facilitate the access to novel information (Granovetter 1973). In the same context, another finding indicates that an actor's user *profile diversity* probably increases their ESM network centrality as they become more visible to social browsers (Dugan et al. 2008). An actor's *culture* can influence the emergence of the ESM network in which they are embedded. In line with the Chinese cultural values of Guanxi, one finding indicates that Chinese actors, unlike American actors, tend to establish ties with actors having many shared contacts and ties with actors in crucial positions (Gao et al. 2013).

One finding indicates that actors having a high *general ESM usage intensity* inherently have more ties than other actors (Mark et al. 2014). Another finding indicates that ESM network emergence driven by general ESM usage intensity is moderated by temporal dispersion (Suh and Bock 2015). Precisely, high general ESM usage intensity promotes the emergence of intra-team ties (i.e., ties with team members). However, this relationship is negatively moderated by temporal dispersion, such that a higher temporal dispersion of team members is associated with a lower number of expressive intra-team ties (i.e., intra-team ties conveying socio-emotional information). Moreover, this finding indicates that high general ESM usage intensity promotes the emergence of extra-team structural hole-closing ties. This is positively moderated by temporal dispersion, such that the number of expressive extra-team structural hole closing ties is higher when external members are strongly temporally dispersed. One finding indicates that actors tend to establish ties with employees who write content conveying slightly negative or controversial *sentiments*, rendering actors writing such content more central over time (Singh et al. 2014). An explanation for this effect may be that sentiments appeal to the emotions of the readers, such that they are more likely to discuss the content writers' posts with their peers, thus nudging their peers to establish ties with these content writers (Singh et al. 2014).

4.2 Dyadic Level

Dyadic-level emergence antecedents			
Locational homophily	Gender homophily	Functional homophily	Interest homophily
Hierarchical homophily	Dyadic social balance	Work role similarity	Work role familiarity

Table 3: Abstracted dyadic-level emergence antecedents

Most of the derived findings are concerned with the extent to which homophily in various forms (McPherson et al. 2001) is a relevant emergence antecedent in ESM networks. The relevance of homophily strongly influences the extent to which an emerging ESM network contains either primarily closed clusters consisting of similar actors or primarily open clusters consisting of actors with varying similarity (Yuan and Gay 2006). Two findings indicate that globally spanned ESM networks are likely to be shaped by *locational homophily* (also referred to as proximity). This finding means that actors prefer to establish ties with actors who have high spatial proximity to them (Lekse and Recker 2014; Recker and Lekse 2015). Another finding indicates that locational homophily also often occurs on a smaller scale, meaning that actors prefer to establish ties with actors who are co-located, for instance, in the same office or branch (Kim and Kane 2015). However, this finding is slightly attenuated by another finding that demonstrates somewhat more mixed results in this regard

(Hacker and Bodendorf 2017). Yet another finding indicates the presence of *gender homophily* (Schneider and Meske 2017). Specifically, in the observed ESM network, women and men preferred to establish ties mainly with network members of the same gender as themselves (Schneider and Meske 2017). This finding is consistent with the homophily principle of similarity breeds connection, which proposes that actors with similar characteristics (such as age or gender) tend to interact more with each other than with more dissimilar actors (McPherson et al. 2001).

Another form of homophily is *functional homophily*. This term refers to the tendency to establish ties with actors who have similar business functions rather than actors with dissimilar business functions. One finding indicates that functional homophily is often a relevant emergence antecedent in ESM networks (Kim and Kane 2015). However, this finding is slightly attenuated by another finding that demonstrates rather more mixed results (Hacker and Bodendorf 2017). Another finding indicates the presence of *interest homophily* in ESM networks, which means that actors prefer to establish ties with actors who have similar interests rather than actors with dissimilar interests (Kim and Kane 2015). The question of whether *hierarchical homophily* is relevant in the context of ESM networks remains inconclusive. One finding indicates the presence of hierarchical homophily in the observed network (Behrendt et al. 2015), whereas another finding demonstrates rather more mixed results (Hacker and Bodendorf 2017), and yet another indicates quite the opposite (Kim and Kane 2015). A comparison of the findings' underlying research settings reveals that the relevance of hierarchical homophily in an ESM network is likely to depend on the structure of the organization in which the ESM network is embedded. Specifically, hierarchical homophily may be more relevant in ESM networks embedded in highly hierarchical organizations (Behrendt et al. 2015) compared to ESM networks embedded in less hierarchical organizations (Kim and Kane 2015). Another addressed emergence antecedent can be attributed to *dyadic social balance*. This concept posits that actors in unreciprocated ties often experience social imbalance or cognitive dissonance; hence, they reciprocate these ties over time to achieve cognitive consistency or social balance (Heider 1946). Three findings indicate that dyadic social balance drives the emergence of reciprocal ties in ESM networks (Beck et al. 2014; Chai et al. 2011; Kim and Kane 2015). Overall, reciprocal ties simultaneously indicate strong ties rather than weak ties (Granovetter 1973). One finding addresses two further ESM network emergence antecedents in the context of wiki features (Chang et al. 2009). First, *work role similarity* between two actors can lead to mutual product exchange ties mediated through wiki pages (e.g., conveying general project information, technical information, and progress reports) in an ESM network. Similarly, *work role familiarity* between two actors can lead to mutual product and expertise exchange ties (e.g., conveying advice and expertise, information sources, and referrals to other actors).

4.3 Global Level

Global-level emergence antecedents			
Preferential attachment	Actor composition	Visibility affordance	Hierarchical diversity
Group trust and identity			

Table 4: Abstracted global-level emergence antecedents

Four findings address *preferential attachment* in ESM networks. This emergence antecedent is decisive in whether the emerging ESM network follows primarily a power-law or even structure (Ravid and Rafaeli 2004). The findings are inconclusive in this regard. One finding confirms the relevance of preferential attachment in the observed ESM network (Wiesneth 2016), whereas another demonstrates no preferential attachment in the observed ESM network (Kim and Kane 2015). Two further findings may mitigate this conflict. Specifically, although these findings indicate the relevance of preferential attachment, they also imply that this antecedent may be attenuated by lower-level emergence antecedents – such as locational homophily. This attenuation can lead to differential preferential attachment, which refers to preferential attachment but within closed clusters of co-located actors (Lekse and Recker 2014; Recker and Lekse 2015). Power-law or core-periphery structures do

not emerge solely through preferential attachment. Four findings indicate that specific *actor compositions* can also lead to such structures. The first two findings show that ESM networks generally tend to comprise a few central core actors and super-promoters and many peripheral users and promoters (Bulgurcu et al. 2018; van Osch, Bulgurcu, et al. 2016). Unlike core actors and peripheral users, super-promoters and promoters systematically exploit the visibility affordance (Leonardi et al. 2013) of ESM to diffuse their own content, which means that they have a disproportionately high number of outgoing ties. Similar findings indicate that ESM networks often consist of a few central value-adding key users or so-called "givers" and "matchers" who have high centralities. Examples include high degree, betweenness, or closeness centralities (Berger et al. 2014; Cetto et al. 2016). This is contrasted by a large number of so-called "takers" who have low centralities.

The *visibility affordance* mentioned in Subsection 4.1 has further implications for the emergence of the underlying networks. Two findings indicate that closed ESM groups promote cohesive clusters, whereas open (i.e., visible) ESM groups promote structural hole-closing ties in ESM networks (van Osch et al. 2018; van Osch and Bulgurcu 2020). These points are refined by another finding, which indicates that closed ESM groups contain more horizontal coordination and information-search boundary-spanning ties than do open ESM groups (van Osch and Steinfield 2018). However, open ESM groups probably contain more vertical representation boundary-spanning ties than do closed ESM groups (van Osch and Steinfield 2018). Two similar findings indicate that ESM group visibility promotes the emergence of vertical representation boundary-spanning ties to higher hierarchical levels (van Osch and Steinfield 2013, 2016). Hence, ESM group visibility can be leveraged by group members for the creation of awareness and potentially favourable impressions by selectively presenting positive information – a representational strategy often referred to as "talking up" (van Osch and Steinfield 2016). One finding shows that *hierarchical diversity* in ESM groups positively influences the prevalence of vertical and horizontal boundary-spanning ties in ESM networks, whereas ESM group visibility promotes vertical boundary-spanning ties but diminishes horizontal ones (van Osch, Steinfield, et al. 2016). ESM group visibility may diminish horizontal boundary-spanning ties because such ties often indicate operational activities among employees. These activities require a certain amount of trust and safety to occur – a requisite that may be better achieved in closed groups (van Osch, Steinfield, et al. 2016). Finally, one finding indicates that *group trust and identity* in ESM groups promote cohesion and reciprocity in the observed ESM network (Scott and Choi 2013).

5 Future Steps and Expected Contributions

The main goal of this study was to establish a literature review regarding the emergence antecedents of ESM networks, thus addressing the first research question. A second goal is to compile a research agenda to stimulate further fruitful research in this area, thus addressing the second research question. To contribute to these goals, a preliminary literature review was established, illustrating 21 distinct emergence antecedents of ESM networks. This review can already be used by practitioners as a knowledge basis for various application cases, such as developing ESM recommender systems, creating ESM network simulation models, and planning and conducting organizational interventions to optimize ESM networks. However, this research is still in progress. Future steps include completing the preliminary literature review through a more comprehensive synthesis and the deduction of a research agenda. Next, the resulting contributions – especially for theory – need to be carved out. Nevertheless, the current paper already points out some expected contributions. For instance, this review aligns with past conceptual studies arguing that ESM networks may emerge differently from other social networks (Kane et al. 2014) and illustrates two overarching reasons for this. The first reason is because ESM networks are embedded in organizational contexts. The second reason are the affordances ESM provide (Treem and Leonardi 2012), such as the visibility affordance. Conversely, this review reveals some inconsistencies concerning the relevance of specific emergence antecedents, such as preferential attachment. Finally, this paper already points out potential topics for a future research agenda, such as a stronger focus on multilevel research to explore how simultaneous emergence antecedents at different levels influence ESM network emergence (Contractor et al. 2006).

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