Long Distance Calling?
Spatial Preference Patterns in Enterprise Microblogging in the Retail Industry

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Abstract

We examine enterprise social network usage data obtained from a community of store managers in a leading Australian retail organization, over a period of fifteen months. Our interest in examining this data is in spatial preferences by the network users, that is, to ascertain who is communicating with whom and where. We offer several contrasting theoretical perspectives for spatial preference patterns and examine these against data collected from over 12,000 messages exchanged between 530 managers in 897 stores. Our findings show that interactions can generally be characterized by individual preferences for local communication but also that two different user communities exist – locals and globals. We develop empirical profiles for these social network user communities and outline implications for theories on spatial influences on communication behaviours on enterprise social networks.

Keywords

Enterprise social network, microblogging, social media communication, distance decay, organisational social networking.

INTRODUCTION

Social network platforms have proliferated over recent years (Cheung and Lee 2010). Driven by this success in the public sphere, enterprises have adopted social network sites to provide employees a medium for communication, collaboration, and knowledge sharing within and across company boundaries (McAfee 2006). One of the emergent phenomena on social network sites is microblogging – a lightweight communication practice by which users share and broadcast very small chunks of information about themselves, their activities, their thoughts, or anything else of interest to them (Müller and Stocker 2011). When used in a business context, microblogging facilitates informal communication and raises awareness among employees (Riemer, Richter and Bohringer 2010). Especially members of dispersed teams thus benefit from such social media technologies when accomplishing collaborative tasks (Subramaniam, Nandhakumar and Baptista 2013).

We are interested in the use of enterprise microblogging for work tasks in a dispersed context. Based on the observation of face-to-face communication behaviour among co-workers in the offline world, the *Allen curve* describes the declining probability of communication with an increasing physical distance between their offices (Allen 1977). This phenomenon is also referred to as *distance decay* and still holds when co-workers communicate using computer-mediated communication technologies, such as email, even if these technologies would allow them to communicate at costs independent of distance (Cairncross 2007).

While distance decay has been shown to occur in one-to-one communications such as email or telephone, the question remains whether technology-enabled social networks experience similar effects. Theoretically, when employees communicate via microblogging, geographical distance fades into the background and exposes them as virtually equidistant. In conjunction with the visibility of all ongoing conversations, the question arises therefore whether the distance decay phenomenon still has an influential role on the intensity of mutual communication. This question is important especially for organizations that have outlets spread across a vast geographical region – such as the distribution of retail outlets for an Australia-based organization.

We examine the occurrence of distance decay in an exploratory study of spatial preference patterns in enterprise microblogging across geographically dispersed store managers of stores of a leading Australian retail organization. We develop a graph-theoretical approach to propose two spatial preference communication models, which will serve as the framework for analysing the topological and spatial properties of communication between actors on the network. With this framework, we examine data from the usage of an enterprise social networking platform within a time frame of fifteen months.

We proceed as follows. First we will review relevant literature on computer-mediated communication, spatial interaction and enterprise social networking. Then, we will define spatial preference communication models as the analytical vehicles for examining our data. Next, we report on the field study, data collection and analysis. We describe and discuss results and present implications for future research. We conclude by reviewing contributions and limitations.

BACKGROUND

Our research relates to spatial effects on computer-mediated communication behaviour and the literature on usage of enterprise social networking. We briefly review selected related work in the following.

Computer-mediated communication (CMC) describes interactions between two or more human beings via the exchange of information through a communication channel, which is mediated by an electronic system (e.g., Walther 1996). A CMC channel can be established by different systems such as telephony, video conferencing, electronic mail, or instant messaging, which are referred to as communication mediums.

Typically, CMC mediums can be classified according to their capability for supporting communication with regard to the time and the location of the users (Baecker 1995). Email as a medium, for instance, can support temporally asynchronous as well as spatially disperse communication, whereas telephone can support spatially disperse communication only in temporally synchronous settings.

Enterprise social networks (ESN) are similar to emails in this classification, with the addition that they also readily support synchronous communication (similar to chats). They describe organizational communication platforms in which employees 1) have uniquely identifiable (semi-) public profiles within the organizational boundary that consist of employee-supplied content, content provided by other employees, and/or system-level data; 2) can organizational wide articulate connections with other organizational staff that can be viewed and traversed by others; and 3) can consume, produce, and/or interact with streams of user-generated content provided by their connections to other staff on the site (Ellison and Boyd 2013). ESN are different from prominent social network sites such as Facebook or Twitter in being organizationally bounded, i.e., implemented within an organization and, hence, cannot be reached by others (e.g., Turban, Bolloju and Liang 2011).

Following the rise of social media technologies, the study of phenomena on, and impact of, social network technologies has emerged as a novel research area and attracted the interest of scholars (Wassermann and Faust 1994). Kane et al. (2014), for instance, suggest as an open research question whether and how the influence of different types and characteristics of connections between users, such as interaction, flows, or indeed proximities (such as geographical distance), on their behaviour and the formation of the network would be similar or dissimilar between offline social networks and digital social networks. The answer may not be intuitive since interactions between participants of a public social network site reflect to a certain extent the structure of their existing social network in the offline world (Agarwal, Gupta and Kraut 2008); and a primary motivation for the use of public social network platforms is often to maintain and intensify existing relationships to people they already know offline (e.g., Ellison, Steinfield and Lampe 2007). In an enterprise context, however, these behaviours differ. For example, employees use the traversal functionality of ESN to inform and engage with people in their company they have not known before (DiMicco and Millen 2007).

Our interest in communication behaviours on ESN platforms is specifically in the geographical aspects of such behaviours, more precisely, in the formation of *spatial proximity* or *preference*. Our interest is motivated by the observation that, in theory, the value of computer-mediated communication emerges especially in geographically dispersed contexts when it would literally be too complicated or costly to interact otherwise.

Our work is thus a form of spatial interaction analysis, which is part of the broader field of spatial analysis (Fischer and Wang 2011). Spatial analysis covers origin-destination flow data, i.e., any type of relationships between entities attributed with geographical coordinates (e.g., LeSage and Pace 2008).

A common approach for modelling spatial interaction is the application of gravity models (Sen and Smith 1995). These models describe a spatial interaction function as the probability of a connection or interaction with respect to the geographical distance between involved entities. Importantly, gravity models can be used to describe the distance decay effect: the communication probability between two actors declines when the distance between their locations increases.

Distance decay effects have been studied in several enterprise communication settings; firstly offline (Allen 1977) and later for various CMC mediums. For instance, the effect has been found in e-mail communication networks in organizational settings (e.g., Kossinets and Watts 2006). Moreover, distance decay effects even occur when proximity is perceived rather than actually existent (Wilson et al. 2008). Concerning social networks as an emerging and increasingly relevant medium, spatial properties have only recently attracted scholarly attention. For instance, research on Facebook shows not only a decreasing probability of friend relationships, but also that this probably allows to approximate the geographical location of a user based on the locations of the users he maintains friend relationships with (Backstrom, Sun and Marlow 2010). Still, it remains unclear whether distance decay effects translate to ESN settings, especially against the backdrop of disparities in motivations and use. While on public social networks, users tend to project their social relationships into the online world (e.g., Ellison, Steinfield and Lampe 2007), the social component is not as strongly present in a work context, in which the usage of ESN is more often driven by a desire for collaboration, information, knowledge sharing (Turban, Bolloju and Liang 2011), and for the establishment of work-relevant social capital.

RESEARCH APPROACH

Context of Field Study

To explore the existence of distance decay effects in ESN use, and to develop an empirically grounded understanding of spatial preference in ESN microblogging, we conducted a field study with employees in a large-scale retail organization operating in Australia. Specifically, we examined ESN usage by management staff responsible for the operation of 897 supermarket stores across all Australian states, viz., the store managers. The distribution of these stores based on their exact geographical locations is depicted in Figure 1.

The retail company adopted an ESN platform in July 2011. By October 2013, 7,572 users exchanged 145,401 messages in 316 different ESN communities (so-called *groups*). In August 2012, a dedicated online community was established on the ESN with the purpose to connect all store managers of the supermarket stores (referred to as the store manager group). This marked the first time in the history of the company that store managers were provided with a platform to directly communicate, exchange knowledge, and share ideas amongst each other. Along with the foundation of the group, store managers were equipped with tablet computers, through which they were able to access the ESN as part of their day-to-day operations. Due to the mobility of the tablet computers, the store managers were able to use the ESNS while being on the store floor instead of just from the desktop computer in their back offices. An example for a common habit that subsequently emerged on the ESN was store managers exchanging displays of local best practices (such as promotional shelf displays on the store floor), which were then discussed and in parts implemented in other stores.

Over the period of 15 months between August 2012 and October 2013, 530 store managers actively participated in the store manager group, creating 4,318 threads with overall 5,905 messages and 1,579 replies. Although the store managers represent a minority group of users, with a share of 12.5% of all registered users, they account for 25.1% of the messages on the ESN and for 41.0% of the created threads on the platform. On average, store managers posted 38.5 messages, in contrast to all other users that, on average, posted 16.5 messages.

Figure 1: Geographical locations of stores in Australia

Graph theoretical approach

To examine the data obtained within the above described context of the field study, we applied a graph theoretical approach for structuring the data and analysing the communication relations between employees. Graph theory studies discrete relational structures (Diestel 2010), by examining network structures between objects (such as actors) and the structure of relationships between them (such as message exchange or distance). Graphs have been widely used to study amongst others, neural networks in biological sciences, geographic networks in regional sciences, or information networks in computer sciences (Newman 2010). In the field of information systems, graphs have been used to describe business processes (Dumas, García-Bañuelos and Dijkman 2009), supply chains (Lazzarini, Chaddad and Cook 2001), or recommender systems (Newman 2010). In the social sciences, graph theory builds the foundation for the analysis of social relationships between people (Borgatti, Everett and Johnson 2013).

As a prerequisite for the analysis of graphs consisting of several thousands of nodes and edges, graph databases are used to store and query them. Graph databases have computational advantages over relational databases in the discovery of relationships that span multiple levels, such as findings friends of the friends of a friend, or repliers to the repliers of a message (Robinson, Webber and Efrem 2013). We used the open-source graph database Neo4j (www.neo4j.org), which stores a single, self-contained graph that may contain several isolated sub graphs, whose nodes are not connected by any relationships. It allows distinguishing different types and nodes, and allows assignment of one or more relationship labels.

SPATIAL PREFERENCE COMMUNICATION MODEL

Preliminaries

To study the influence of the geographical distance between users on the intensity of mutual communication on ESN as a function of the preference of users for communicating with other users in dependence on the distance between them, we now introduce a *spatial preference communication model*, which provides an abstract and formalized notion of actors communicating among each other, their locations, and the communication incidents within the boundaries of a communication network. The model specifies a measure of preference, which describes the extent to which users prefer either short or long distance communication. Using this measure, different instances of communication networks can be compared concerning the effects of distance on communication behaviours.

We developed a new model because existing communication models were found not to be readily applicable. For instance, a gravity model as applied by Butts and Action (2011) to estimate the distance decay of messages in a communication network. However, this gravity model only considers interactions on a network level and fails to describe the behaviour of individual participants. In particular, the model used by Butts and Acton (2011) lacks the ability to represent more than one relationship between participants, i.e., it is suitable for modelling friendship relationships (0:1) but not communication relations (0:many). This problem also applies to the spatial measures introduced by Scellato et al. (2010).

The spatial preference communication model describes a communication network as a spatial social network since it combines a social as well as a spatial structure (Barthelemy 2011). Communication incidents between actors determine the social structure, whereas their geographical locations define the spatial structure.

The spatial preference communication model describes a communication network by a 5-tuple of the form (A, L, M, p, d) with A describing the sets of actors $(a_1,\ldots,a_n)$, L describing the locations $(l_1,\ldots,l_n)$ of these actors, and M describing the messages $(m_1,\ldots,m_n)$ between actors. Thereby, each message represents an information flow from a sender a_s to a receiver a_r at a point in time t. The bijective function p defines the one-to-one allocation of actors to locations, and d provides the min-max normalized absolute distance between all pairs of locations (l_i, l_j), which allows defining the distance between any pair of actors as the distance between the locations they are allocated to by p.

This model allows for the definition of a communication incident matrix, within which the value of the cell in the s-th row and the r-th column denotes the absolute frequency of messages sent by actor a_s to actor a_r. The matrix is not symmetric since messages have a direction and thus the matrix reflects the topological structure of the communication network and yields the communication graph, in which edges exist between those actor nodes a_i and a_j who have at least one communication incident.

While the spatial structure of the communication network is determined by the distances between locations, no knowledge is available on the behaviour of actors, in turn rendering the communication structure is unknown. Therefore we model the occurrence of messages in the communication network as the probability of an outcome of a random process of S_i (who sends the message?) to R_i (to whom does the sender address the message?). Since the sender chooses the receiver and each sender might have different preferences regarding this choice, R_i conditionally depends on the preceding realization of S_i. Figure 2 shows an example for a communication network between five actors in five locations exchanging a total of 12 messages between them.

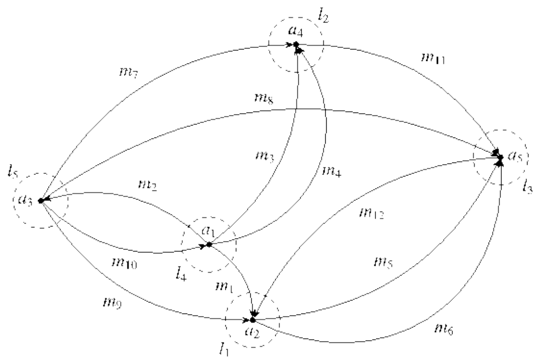

Figure 2: Example communication network

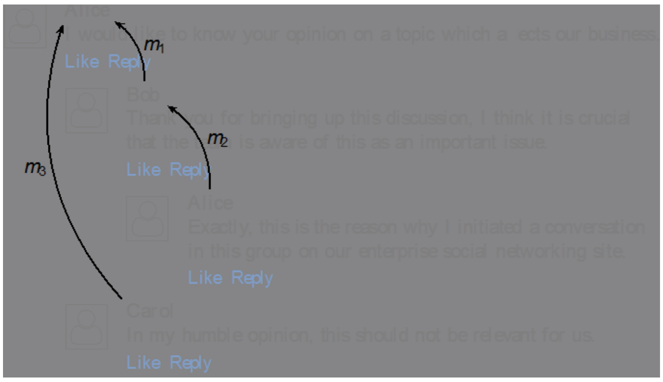

Figure 3: Example post-reply network

This model can be used to analyse communication networks from *private messages* (messages not visible to non-participating users), or *common thread* networks (examining participants contributing messages and replies to a common thread). However, we are interested in *post-reply networks*, where users post replies to a parent message, which can be interpreted as addressing the reply message to the author of the parent message (e.g., Hua and Haughton 2012). Figure 3 shows an example for such a network. To obtain a post reply network, reply messages from an ESN are transformed into communication incidents such that their authors are the sending actors, whereas the authors of the parent messages resemble the receiving actors. The original post starting the thread to which others reply is not part of this network.

Proposition Development

We now set out to describe a set of propositions about potential spatial preference patterns in communication behaviours in the ESN field study. We describe these propositions as theoretical idealizations, that is, as simplified, “extreme” forms of communication behaviours that may or may not occur entirely or to that extreme. This idealization useful, however, (a) to identify boundaries for any empirical measurement and (b) to evaluate the internal validity of the theoretical logic proposed.

The idealization in our proposition development is that we assume, for the purposes of our analysis, that the distance between a sender a_s and a receiver a_r is the only variable influencing the conditional receiver probability $\gamma_{as}(a_r)$, i.e., the likelihood that a receiver will post a reply to the sender comment. In other words, it is assumed that, besides the distance between them, there exist no other reasons for an actor to prefer sending messages to particular actors (which, obviously, is not entirely realistic). On basis of these assumptions, we can identify one neutral propositions bounded by two contrasting propositions. The first proposition specifies the null hypotheses, i.e., distance will have no influence on the occurrence probability of messages between actors. From this basis, we can identify two alternative hypothetical behaviour types that describe either a preference for short distance or long distance communication behaviour. A spatial preference measure could then express the alignment to either of these two preferences mathematically. Table 1 summarizes these propositions and offers, for each proposition, a set of arguments that, in theory, provides justificatory logic to the proposition. As the spatial preference measure proposed in this work, we obtain the difference between the difference between the observed message distance distribution of an actor and the distribution, which would result from the actor behaving spatially indifferent. Trivially, in case the actor actually behaves spatially indifferent, the measure results in a 0. To allow inter-actor comparison, we normalize this measure, such that a value of -1 indicates a pure short distance preference, i.e. the actor only communicates with his closest neighbour, while a value of 1 indicates pure long distance preference as the opposite proposition.

DATA ANALYSIS

Topological characteristics of the examined social network

In analysing our data to evaluate the alternative propositions and the associated justificatory logic, we first examined communication behaviour in the ESN store manager community from a topological viewpoint. The communication behaviour of store managers follows, as expected, a power law distribution, in which 20% of store managers are responsible for 83.1% of the messages on the network, and 44.0% of store managers never contribution to the community. From a longitudinal viewpoint, online communication shows high volatility, with a maximum of 330 posted messages in one calendar week, and an average of 92.2 messages (st. dev. 62.7) per week. As a measure of the network cohesion, the density (the number of existing edges by the maximum number of possible edges, see Borgatti, Everett and Johnson 2013) coefficient of 0.0006 shows an overall sparse occurrence of replies. The mean degree (Borgatti, Everett and Johnson 2013) of store managers is 0.52, indicating that on average store managers reply to 1.67 parent messages.

Table 1. Propositions and alternative justificatory logic

Proposition	Description	Justificatory logic
Spatially indifferent communication behaviour	An actor that is indifferent in his choice of the receiver when sending a message. Thus, the actor communicates to every other actor with the same probability.	*Cost argument*: ESN provide the opportunity to connect and exchange information at virtually no cost (Bakos 1999). Costs for sending a message thus do not depend on properties of actors such as their identity or their geographical location. *Awareness argument*: Communication on an ESN is characterized by reduced anonymity because exchanged messages are equally visible to all actors (Kwon, Stefanone and Barnett 2004). If contributing a message to a one-to-many discussion, identity protection must thus be less important compared to private one-to-one communications. Therefore, not the identity of actors, and thus, their distance should matter, but the exchanged knowledge itself. *Homogeneity argument*: Every actor belongs to the same organizational role, thereby indicating a common interest, which supports the tendency towards a communication behaviour without preferences for certain receivers.
Short distance communication preference	An actor that prefers sending messages to geographically close actors rather than to distant actors.	*Social correlation argument*: In social networks in general, people tend to engage with people they already know (McPherson, Smith-Lovin and Cook 2001). The intensity of interactions on the communication network will therefore resemble the intensity of interactions the actors would engage outside the network, e.g. via face-to-face meetings or alternative communication mediums, which are easier and more readily established over close distances. *Local interest argument*: The topics discussed on the ESN might be of local rather than global interest. Thus, actors will prefer engaging in discussions, which affect their local regions.
Long distance communication preference	An actor that prefers sending messages to geographically distant actors rather than to close actors.	*Media choice argument*: While actors prefer a rich medium, such as face-to-face communication, to interact with other actors over short distances (Trevino, Lengel and Daft 1987), less rich mediums, such as e-mail or fax, are preferred to engage with actors over long distances (e.g., Straub and Karahanna 1998). Since communication on ESN is primarily text-based (a less rich medium), a similar preference of actors for long distances might be observed. *Best practice interest argument*: ESN use for work purposes is often characterized by an interest in information and knowledge sharing (Turban, Bolloju and Liang 2011). Knowledge about best practices is likely shared locally through offline channels such as meetings, face-to-face, or phone interactions, whilst an ESN provides an unforeseen possibility to learn from distant practices. Thus, users will prefer to communicate with distant actors to identify distant best practices rather than known local best practices.

Spatial characteristics of the examined social network

Figure 4 and Figure 5 depict the spatial structure of the post-reply network. Figure 4 positions the nodes according the geographical coordinates of their corresponding stores (compare Figure 1), whilst Figure 5 shows the relative distance of a sending actor to a receiver.

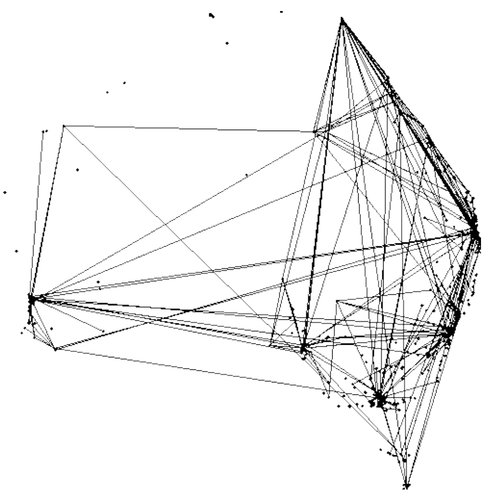

Figure 4: Absolute spatial structure of the network

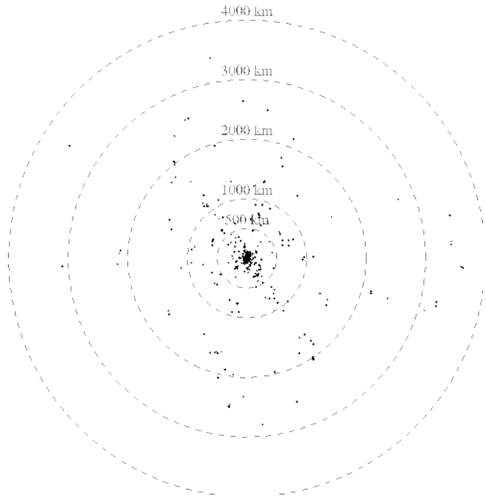

Figure 5: Relative spatial structure of the network

The most important characteristic with regard to the spatial structure of a network are the distances spanned by the edges. Figure 6 compares the spatial structure of the post-reply network using the cumulative probability distributions of the observed message distances in comparison to the geographical distribution of the stores (see Figure 1). The stores located furthest apart from each other exhibit a distance of 3978 km. On the whole range up to this distance, the curve of the post reply distance distribution consistently remains above the geographical distance distribution, showing that store managers reply to store managers of geographically closer stores with a greater probability than with those of further apart stores.

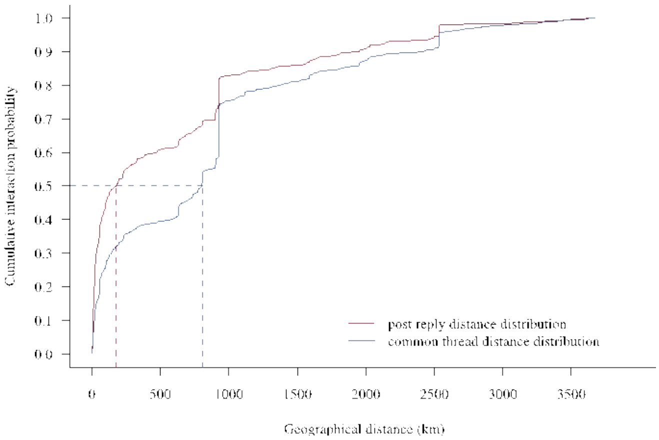

Figure 6: Cumulative distance distributions

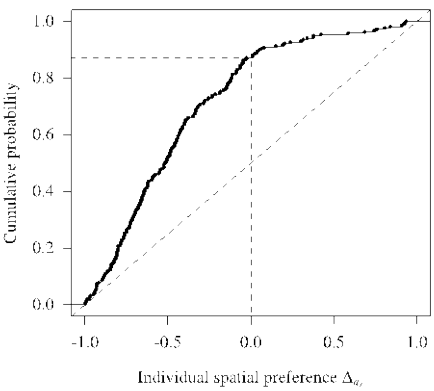

Figure 7: Individual spatial preference distribution

Further, the distributions of message distances exhibit two jumps, the first one at approximately 900 km and the second one at 2500 km. However, both jumps have no matching jump in the geographical distance distribution, and therefore, they cannot be explained by the geographical locations of the stores. Moreover, the jumps indicate the existence of certain thresholds, at which the probability of a communication incident suddenly drops.

When focusing on the range of distances below the 0.5-quantile of the geographical distance distribution, i.e., 934 km (indicated by the dotted vertical line in Figure 6), a different shape of the communication distance distribution and in turn an even stronger divergence from the geographical store distribution can be observed: The average message distance in the post reply network is 595 km and even the 0.75-quantile of the post-reply network spans less distance (928.7 km) than the 0.5-quantile of the store distribution. More importantly, while the distance distributions of the observed communication incidents show an upward bulge and follow a concave downward, marginally decreasing curve, the shape of the geographical store distribution is mostly convex and marginally increasing.

Individual spatial preferences in the examined social network

Individual spatial preferences were calculated for actors involved in at least one communication incident (i.e., 218 actors in total). Figure 7 shows the cumulative distribution of the individual spatial preferences. The majority of actors are attributed with a negative value indicating a preference towards short distance communication. The curve is shaped concavely downwards and continuously remains above the identity line. Overall, a share of 87.2% of the actors prefers communication over short rather than long distances. The overall network spatial preference is -0.44.

Based on their individual spatial preference, actors can be classified into two groups. We called actors attributed with a negative spatial preference *locals*, whereas actors which have a positive spatial preference are referred to as *globals*. We note that these terms may not be the most appropriate labels – even the locals had an average of almost 342km. Therefore, in Figure 7, a point in the lower left quadrant represents a local actor while a point in the upper right quadrant represents a global actor. In absolute and relative numbers, 190 locals (87%) and 28 globals (13%) exist in the post reply network. Table 2 summarizes descriptive statistics about their communication behaviours. The data shows that that locals post more messages and create more threads than globals. Locals also post more replies on average than globals. The comparison of the mean message distance verifies the impact of the spatial preference on the absolute interaction distance, with the average interaction distance of globals being three times higher (approx. 1007km).

Table 2. Comparison of the communication behaviour of locals and globals

Statistic	Locals	Globals
N (relative)	190 (87.2%)	28 (12.8%)
Mean messages	19.14	15.79
Mean threads	12.44	11.32
Mean replies	6.70	4.46
Mean in-degree	1.44	1.25
Mean out-degree	2.19	1.75
Mean message distance	341.73	1006.72

DISCUSSION

Our analysis shows that geographical distance has an influence on the communication intensity between ESN actors. Thus, an ESN site does not fully supersede the phenomenon of distance decay despite its broadcast nature and despite the circumstance that all participants are fully aware of the ongoing communication. We showed that actors tend to reply to and engage in a common thread with relatively close actors more frequently than distant actors. We outlined a set of theoretical propositions that can be used to theorize about these findings. In turn, we provide an empirical as well as emergent theoretical basis to theorize about how users appropriate ESN technologies.

Our study also has implications for the development of ESN design theories as well as organizational interventions: The utility potential of ESN technologies lies in overcoming travel, communication, and transaction costs – if appropriated correctly. Yet, our analysis suggests that without appropriate technology features and/or organizational interventions, the reduction in transaction costs through digital communication media may not automatically occur. Whilst we did not examine local or individual reasons for communication behaviours, we already found that the sheer existence of ESN technology does not automatically lead to expansive communication behaviour. A potential explanation is that beneficial functional affordances of ESN technologies are not necessarily perceived as such by actors, in turn obstructing the realization of these affordances. Functional affordance theory (Markus and Silver 2008) would suggest that the structural features of ESN (such as cost-free communication over distances) may not necessarily be exposed appropriately through relevant symbolic expressions that inform users about how to interact with technology to achieve certain goals, such as learning from distant colleagues. In turn, it may be that symbolic expressions need to be developed and studied that focus on how geographical aspects of technology use can be messaged to user groups.

Another key implication emerges when relating our analysis to existing work on the relevance of interpersonal ties (Hansen 1999) and centrality (Krackhardt and Hanson 1993) of actors within a network. The hubbyness of networks is often explained through preferential attachment (Barabási and Albert 1999): we connect to actors already well-connected. Our findings now suggest that preferential attachment – as well as networking power as a consequence – may also be a function of distance: we tend to connect to networks hubs (individuals, groups – or topics), which are already powerful *and* which are close to us distance-wise. In which conditions distance overlaps, mitigates, strengthens or conflicts with other social networking attributes, is thus an important parameter to investigate in combination with established factors.

Several boundary conditions limit our work. Like other models, our study has abstracted communication behaviours to one variable of interest: geographical distance. Further work needs to examine other issues (such as network hubbyness or interpersonal preferences, see Schilling and Fang 2013) and how they complicate the key findings from our analysis. Second, our model assumes linear communication behaviour over distances, and abstracts from behaviours where, for instance, medium-distance actors are neglected or favoured over either short- or long-distance actors. A third limitation of our work is that we did not (yet) examine content elements, that is, we did not examine how characteristics of a message or a reply would impact communication probabilities or preferences. Semantic analysis techniques can be used to extend our study towards that direction.

CONCLUSIONS

This study provides evidence that the geographical distance between participants of an enterprise social network site negatively influences the probability of mutual communication when engaging via microblogging, in turn providing a basis for further theorizing enterprise social networking as well as distance decay effects. We found that while distance decay was present in the use of microblogging, also specific communities of users form that decisively expand their communication reach to distant partners. An emerging question is now how and why these different behaviours emerge in the same category of actors (here: store managers).

We also provide an original methodological contribution by developing a spatial preference communication network model, which may be useful for related social network studies. Our model can be applied to any other data set of message exchanges, to study spatial preferences, and also allows for extension and triangulation with other data such as strength of ties, interpersonal attributes of message contents.

In our own research, we will now proceed to examine differences in the content of the messages exchanged on the ESN we study, to overlay the spatial preference findings with potential differences in knowledge exchange to answer the question: do we talk about different things with distant actors?

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