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Conceptualising and Understanding User Behaviour in Enterprise Social Networks: A Qualitative Analysis

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Abstract

Along with the increasing number of companies introducing Enterprise Social Networks (ESN) in recent years, research on ESN user behaviour has proliferated. Yet, a detailed analysis of factors driving ESN user behaviour, that is, how users participate in ESN, is missing.
Addressing this gap, in this paper, we explore ESN user behaviour and factors influencing usage in an Australian professional services firm. Based on a case study including 14 interviews with regular users of the case company's ESN, we identify and characterise six general dimensions of ESN user behaviour. In addition, our analysis indicates ESN user behaviour to be influenced by a mix of individual factors and organisational factors.
The contributions of this paper include a conceptualisation of user behaviour as well as a set of factors shaping ESN usage. For the management of ESN communities, our findings are hoped to inform initiatives aiming at reinforcing user engagement over time.[1]

Keywords Enterprise 2.0, Social Software, User Behaviour, User Participation

[1] This paper is based on doctoral thesis of the first author (Hacker 2017).

1 Introduction

More and more organisations use Enterprise Social Networks (ESN) to support collaboration and knowledge sharing. Grounded in the principles and technologies of the Web 2.0, these internally used social networking platforms allow users to share updates, ask for help, and connect with others across the organisation (Richter and Riemer 2013). As ESN are used in a corporate context, how and with whom users interact, e.g., discussing a work-related problem with team members, is related to an individual's formal role and hierarchical position in the organisation (Behrendt et al. 2015; Riemer et al. 2015). Yet, prior research indicates ESN users to develop distinct behavioural patterns reflecting different types of ESN users, that is, ESN user roles (Hacker, Bodendorf, et al. 2017). For instance, some individuals may frequently share updates, while others rather respond to conversations (Hacker, Bernsmann, et al. 2017). Hence, even though employees may hold comparable formal positions, they are likely to participate in an ESN in different ways. Thus, besides a user's formal role, ESN user behaviour appears to be shaped by additional influencing factors.

Research in the field of ESN has dealt with users' participation behaviour and motivation to adopt and use an ESN (Viol and Hess 2016). Analysing digital records of user activity, previous studies on ESN *user behaviour* have identified use practices (Richter and Riemer 2013) and determined behavioural patterns (Hacker, Bernsmann, et al. 2017), for instance. While these studies offer insights into how ESN are used, the analysis of digital traces does not sufficiently capture the context of use and underlying use motives that might lead users to adopt certain behaviours. In this regard, studies investigating factors influencing ESN *adoption and usage* (e.g., Chin et al. 2015) tend to focus on factors determining *whether* users participate rather than *how* they participate. Thus, the implications of these studies usefully inform the development of ESN implementation strategies but are less suitable to foster ESN user engagement over time.

A detailed analysis of factors shaping how users contribute to ESN is missing in the current body of literature. Against this background, in this paper we explore ESN user behaviour and factors influencing user behaviour based on a literature review and a qualitative study. Specifically, we present findings derived from an in-depth case study including 14 semi-structured interviews with ESN users at a large Australian professional services firm. Our analysis indicates that ESN user behaviour can be characterised based on six (interrelated) behavioural dimensions. Furthermore, our study reveals organisational factors, e.g., aspects related to an individual's formal role, as well as individual factors, such as personality, to influence ESN user behaviour. Beyond identifying these influencing factors, we discuss their interplay and relative importance in leading individuals to adopt certain behaviours.

This research has theoretical and managerial implications. In terms of theory, our study provides insights into user behaviour, use practices, and use motives from the perspective of users regularly contributing to an ESN. As such, our findings help (re)interpret findings of studies employing ESN back end data as well as indicate why and how ESN user behaviour may change over time. Furthermore, we contribute to the literature on formal and informal networks and roles in organisations by discussing their linkages to user roles emerging on ESN. For practice, the factors influencing ESN user behaviour can be considered as parameters in the development of initiatives aiming at reinforcing long-term user engagement and community health.

The remainder of this paper is organised as follows: The following section presents background information on formal and informal roles in organisations and online communities as well as related work on ESN user behaviour and factors influencing usage. Section 3 provides details regarding the case company and outlines the steps of the qualitative study. Section 4 introduces the identified dimensions of ESN user behaviour and factors influencing usage. The final sections discuss the results of this study, outline contributions to research and practice, and offer directions for future research.

2 Background and Related Work

ESN user behaviour is suggested to vary across the members of a community, leading to the emergence of different user roles (Hacker, Bernsmann, et al. 2017; Hacker, Bodendorf, et al. 2017). Against this background, in this section, we review literature on roles in organisations and roles in online social spaces as well as studies analysing ESN user behaviour and factors influencing usage.

2.1 Formal and Informal Roles in Organisations and Online Communities

Within their day-to-day work, employees are involved in different organisational networks, which are based on formal or informal linkages. While formal relationships reflect the official hierarchy of an organisation, informal linkages are not prescribed by management and emerge as employees draw on

their personal relationships to work together (e.g., Krackhardt and Hanson 1993). Within such formal and informal organisational structures, employees assume particular social roles. Social roles are investigated in a number of different disciplines, among them sociology, social psychology, and management research (see Biddle (1986) for a comprehensive overview). In the context of this research, the differentiation between formal and informal roles (e.g., Golder and Donath 2004; Herrmann et al. 2004), which are embedded in the corresponding organisational structures, is important. In formal structures, the activities performed and behaviours shown by an individual are prescribed, that is, a result of the role assigned to him or her. A *software developer*, for instance, writes software programs as a part of their formal role, which is explicated in a job description (Herrmann et al. 2004). On the other hand, informal roles are dynamically shaping through repeated interaction in a certain (informal) context, which is the group of persons with whom someone interacts (Golder and Donath 2004). For instance, individuals may act as *givers* (Grant 2013) by sharing knowledge or offering assistance to others because they genuinely enjoy helping others.

Formal and informal roles apply to online communities also (e.g., Golder and Donath 2004). Even though formal roles are less common in online social spaces, *administrators* or *community managers* are roles with prescribed tasks and privileged access rights in such communities (e.g., Herrmann et al. 2004). Beyond those few formal roles, virtual communities provide a space for many different informal roles to emerge. As such, these roles can be conceptualised based on behavioural dimensions characterising how, to what extent, and what users contribute to a community as well as their location in the social structure of the community (Gleave et al. 2009). For instance, Füller et al. (2014) identify roles such as *socialisers*, *idea generators*, and *masters* by analysing user behaviour in an online innovation community.

2.2 ESN User Behaviour and Factors Influencing ESN Usage

Based on prior work, we define ESN as web-based intranet platforms that enable employees to send messages to specific co-workers or everyone in the organisation, to explicitly or implicitly connect with others, to contribute content as well as to view the content and connections of other users (Leonardi et al. 2013). Similar to their public counterparts, ESN integrate features such as profile pages, following, activity streams, search, group capabilities, discussion threads, and tagging (e.g., Le Clair et al. 2016).

ESN user behaviour can be characterised and identified by analysing *digital traces*, that is, records of user activity, stored in back end of ESN (Behrendt et al. 2014). As such, these records provide information about individual platform users (who?), the recipient of an activity (with whom?), the type (how?), time (when?), and place (where?) as well as the content (what?) of a communicative action (Behrendt et al. 2014). In prior research, ESN data has been analysed using both qualitative and quantitative methods. In this regard, Richter and Riemer (2013) perform qualitative content analyses of ESN messages in different case companies to derive ESN use practices, among them online brainstorming and work coordination. Quantitative analyses of ESN usage data and structural data, on the other hand, facilitate the recognition of informal networks (Behrendt et al. 2014) and the discovery of dimensions of ESN user behaviour, among them *social dispersion*, *focus*, and *information seeking* (Hacker, Bernsmann, et al. 2017), for instance.

Beyond ESN user behaviour, determinants of ESN adoption and usage are investigated in prior research (Viol and Hess 2016). In terms of *adoption*, studies explore factors influencing the decision or intention to use an ESN, that is, factors enabling or inhibiting ESN usage. For instance, Buettner (2015) analyses the impact of privacy concerns, perceived usefulness, and perceived ease of use on the intention to use an ESN. Based on findings of preceding studies on ESN adoption and a qualitative study, Chin et al. (2015) derive a comprehensive framework of factors enabling (+) or inhibiting (-) ESN usage. In this regard, Chin et al. (2015) suggest *technological* factors (e.g., ease of use (+), competing technologies (-)), *organisational* factors (e.g., top management commitment (+), lack of top management commitment (-)), *social* factors (e.g., critical mass (+), irrelevant information (-)), and *individual* factors (e.g., reputation (+), lack of time (-)) as drivers and barriers of ESN adoption. Furthermore, prior research has investigated factors influencing ESN usage, that is, *how* users contribute to ESN. For instance, Ortbach and Recker (2014) analyse the impact of different impression management tactics on ESN usage in terms of acquiring, socialising, and contributing knowledge. Furthermore, a study by Osch et al. (2016) reveals a diverse set of motivations, among them *personal reputation building* and *resource sharing*, underpinning the user behaviour of four user groups, namely *super-promoters*, *promoters*, *core-users*, and *peripheral users*. Besides individual motivations, prior work suggests an influence of formal hierarchies on employee participation in ESN. In particular, Behrendt et al. (2015) find that users tend to connect and interact with users in similar hierarchical

positions. As ESN communities mature, however, communication across hierarchical levels becomes more likely to occur (Behrendt et al. 2015; Riemer et al. 2015).

The analysis of related work reveals a number of studies analysing ESN digital traces to capture user behaviour. Also, a comprehensive set of drivers and barriers affecting the motivation to use an ESN is provided in prior research. While the findings of these studies illustrate how and why users decide to use an ESN, the users' context of use and their reasons to adopt certain behaviours are not yet fully understood. A profound understanding of the factors influencing user behaviour, however, is necessary to develop strategies aiming at reinforcing long-term user engagement.

3 Research Method

This study aims to provide a comprehensive understanding of ESN user behaviour and the factors shaping user behaviour. Potential strategies of enquiry to achieve this objective include quantitative analyses of digital records of user activity (e.g., Hacker, Bernsmann, et al. 2017), surveying ESN users using an online questionnaire (e.g., Buettner 2015) or conducting interviews (e.g., Chin et al. 2015). We decided for an interview-based study design since interviews are suitable for eliciting personal opinions and views (Creswell 2009, p. 181), which are necessary to understand users' participation behaviour as well as factors influencing the extent to which they show these behaviours. Specifically, an in-depth case study (Yin 2009 p. 46 ff.) including semi-structured interviews with ESN users at a large Australian professional services firm was conducted. The following sections provide information on the case organisation as well as details regarding the data collection and analysis.

3.1 Case and ESN Platform

This study is done in cooperation with the Australian partnership of Deloitte Touche Tohmatsu. Deloitte Australia (referred to as "Deloitte" hereafter) is a professional services firm providing audit, consulting, financial advisory, risk management, tax and related services to public and private clients. As of August 2017, Deloitte has 700 partners and more than 7,000 employees located in 14 offices across Australia as well as offices in Papua New Guinea and Timor-Leste (Deloitte Australia 2017). Deloitte has been using an ESN since 2008. The employed ESN platform is a browser-based application that offers a company-wide newsfeed, allows users to create a profile, features public and private groups, the sharing of updates and files, as well as communicating with others by commenting on their updates or the writing of private messages. Deloitte is committed to solving complex client problems and finding innovative solutions. The engagement of its staff in different innovative communication channels, among them the ESN, is considered an important means to achieve these goals.

3.2 Data Collection and Analysis

The case study involves semi-structured interviews with users of the case company's ESN. Accordingly, an interview guide (e.g., Mayer 2013, p. 43) including questions about individuals' perception of the ESN, contributing and consuming activities performed on the ESN by the interviewees themselves and other users as well as questions regarding the motivations underpinning these activities was created. The development of the interview guide was informed by previous studies investigating ESN user behaviour and factors influencing usage (see section 2). Next, a sample of interviewees was recruited primarily via a message posted to the case company's ESN by a contact person as well as by drawing on existing connections of the contact person and the authors. Interview participants were required to engage with the case company's ESN on a regular basis. Moreover, the sampling strategy (Merkens 2012, p. 290) aimed at achieving variation among the interviewees in terms of their position in the formal hierarchy and gender as well as business unit, office, and tenure. As shown in Table 1, the final sample includes 14 interviewees holding positions in six different hierarchical levels, among them eight males and six females. The interviewees belong to five different business units, most of them working in either *Consulting* or *Internal*. Their tenure at the time of the interviews ranges between four months and 19 years and they have been registered on the ESN for 3.5 years on average.

The 14 interviews, each of which lasted between 27 and 76 minutes, were conducted over a period of seven days in December 2015. Specifically, eleven face-to-face interviews were carried out at different offices of the case company in Australia. The remaining three interviews were done over the telephone. All interviews were recorded using a digital audio recorder and transcribed verbatim (e.g., Kuckartz 2014, p. 133 ff.). Using the software "MAXQDA" [2], the material was analysed combining elements of the approaches of thematic qualitative text analysis and evaluative qualitative text analysis (Kuckartz

[2] MAXQDA (http://www.maxqda.com/) is a software for qualitative content analysis.

2014). Thematic qualitative text analysis (Kuckartz 2014, p. 77 ff.) was performed to identify, systematise, and analyse topics and sub-topics as well as the relationships among them. To this end, main topical categories for coding the material reflecting general dimensions of ESN user behaviour (e.g., *ESN_usage_time*) were developed deductively along the topic areas of the interview guide. Having coded the material based on these categories, sub-categories (e.g., *time_spent* or *frequency*) were developed inductively within a second round of coding. For selected categories, that is behavioural dimensions, evaluative text analysis (Kuckartz 2014, p. 123 ff.) was done to further characterise a category. This includes the definition of levels which facilitate assessing the extents to which users show different behaviours, e.g., whether they log on the ESN *daily, several_times_a_week*, or *once_a_week,* as well as recognising different types of behaviour related to a dimension.

Interviewee	Gender	Year of joining Deloitte	Year of joining ESN	Position	Business unit	Office
I1	male	2008	2009	Partner	Consulting	Adelaide
I2	female	2014	2014	Analyst	Consulting	Sydney
I3	male	2013	2013	Senior manager	Internal	Sydney
I4	male	2015	2015	Director	Audit	Melbourne
I5	male	2011	2011	Manager	Financial Advisory	Brisbane
I6	male	2011	2011	Partner	Consulting	Melbourne
I7	male	2014	2014	Analyst	Consulting	Sydney
I8	female	2008	2009	Senior analyst	Consulting	Melbourne
I9	male	2011	2011	Senior analyst	Tax	Melbourne
I10	female	2012	2012	Senior manager	Internal	Sydney
I11	female	2013	2013	Analyst	Internal	Sydney
I12	male	2011	2011	Senior analyst	Consulting	Perth
I13	female	1996	2009	Partner	Consulting	Sydney
I14	female	1996	2009	Manager	Internal	Adelaide

Table 1. Overview of interviewees

4 Findings

This section presents findings regarding the discovered behavioural dimensions and the factors influencing user behaviour. While the interviews included questions regarding both contributing and consuming behaviours, in the limited scope of this paper, our analysis focuses on contributing behaviours.

4.1 How can ESN User Behaviour be Characterised?

Along the main categories of the data analysis, this section introduces dimensions of ESN user behaviour. Each dimension is described and characterised by comparing the behaviours of the interview participants. Thus, different levels and types of user behaviour are identified for each dimension.

Frequency of use (How often and for how long do users use the ESN?): While all interview participants can be considered as regular users of the ESN, frequency of logging on the platform and (daily) time spent on the platform vary across the interviewees. Specifically, eleven out of 14 interviewees report logging on *daily*. On the other hand, I13 is the least frequent user with *one log in per week* only. Time spent on the platform per day ranges between five minutes (e.g., I2, I4) and 30 minutes (e.g., I7, I11). Based on the reported frequencies of logging on, most interviewees are concluded to be *daily readers*. Yet, they may not contribute to the ESN daily (e.g., I1, I3, I11).

Contributing content to the ESN (How and what do users contribute?): Interviewees contribute to the ESN by initiating conversation threads (*proactive*) and replying to existing threads (*reactive*). Proactive contributions include the sharing of information, keeping others up-to-date, seeking opinions and feedback as well as asking for help by posting a status update. As for reactive behaviours, the interviewees comment on messages to express an opinion, participate in a discussion, and respond to requests for help (e.g., I1, I5): "*So I'll keep an eye on questions that people ask, especially if they're related to things I'm interested in […], I'll try to give a useful answer or link to something that might help.*" (I6). Furthermore, interviewees both initiate new conversations and contribute to existing ones

while engaging in informal conversations related to personal interests (e.g., I1, I4) or fun topics (e.g., I1, I9, I13), networking (e.g., I5, I6, I7, I12), and praising other users (I1, I8, I10, I14).

Receiving feedback on the ESN (How do others respond to and connect with users?): Besides contributing to the ESN themselves, the interviewees receive reactions and requests or updates from others. In terms of (*self-induced*) feedback on one's posted content, other users may "like" or reply to a message, such as express an opinion on an idea or provide help. As per I8, the amount of received feedback depends on the content of a message, where it is posted as well as on the author's visibility (see section 4.2). Specifically, "for your information"-messages receive no or fewer replies than posts with controversial content (I8). Furthermore, users *receive requests and updates without a preceding action*, e.g., a posted message, on their part. In this regard, users are tagged in messages by others to ask them for help or input regarding specific topics (I3, I7, I8, I12), to alert them that they might be able to contribute as well as to keep them up-to-date about certain topics (I2, I9) or make them aware of information that might be interesting for them (I6, I11, I13).

Topical focus (What do users talk about?): The interview participants differ in terms of the variety of topics they deal with on the ESN. In this regard, some interviewees contribute and consume content on *specific topics*, mostly related to their professional role: "*I'm using it less in just commenting on general things that are going on. [...] So less engagement around general terms and more specifically focused on areas which I can contribute to and/or benefit from.*" (I5). Others more *broadly* participate in the platform, for instance, by engaging in topics not directly related to their (current) technical work (e.g., I9) or related to their personal interests (cf. informal talk).

Conversation spaces (Where do users contribute?): The case company's ESN provides a main message stream and a group feature. On the one hand, the main message stream is used to post content potentially relevant *to everyone* in the organisation. On the other hand, groups facilitate conversations around *specific topics* of professional or personal interest as well as conversations relevant to *specific audiences*, e.g., to coordinate project work or teams. Furthermore, private groups allow for exchanging confidential information (for instance, regarding clients), but may also be used as a space for friends to communicate (e.g., I8).
Reflecting different topics and purposes of use, the extent to which the interviewees contribute to different communication spaces appears correlated with the *topical focus* of their posting activities (see above). In this regard, I1, I4, I5, I6, I7, and I12 actively participate in *both* the main message stream and in groups, thus engaging in general discussions as well as in conversations on specific topics, such as project work. Others are more active within groups or show different behaviours in groups as compared to the main message stream: "*I actually don't do much in terms of all company-related communications, but I do do a lot of within my key areas [...]. In my internal groups [...], I'm probably more of a driver. A lot of my posts are more about inciting conversation about certain things.*" (I3). Representing the most focused user, I10 almost *only contributes to groups* related to her area and professional role while much less frequently posting to the main message stream.

Network of contacts (With whom do users interact?): The interviewees' networks of contacts on the ESN differ in terms of *diversity*. Users engaging in many different topics (see above) tend to have numerous and diverse communication partners (e.g., I1, I4, I5, I6, I7, I9, I12). As such, diversity is reflected in engagement across business units (e.g., I11), hierarchical levels (e.g., I6), and locations: *"[...] there's a partner [...], who is in another office. [...] you probably couldn't pick a more further removed person from me, yet we interact and we share information all the time on [the ESN].*" (I12). Others (e.g., I3, I8) interact mainly within their own team, while still maintaining relationships with people outside their day-to-day network: "*Typically, the majority of my tagging and replying and comments and things like that is usually within my professional sort of working area. [...] I am connected with quite a few people outside of my group though.*" (I3). Communicating mainly within their immediate teams, the remaining interviewees (I2, I10, I13) are connected to users similar in terms of business unit, location, and possibly level of hierarchy. Thus, their connections on the ESN can be attributed to their formal role in the organisation mainly.

4.2 Which Factors Influence ESN User Behaviour?

Besides insights as to how the interviewees participate in the ESN, the interviews shed light on factors influencing ESN usage *(why* users engage in certain activities). In this regard, *individual* factors relating to personal attributes of a user as well as *organisational* factors can be distinguished. [3]

[3] While factors related to the usability of the ESN platform were suggested to influence user behaviour, a detailed analysis of these factors is out of the scope of this paper.

Individual factors influencing usage (personality, attitude, purpose of use): About half of the interviewees (e.g., I2, I3, I4, I10) suggest *personality* to influence whether and how someone participates in the ESN: "*It seems to be just the type of person. […] some people are just really comfortable in that sort of communication as a platform. Whereas others are […] just not on it. It's interesting and I don't think it actually changes much over time.*" (I3). In particular, employees who lack confidence seem to engage less on the ESN*: "I am very shy in a group […] [and] the larger the group the worse I get […]. So, for me [the ESN] is just like that. [In] smaller groups [I am] more likely to "like" something […]. [And] much more likely to copy somebody in, who should be in this conversation."* (I2). In terms of *attitude*, employees with a negative (I6, I7) or sceptical (I3) attitude towards social media in general or the ESN in particular are suggested to rarely use or refuse to use the platform. In addition, the *purpose of use* and underlying strategy have an impact on how people participate in the platform. Users who explicitly use the platform to develop their personal brand within the organisation (I5, I6, I7) tend to contribute frequently and connect strategically to make themselves known: "*So just by virtue of being active in particular groups and just talking to specific people regularly I established myself as someone knowledgeable about particular areas."* (I4). In this regard, a statement by I10 indicates disapproval of using the ESN for promoting oneself: *"[…] you are encouraged to go and profile yourself, make noise [..], that's a part of what you have to do, […] to me that's quite embarrassing and I'm a humble person. […] I think my performance or my delivery is what ultimately builds […] my credibility. I don't feel like I should campaign […]"* (I10). Thus, such incompatibilities between organisational and personal values may discourage users to participate in the ESN. Furthermore, connecting with others to perform one's day-to-day work as well as to help others is a purpose of use: "*[…] it's quite important to establish and maintain an internal network […]. So, I do like to try […] be the broker of relationships, both offline and online. […] And if someone's got a challenge they're trying to address, […], and I know about someone else within Deloitte that's looked at that for themselves, […] I introduce them to that person.*" (I12). Conversely, others solely use the ESN to collaborate and share information within their teams (e.g., I2, I10).

Organisational factors influencing usage (general factors, formal role): General factors affecting company-wide usage of the ESN relate to *campaigns and events* as well as *senior management support*. As such, *campaigns or events* promoted on the ESN, e.g., a T-shirt design contest (I6), cause peaks in the general level of activity by inducing generally less active users to contribute, for instance, by uploading a photo or posting a comment (e.g., I1, I2). Furthermore, *senior management engagement and support* influence activity: "*[…] getting our executives keenly active [on the ESN] is, I think, really important to the overall health of our network. […] two years ago, with our previous CEO, if our CEO was really active on [on the ESN], we would see the activity [on the ESN] correlate very strongly.*" (I1). While campaigns lead to increased levels of engagement for a short time only, senior management support appears crucial in terms of building continuous engagement (e.g., I5, I1).

Moreover, aspects related to an individual's *formal role* and employment in the company influence whether and how someone participates in the ESN. In terms of *tenure*, shorter-tenured employees seem to be less likely to create posts on the platform (I8). Moreover, the *general level of adoption of the ESN* within one's business unit as well as *how project work is organised* within one's team impact usage. A statement by I2, who had recently joined a new team, illustrates this fact: *"[…] with this team I'm […] using [the ESN] a lot more. [Before], I wasn't using it a lot for projects […] Here it's just sharing what we're doing, sharing what we learn […].*" (I2). Also, aspects related to one's *current tasks and embeddedness* in the organisation influence usage. For instance, the size and diversity of the network of contacts resulting from one's formal role to some extent prescribes an individual's level of connectedness on the ESN (I1). Furthermore, an individual's *workload* influences platform engagement. Specifically, stress and time constraints reduce the frequency of usage and likelihood to contribute content: "*[…] the other thing which really affects my activity is the amount of travel that I do. […] [currently, the ESN] doesn't get a lot of use, I'm using it more to catch up.*" (I1). Finally, the *attitude and participation levels of line managers* influence individuals' ESN usage. As such, superiors can drive engagement by using and actively promoting the ESN: "*[in this role] I have someone like [the team leader] who is our support. Who encourages the use of [the ESN]. It allows us to have the confidence to post."* (I8). On the other hand, management may also discourage engagement: "*[…] when people look to their particular role models or their hierarchical levels, [and] they're not using it, then [they] don't see it's an important platform.*" (I3).

Regarding the relative importance of and interplay between individual and organisational factors in influencing ESN usage, very active users are indicated to be less influenced by factors related to their formal role, as suggested by I8: "*I don't think [my co-worker] does it as part of his role. So, what [my co-worker] does in his day-to-day job compared to what he does in [the ESN] is two separate things. And we find that a lot with our constant users of [the ESN] as well.*" (I8).

Besides factors influencing how a user contributes and interacts with others, a user's *visibility and reputation* impact the amount of received feedback (see above), for instance the number of received replies or likes: *"[...] if our CEO posts, regardless of how she usually is on [the ESN], she's our CEO. So, she posts, she'll get a good deal of feedback."* (I1). Visibility and reputation may be rooted in both an individual's formal role (e.g., occupying a hierarchically high position) or a particular informal role on or off the ESN (e.g., being a renowned expert on a certain topic).

5 Discussion

In this section, we reflect on and discuss the relationships among the behavioural dimensions as well as the interplay of the factors influencing user behaviour. As such, the analysis suggests the frequency of use as well as the focus of a user's contributions as overarching behavioural dimensions. Ranging between using the platform *once a week* and using it *several times on a single day*, frequency captures the regularity of contributing and contribution volume. On the other hand, topical focus, which ranges between *narrow* (engaging in a few topics, mostly related to one's professional role) and *broad* (engaging in a variety of different topics) is reflected in the conversation spaces a user contributes to (focus on *groups* and / or *main message stream*), which in turn are related to a user's network of contacts on the ESN. As such, users may exhibit relationships mainly within their team (*bounded*) or across the organisation (*boundary-spanning*). Even though causal relationships cannot be inferred based on our analysis, our findings suggest that the more topics users deal with, the more conversation spaces they are likely to contribute to, and the more diverse their network of relationships is likely to be. Beyond these overarching dimensions, user behaviour can be characterised in terms of how users contribute to and receive feedback on the ESN. Based on these findings, Figure 1 illustrates and systematises the six dimensions of ESN user behaviour. While all interview participants can be considered regular users, their behaviour on the ESN varies across the behavioural dimensions. Accordingly, each dimension can be thought of as a continuum with opposite ends indicating different levels and types of user behaviour (Figure 1). In line with prior work focusing on public online social spaces (e.g., Gleave et al. 2009) and ESN (Hacker, Bernsmann, et al. 2017; Hacker, Bodendorf, et al. 2017), users seem to develop behavioural patterns which reflect emergent ESN user roles.

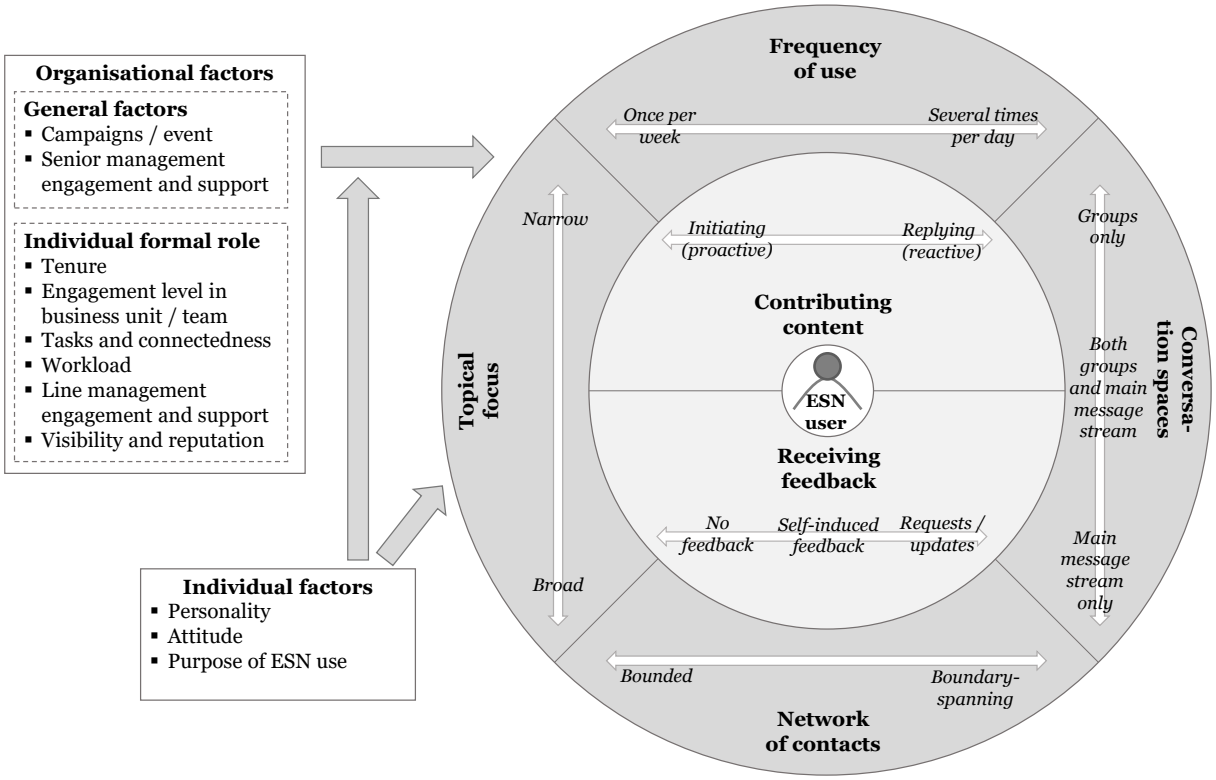

Figure 1: Dimensions of ESN user behaviour and influencing factors

ESN user behaviour, and hence the ESN user role assumed by an individual, is influenced by several *organisational* and *individual* factors (Figure 1). In terms of organisational factors, our analysis indicates aspects suggested to influence ESN adoption (section 2.2), among them top management support, (lack of) time, and collaborative norms (Chin et al. 2015), to drive participation also. Categorised

as *general factors* (Figure 1), initiatives and management engagement at the company-wide level appear to incite engagement of especially users who do not usually contribute to the ESN, that is *non-contributors* or *rare contributors*, rather than users who contribute regularly.
While the frequency and extent of platform engagement varies across *regular contributors*, our analysis indicates their behaviour to be strongly influenced by both characteristics related to their formal role as well as individual attributes. In terms of an *individual's formal role*, engagement on the ESN may be enabled or inhibited by different aspects. As for enablement, individuals may be required to use an ESN to a certain degree, for instance to post meeting minutes. If such top-down influences exist, employees can be expected to engage on the ESN within the scope and responsibilities of their formal role. Besides such top-down aspects, bottom-up influences, such as emergent (informal) communication norms in a team, as well as variations in an individual's workload may impact platform engagement. Thus, these factors to some extent prescribe ESN usage and may cause individuals to move between roles such as *occasional contributor* and *regular contributor*. Alternatively, individuals may not be formally required to use an ESN or management may discourage platform engagement. If so, a low perceived value and lack of integration within one's day-to-day work likely results in very low usage levels or *non-use* of the platform. All factors related to one's formal role may cause ESN user behaviour to change over time, for instance, when an employee moves to another formal role in the organisation or starts a new project.
Moreover, *individual factors* directly influence ESN user behaviour as well as moderate the relationship between organisational factors and ESN user behaviour (Figure 1. In this regard, employees who are not formally required to use the platform may still do so, for instance due to enjoying interacting with people beyond their direct team. The extent to which this is rooted in a personal branding strategy, altruism or a mix of both likely varies across individuals. In additional, individual factors moderate the relationship between organisational factors and ESN user behaviour. For instance, individuals who dislike the ESN may put minimum effort in posting updates on the platform or answer with a certain delay even if they are formally required to use it. On the other hand, a positive attitude towards the platform likely results in users contributing significantly more than they have to. As such, *frequent contributors* are indicated to be less influenced by factors related to their formal role as compared to individual factors. Finally, in terms of received feedback, a user's visibility on and off the ESN can be identified as an important influencing factor.

In conclusion, it seems that ESN provide alternative platforms besides existing offline or technology-mediated channels to assume social roles, e.g. to act as a *giver* (Grant 2013) or *information broker* (e.g., Cross and Prusak 2002). As individual factors, among them personality traits, to some extent shape an individual's informal role in the organisation, they likewise drive participation in the ESN community. Also, in contrast to previous studies focusing on the influence of formal hierarchy on ESN engagement (Behrendt et al. 2015), our case indicates users connect with others based on their tasks and personal preferences rather than a (perceived) pressure to adhere to official channels.

6 Conclusion

In this paper, we have explored ESN user behaviour and factors influencing user behaviour in a large Australian professional services firm. To this end, we conducted a qualitative in-depth case study including 14 semi-structured interviews with regular users of the case company's ESN. Our analysis suggests six general dimensions of ESN user behaviour, each of which can be considered as a continuum reflecting opposite ends of ESN user behaviour. By analysing tendencies of individual users towards the one end or the other, ESN user behaviour can be discriminated, identified, and compared. In addition, we have explored the role of individual factors and organisational factors and their interplay in influencing ESN user behaviour.

Our study has contributions for theory and practice. In terms of *theoretical* contributions, this paper adds to research on user behaviour, use practices, and use motives in ESN. Drawing on qualitative interviews with ESN users, our study facilitates insights into how users reflect on their own behaviours, compare themselves with others, their context and purposes of use, and motives to engage in particular activities. Specifically, our study reveals factors influencing *how* users participate in ESN rather than *whether* they participate. As such, our results help (re)interpret findings of studies employing ESN back end data and inform the validation and development of metrics quantifying ESN user behaviour (e.g., Hacker, Bodendorf, et al. 2017). Furthermore, this study contributes to research on formal and informal roles in organisations. While prior research makes a rather sharp distinction between (offline) formal and informal networks as well as formal and informal roles (e.g., Cross and Prusak 2002), this study indicates ESN user behaviour, and hence emergent ESN user roles, to be shaped by both types of structures. As formal, informal, and individual aspects are to some extent

reflected in individuals' ESN use, ESN may contribute to a blurring of formal and informal networks and roles in organisations (Riemer et al. 2015). The *managerial* implications of this study relate to the management of ESN communities. In this regard, the identified influencing factors can be considered as parameters in efforts to reinforce (long-term) user engagement. As individual factors, among them personality traits, are not likely to change over time and are difficult to influence, organisations need to place even more emphasis on integrating ESN efficiently into daily work practices and collaborative processes. Furthermore, our findings raise awareness for the fact that users do not necessarily approve of others' motives for using a platform, among them using the platform for personal branding rather than for genuine knowledge sharing. In fact, the dominance of some heavy users might demotivate, intimidate, or raise the resentment of others, for example users who are less extrovert. While prior research suggests lower self-esteem users to gain more from using a (public) online social network site (Steinfield et al. 2008), this might not be the case in a corporate setting. Hence, just like a team leader who needs to deal with and balance out different characters in a team, ESN community management needs to derive suitable communication norms and incentives to support knowledge sharing and to establish a balanced and healthy ESN community (Osch et al. 2016).

Our findings are subject to a number of limitations which offer opportunities for future work on this topic. Within the limited scope of this paper, our literature review disregards findings of related studies investigating user behaviour and factors influencing usage in public online social spaces. As a next step, we will consider the theories employed in these studies and the obtained findings to refine and extend our framework of influencing factors. Moreover, this study has limitations concerning the data collection and analysis. In this regard, the recruitment of most interviewees via the ESN may lead to a selection bias in that the interview participants likely represent the more active users of the ESN. Also, men are slightly over-represented and the sample does to not include participants in hierarchical positions below the *Analyst* level. Finally, the presented findings are based on one case only. To contribute to more generalised and comprehensive findings, we plan to conduct further case studies in other organisations, thus facilitating cross-case analyses. Also, in our future work on this topic we will derive a typology of ESN users and theorise about the relative importance of different influencing factors in shaping these roles. Such a typology can serve as a framework for quantitative studies based on ESN digital traces, which facilitate more detailed insights regarding specific aspects of user behaviour, such as factors influencing the length of posts, than qualitative approaches. Beyond ESN usage of contributing users, future research should explore use motives and the behaviour of non-contributing users.

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