MEASURING BOUNDARY SPANNING SUCCESS IN ENTERPRISE SOCIAL MEDIA

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ABSTRACT

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The study aims to explore empirical proxies of boundary spanning success by developing measurement for hierarchical alignment, goal alignment, and time lag for three boundary spanning activities occurring in enterprise social media. The study employs Generalized Linear Models (GLMs) and Linear Models (LMs) to test the effect of distinct boundary- spanning types and tie strength on each of the success measures. The findings show that strongly tied individuals who engage in information search activity can achieve boundary spanning success, as it is much easier for them to get the response in a short time compared to more weakly tied individuals. Trust as measured by symmetric (strong) tie thus can achieve boundary spanning success. Implications for theory and practice are also discussed.

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KEY TO SYMBOLS

ESM……Enterprise Social Media

CHAPTER I INTRODUCTION

The study aims to investigate how trust and distinct boundary spanning activities influence boundary spanning success in Enterprise Social Media (hereafter as ESM). Such success refers to the targeted audiences reached, the effectiveness, and the efficiency for boundary spanning activity enacted by a poster and reciprocated by a responder. The study tests hierarchical alignment, goal alignment, and time lag as the proxies of boundary spanning success. Moreover, the study looks at tie strength—a network metric—as a proxy of trust. Accordingly, the study would like to explore how tie strength and the type of boundary spanning activity influence hierarchical alignment, goal alignment, and time lag to measure the boundary spanning success.

Groups of ESM serve as open innovation communities. Such communities highly depend on social capital built by trust as the communities—similar to communities of practice—exist independent of formal organizational norms and structures despite ESM being a corporate tool. Additionally, cooperation and coordination between individuals and groups inside the organizations at different levels and ways (Jones and George, 1998; Noteboom and Six, 2003; Stephenson, 2005). The various collaborative and coordination activities between distinct groups inside ESM could be described as intra-organizational or team boundary spanning (van Osch, Steinfield and Zhao, 2015). Studies on ESM suggested that such information communication technologies encourage boundary spanning through their affordances by rendering the interactions between individuals as well as the information and content shared more visible (Steinfield et al., 2009; van Osch and Steinfield, 2015a). Team boundary spanning refers to an activity that encourages effective organizational collaboration through maintaining and developing the relationship with external linkages beyond the team boundary (Ancona, 1990; Ancona and Caldwell, 1992, Tushman, 1977). Additionally, boundary spanners serve as

"guardians who redirect crucial information" from the external linkages (Tushman and Scanlon, 1981; Fleming and Waguespack, 2007, p.166).

As above mentioned, trust is an important antecedence to effective collaboration and coordination. Gulati (1994) has proposed tie strength as a proxy for trust. At the dyadic level, tie strength—broadly defined as the distinction between strong versus weak ties—refers to the frequency of interaction for a relationship between a knowledge seeker and source (Granovetter, 1973; Hansen, 1999). ESM helps create opportunities for new social capital developed by enabling repeated social interactions, even between distinct member inside the organization, and thus may contribute to the development of strong ties which in turn is likely to increase individuals' willingness to contribute to ongoing boundary-spanning activities on the system through enabling access to expertise and resources (Steinfield et al., 2009). Accordingly, trust—as measured through tie strength based on the frequency of interaction between a poster and responder—may influence the likelihood and promptness of the boundary spanning interaction.

Team boundary spanning, i.e., the management of external linkages and interactions in co-located and virtual teams of ESM, aims to procure resources such as "monetary, informational, or social—as well as coordination and reputational benefits" (van Osch & Steinfield, 2015). Additionally, such team boundary spanning distinguishes such group-level activities, namely representation, coordination, and information search (Ancona and Caldwell, 1992). Of the boundary spanning activities, representation activities in ESM refer to group members' strategic actions for impression management, which aims to draw seniors amangers' attention. In other words, the targeted audiences for representation boundary-spanning activities are the members with more influence and power in the groups or organization (Ancona and Caldwell, 1992; van Osch, Steinfield, & Balogh, 2015). Accordingly, the posters tend to content

aimed to reach the high-level targeted audiences in an attempt to gain support, legitimization or access to important monetary team resources. Hence, part of the success of representational activities should be determined by the extent to which the posting is read and reciprocated by users that display a higher hierarchical level than the original poster. In other words, the hierarchical alignment in the interaction between a poster and responder

In addition, to the important of the hierarchical level of the responder, the extent to which the strategic goal of the original boundary spanning activity (i.e., posting) is reciprocated by a response of the same nature is another measurement of success, which refers to goal alignment. Such goal alignment serves as a predictor of effectiveness for boundary spanning success. In the case of representational activities, the attempts by the poster to lobby up the corporate hierarchy need to yield responses by senior managers that indicate legitimization or the commitment of additional resources in order to be considered effective and thus successful. Given the open and distributed nature of ESM, questions asked by posters and subsequent responders' answers constitute an information exchange between a large amounts of distributed individuals (Kearsley 1976; Ram 1991; Wasko and Faraj 2005). Beyond the importance of theses metrics, this study further explores how trust measured by individuals' tie strength in dyadic relationships influences the hierarchical and goal alignment of postings for each of three boundary spanning activities—representation, information search, and coordination—respectively.

For the second boundary-spanning activity, referred as information search, van Osch and Steinfield (2015) proposed in their study of the interaction between the posters' hierarchical positions and post type that general group members tend to engage in information search activities whereas the higher level leaders or managers are more likely to create representational postings. Additionally, information search and coordination boundary spanning activities in ESM

aim to gain access to relevant information or knowledge and engage in task coordination (Ancona and Caldwell, 1992). These two horizontal boundaries spanning activities—as opposed to representational activities—require hierarchical alignment, as general members in the same level of hierarchical positions would be more likely to engage in the activities mentioned above rather than senior managers. Such hierarchical alignment refers to the alignment for the hierarchical position between poster and responder. However, hierarchical alignment is not important for representation boundary spanning activities while the information search and coordination boundary spanning activities require higher hierarchical alignment. The study thus would like to explore how the type of boundary spanning activity influences hierarchical and goal alignment respectively in ESM in terms of their engagement in the representation, information search, and coordination boundary spanning activities.

In addition to the targeted audience reached (i.e. hierarchical alignment) and effectiveness (i.e., goal alignment) for boundary spanning success, time lag is crucial as well. Time lag refers to the time between the creation of the original response and the comment by a responder to the original posting. Although hierarchical and goal alignment are proxies of the effectiveness, time lag could be viewed as a proxy for the efficiency of boundary spanning activity. Subsequently, the efficiency of response may be more critical depending on the urgency of the original posting though overall effectiveness is more likely to be important for boundary spanning success. Existing literature shows that strong ties result in faster information exchange due to the existence of a common ground characterized by a shared language (Chiu et al., 2006) and mutual relationship heuristics (Uzzi, 1997). Accordingly, individuals could get quick response from the strong ties they connect with. Therefore, the study wants to investigate how tie strength influences time lag as one of predictors for boundary spanning success. The study

leverages individuals' tie strength of dyadic relationships with others as a proxy for trust to measure the boundary spanning success through hierarchical and goal alignment, and time lag in the postings in terms of three distinct types of boundary spanning activities.

CHAPTER II LITERATURE REVIEW AND HYPOTHESES

The study examines boundary-spanning success in ESM, measured through the hierarchical alignment, goal alignment, and time lag, based on a series of network predictors. The network predictors are the type of boundary spanning activity and tie strength (See the Table 1).

Boundary Spanning Type and Hierarchical Alignment

Information search and coordination boundary spanning activities in ESM aim to gain access to relevant information or knowledge and engage in task coordination (Ancona and Caldwell, 1992). These two horizontal boundaries spanning activities require hierarchical alignment, as general members in the same level of hierarchical positions would be more likely to engage in the activities mentioned above rather than senior managers. Such hierarchical alignment refers to the alignment of the hierarchical position between poster and responder. However, hierarchical alignment is not important for representation boundary spanning activities. Representation activities in ESM refer to group members' strategic actions for impression management, which aims to draw the attention of those higher up the corporate ladder. Although, an acknowledgement by peers may be a intrinsic reward for the person engaging in a representational activity, it could never satisfy the goal of representation boundary spanning activities that aim for the legitimization or monetary support. So the poster expects the response given by someone who is at least one level higher. Therefore, this leads to the following hypotheses:

H1: A poster's type of boundary spanning activities in ESM influences the alignment for hierarchical position between a poster and responder.

H1a: A poster's representational boundary spanning activity in ESM negatively influences the alignment for hierarchical position between a poster and responder.

H1b: A poster's coordination boundary spanning activities in ESM positively influences the alignment for hierarchical position between a poster and responder.

H1c: A poster's information search boundary spanning activities in ESM positively influences the alignment for hierarchical position between a poster and responder.

Boundary Spanning Type and Goal Alignment

Van Osch and Steinfield (2015) investigate the interactions between the hierarchical positions of posters and boundary spanning activities that they engage in ESM by looking at the post type. The finding revealed that original post and the response had distinct objectives; for instance, an information search posting is met with acknowledgement or legitimization rather than an answer to the original question. Accordingly, this study will look at the goal alignment of postings provided between the parent posting and child response across the entire ESM in terms of their original objective defined by representation, information search, or coordination. For example, a poster publishes a post looking for a coordination opportunity but he or she gets a response in which the responder tries to brag about his or her achievements. Such representational response would show a lack of alignment with the original poster's goal understanding the effectiveness of the boundary-spanning activity in terms of goal alignment.

On the other hand, if a poster publishes a posting looking for a representation or promotion opportunity, he or she receives a response from the responder who does not respond to his or her achievement and rather randomly gives an irrelevant information instead, in which two parties does not attain goal alignment. Specifically, when posters "tailer" or "frame" their words in the postings to represent themselves, they tend to use ambiguous meaning of words to

cover their aims. For instance, they would not use “achieve” but rather “share”. However, such strategy of equivocality does not lead to the desired outcome, as the equivocality suggests an implication for an attempt to deceive in nature. In other words, equivocality would result in the conflict between an aim and a outcome. Unlike the words used in the information or coordination boundary spanning activities, the meaning of words is much more obvious and easy for a responder to interpret. Under high equivocality, the two parties would extensively exchange information to clarify the ambiguities till everything reaches the agreement (Daft and Lengel, 1986). Therefore, this leads to the following hypothesis:

H2: A poster’s type of boundary spanning activities that an individual engages in ESM influences whether or not the type of boundary spanning activity in which a poster or responder engages is identical.

Tie Strength and Goal Alignment

If the goal of responder in the child posting matches the one of poster in the parent posting, the goal alignment between these two individuals would be achieved. In other words, such goal alignment implies the quality of response is positive. On the contrary, if the goals of a poster and responder do not match, the quality of response is negative in terms of achievement of his or her boundary spanning goal. From the perspective of Blau’s social exchange theory (1964), individuals are motivated to gain more expected benefits than exert efforts by contributing in the social interaction in ESM, such as information or knowledge sharing. In dyadic level, tie strength, strong versus weak tie, refers to the frequency of interaction for a relationship between a knowledge seeker and source (Granovetter, 1973; Hansen, 1999). Individuals are more likely to gain trust that can safeguard against uncertainty with their strongly tied others (Krackhardt, 1992). Individuals thus are more willing to engage in effective as well as efficient

communication with strongly tied others due to the obligation of reciprocity (Hung, Chen, and Lin, 2009), which is crucial for coordination boundary spanning activities. Therefore, this leads to the following hypotheses:

H3: The tie strength between a poster and responder in ESM influences whether or not the type of boundary spanning activity in which a poster or responder engages is identical.

H3a: Strong tie strength between a poster and responder in ESM positively influences whether or not the type of boundary spanning activity in which a poster or responder engages is identical for the coordination boundary spanning activities.

On the other hand, individuals are more likely to gain access to the sources of novel information with their weakly tied others (Granovetter, 1973), which is beneficial for engaging in information search boundary spanning activities. Therefore, this leads to the following hypothesis:

H3b: Weak tie between a poster and responder in ESM positively influences whether or not the type of boundary spanning activity in which a poster or responder engages is identical for information search boundary spanning activities.

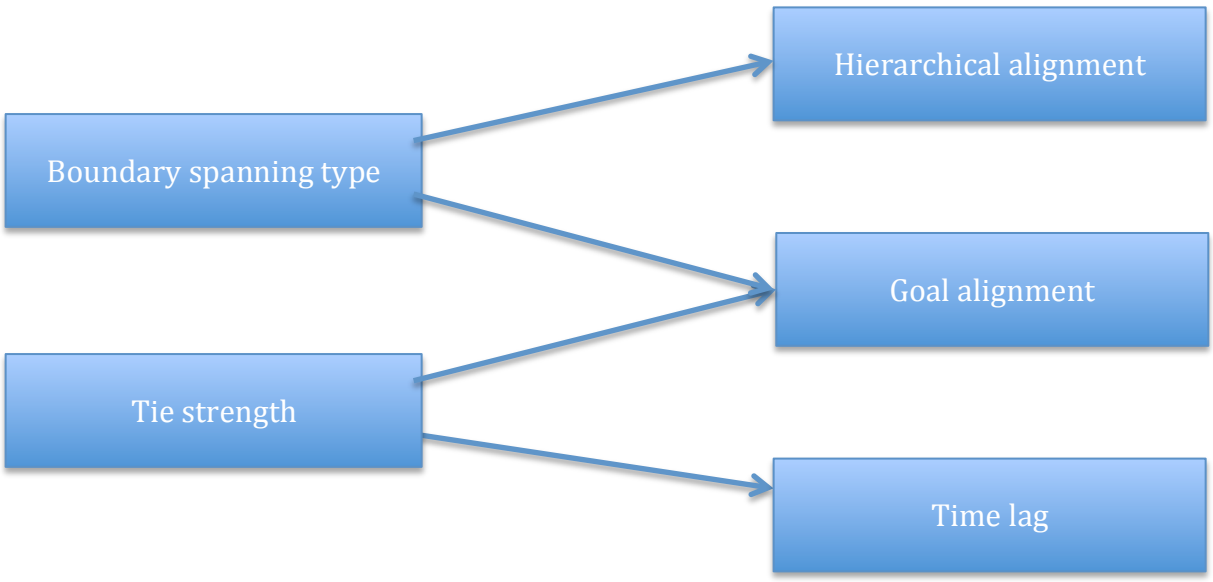
Tie Strength and Time Lag

Granovetter (1973) proposes that weak ties are the ideal resources for obtaining novel information. However, when it comes to the efficiency of information seeking via the questions posted on ESM, as measured through the time lag between post and response, is crucial for information exchange as well, in addition to the effectiveness of boundary spanning as measure through goal alignment. Specifically, the literature shows that strong relationship are more likely to result in faster responses due to the existence of a common ground characterized by a shared language (Chiu et al., 2006), which would facilitate faster information exchange. Additionally,

strong emotionally tied dyads are more motivated to help each other because of the relationship heuristics (Uzzi, 1997), which leads to trust. Accordingly, the study would like to explore the interaction between tie strength and response speed of answer as time lag. So this leads to the following hypothesis:

H4: Tie strength between a post and responder in ESM positively influences time lag, the duration of time when a responder to post the comment for a poster

Figure 1 The Network Predictors of Boundary Spanning Success



CHAPTER III RESEARCH DESIGN

The study leverages individuals' tie strength of dyadic relationships with others as a proxy for trust to measure boundary spanning success via the network predictors, hierarchical alignment, goal alignment, and time lag in terms of three distinct types of boundary spanning activities. The case, data collection, operationalization, and data analysis are discussed in the following sections.

Case Organization

This research is conducted in a worldwide provider (hereafter referred to as The Company) of technological products, furnishings, and research and consulting services to workplace offices. The Company has over 11,000 employees around the world. Its headquarters is located in the US with offices and divisions in nearly 40 countries including Americas, Europe, Asia, Africa, Oceania, and the Middle East. The Company launched an enterprise social media system (hereafter: the System) built based on the Jive platform in March, 2012. Jive is one of the providers of corporate social technologies for supporting employees' communication and collaboration activities as well as their business connections by providing a built-in platform with the functionalities for group chat, blogging, and social bookmarking. The adoption of the System has grown rapidly due to strong involvement by the executives of company. The usage of System is voluntary and the groups of System serve as open forums in which there are no explicit written policies or hard guidelines. Although the System is not normally treated as a project management tool since the Company has an official project management tool in place, it has been used as the platform for informal communication and social interactions within and between the groups of employees, which is beneficial for the early stages of collaboration as well as the awareness of the organization for distributed collaboration. Moreover, the shared content

enables individuals to engage in inter-unit and inter-group connections by blog postings (referred as a posting).

Data Collection

The study examines the success of boundary spanning activities, measured through the hierarchical alignment, goal alignment, and time lag as explained in the theory section, based on the network predictors, the type of boundary spanning activity and tie strength. Data for the analysis was collected from the system log data in which individual users' group interactions within all group types (i.e. open, members only, private, and secret group) and outside of the groups are captured. Since the complete population of groups and individual group members is used, no sample approach is used.

Operationalization

The study explores trust in terms of individuals' tie strength to measure hierarchical alignment, goal alignment, and time lag for three boundary spanning activities, as the proxies of boundary spanning success. Data to test all dependent and independent variables are collected using the system log data of the System.

Dependent Variables

The study tests the hierarchical alignment, goal alignment, and time lag as the dependent variables. All three variables are operationalized at the dyadic level. The hierarchical alignment refers to the alignment of hierarchical position between a poster and responder. If the hierarchical level of the poster is not equal to the responder but lower, the alignment would be measured as 0. If the hierarchical level of the poster and responder is identical, the alignment

would be measured as 1. If the hierarchical level of poster is higher than the responder, the alignment would be measured as 2.

Goal alignment refers to the score for whether or not the type of boundary spanning activity in which a poster or responder engages is identical. If the type of boundary spanning activity in which the poster or responder engages is identical—e.g., a representational post that is met with recognition—the alignment would be measured as 1. If the type of boundary spanning activity in which a poster or responder engages is not identical, the alignment would be measured as 0.

Finally, time lag refers to the duration of time that passed between the original publishing of poster's boundary-spanning activity and the comment by a responder. Time lag is measured as a continuous value in minute units.

Individual-level Variable

The study examines the type of boundary spanning activity as one of the independent variables. The type of activity refers to the type of boundary spanning activity that an individual engages through parent or child posting. If type of boundary spanning activity that an individual engage in parent or child posting is representation, the type would be measured as 0. If type of boundary spanning activity that an individual engages in parent or child posting is coordination, the type would be measured as 1. If type of boundary spanning activity that an individual engages in parent or child posting is information search, the type would be measured as 2. The boundary spanning type was determined using a machine learning approached as is documented in Van Osch, Steinfield and Zhao (2015).

Dyadic-level Variable

Tie strength was measured as a dyadic-level variable. The tie strength refers to the strength of the dyadic tie between poster and responder. If there is no tie between the poster and responder, the tie would be measured as 0. If there is an indirect (i.ei., weak) tie, the tie would be measured as 1. If there is a no-reciprocal/asymmetric tie, the tie would be measured as 2. If there is a reciprocal/symmetric (i.e., strong) tie, the tie would be measured as 3. It is important to note that the nature of tie is only one dimension of tie strength and that other dimensions—such as the frequency of personal interactions or the emotional nature of support—are other characteristics of tie strength. However, given the nature of our date set, measuring the directionality of the tie was the most objective metric of tie strength and has been supported by previous literature (Gilbert and Karahalios, 2009)

Control Variable

In addition to testing the effects of boundary spanning type, tie strength, the study employed a group-level variable, group type, as the control variable. The group type refers to the type of group that the poster or responder belongs to, such as open or secret group. If the group type is open, the group would be measured as 0. If the group type is open, the group would be measured as 0. If the group type is secret, the group would be measured as 1. Such scale thus represents increasing levels of privacy of the group and its content and interactions, where 0 is visible and 1 is invisible.

Table 1 The Variables of Research Model

Variable	Type	Definition	Level	Measurement/Operation
Type of boundary spanning activity	IV, DV	The type of boundary spanning activity engaged in parent or child posting	Individual	0=representation 1=coordination 2=information search

Table 1 (cont'd)

Tie strength	IV	The strength of dyadic tie between poster and responder	Dyadic	0=no tie 1=weak tie (indirect) 2=asymmetric tie 3=symmetric tie
Hierarchical alignment	DV	The alignment for hierarchical position between a poster and responder	Dyadic	0=poster!=(not equal to) responder 1=poster=responder
Goal alignment	DV	The score for whether or not the type of boundary spanning activity in which a poster or responder engages is identical	Dyadic	0=non-aligned 1=aligned
Time lag	DV	The duration of time that passed between the original publishing of poster's boundary-spanning activity and the comment by a responder.	Dyadic	Continuous value by the unite of minute
Group type	Control	The type of group that the poster or responder belongs to	Group	0=open 1=secret

CHAPTER IV RESULTS

The study employs Generalized Linear Models (GLMs) and Linear Models (LMs) for testing the hypotheses regarding the effects of boundary spanning type and tie strength on hierarchical alignment, goal alignment, and time lag to measure the boundary spanning success, summarized in Table 2 and discussed as follows. GLMs are best used for the analysis in which dependent variables are categorical and binomial while LMs are best used for the analysis in which dependent variables are continuous, which is only used for testing time lag in this study.

With respect to the effect of boundary spanning type on hierarchical alignment, the study found that the type of boundary spanning activity significantly affects hierarchical alignment (β=0.180, p=0.023; where β is the GLMs' coefficient, and p is p-values for this coefficient), which supports H1. Additionally, the study expected a negative significant effect of representational boundary spanning activity on hierarchical alignment (β=-.18, p=0.023), which supports H1a. Moreover, the study expected the significant effect of coordination boundary spanning activity on hierarchical alignment but found the effect to be non-significant (β=0.245, p=0.219), which disapprove H1b. Furthermore, the results found that information search boundary spanning activity significantly enacts hierarchical alignment (β=0.392, p=0.031), which supports H1c.

With the respect to the effect of boundary spanning type on goal alignment, the study also discovered that coordination boundary spanning activity significantly affects goal alignment (β2=0.658, p2=0.030). Similarly, information search boundary spanning activities significantly predict goal alignment (β3=1.881, p3=0.012). However, as predicted, representational boundary spanning activity does not significantly predict goal alignment (β1=0, p1=0). Therefore, the

study found that the boundary spanning type affects goal alignment for only information search and coordination activities, which supports H2.

With respect to the effect of tie strength on goal alignment, the study found that the results show that weak tie significantly enacts the strongest goal alignment (β1=1.498, p1=0.051), and asymmetric tie also performs strong (β2=1.402, p2=0.069) effect. However, symmetric (strong) ties significantly enacts less strong on goal alignment (β3=1.278, p3=0.092) compared to weak tie does. Moreover, the results show that no tie has the smallest effect on goal alignment (β0=0, p0=0). Thus, suggesting a curvilinear effect where asymmetric and weak ties have the strongest effect on goal alignment, with no tie having the weakest effect and strong ties a small effect.

With respect to the interaction effect of boundary spanning type and tie strength on goal alignment, symmetric (strong) tie does not significantly affect coordination boundary spanning activity (β5=12.901; p5=0.962), which disapproves H3a. In addition to symmetric tie, the other two ties, weak (β1 =13.286; p1=0.960) and asymmetric (β3=14.600; p3=0.957), both do not significantly enact coordination boundary spanning activity. Therefor, tie strength does not significantly enact coordination boundary spanning activity coordination boundary spanning activity. The results also reveal that weak (β2=2.987; p2=0.088) and asymmetric ties (similar to weak tie; β4=3.459; p4=0.067) show a more significantly positive effect on information search boundary spanning activity than symmetric (strong) tie (β6=2.648; p6=0.100) does, which supports H3b. Accordingly, tie strength significantly impacts on information search boundary spanning activity but not on representational and coordination boundary spanning activities. Moreover, the results show that no tie type reveals a negative significant effect on goal alignment (β0=0, p0=0).

With respect to the effect of tie strength on time lag, we found that the results also show that symmetric (i.e. strong) and asymmetric tie significantly enacts the least time lag (β2=-4622; p2=0.05) and (β3=-4534; p3=0.05) effect, with stronger ties slightly outperforming asymmetric ties. Weak tie still perform better than no tie, but do incur a longer response time (β1=-42912; p1=0.000). Moreover, the results show that no tie reveals a negative significant effect on time lag (β0=-.429, p=0.000). Therefore, tie strength significantly affects time lag, supporting H4.

Table 2 The Summary of Results

Hypothesis	Poisson Regr. Coefficient/p-value/Std. Err.	Supported
H1	β=0.180; p=0.023; Std. Err.=0.079	Supported
H1a (rep.)	β=0; p=0; Std. Err.=0	Supported
H1b (coor.)	β=0.245; p=0.219; Std. Err.=0.199	Not supported
H1c (info.)	β=0.392; p=0.031; Std. Err.=0.182	Supported
H2	β1(rep.)=0; p1=0; Std. Err.=0 β2 (coor.)=0.658; p2=0.030; Std. Err.=0.304 β3 (info.)=1.881; p3=0.012; Std. Err.=0.281	Supported
H3	β0 (no tie)=0; p0=0; Std. Err.=0 β1 (weak)=1.498; p1=0.051; Std. Err.=0.769 β2 (asym.)=1.402; p2=0.069; Std. Err.=0.770 β3 (sym.)=1.278; p3=0.092; Std. Err.=0.759	Supported
H3a (sym.*coor.)	β0 (no tie)=0; p0=0; Std. Err.=0 β1 (weak*coor.)=13.286; p1=0.960; Std. Err.=267.709 β2 (weak*info.)=2.987; p2=0.088; Std. Err.=1.750 β3 (asym.*coor.)=14.600; p3=0.957; Std. Err.=267.710 β4 (asym.*info.)=3.459; p4=0.067; Std. Err.=1.888 β5 (sym.*coor.)=12.901; p5=0.962; Std. Err.=0.759 β6 (sym.*info.)=2.648; p6=0.100; Std. Err.=1.608	Not supported
H3b (weak*info.)	β0 (no tie)=0; p0=0; Std. Err.=0 β1 (weak*coor.)=13.286; p1=0.960; Std. Err.=267.709 β2 (weak*info.)=2.987; p2=0.088; Std. Err.=1.750 β3 (asym.*coor.)=14.600; p3=0.957; Std. Err.=267.710 β4 (asym.*info.)=3.4590; p4=0.067; Std. Err.=1.888 β5 (sym.*coor.)=12.901; p5=0.092; Std. Err.=0.759 β6 (sym.*info.)=2.648; p6=0.1; Std. Err.=1.608	Supported
H4	β0 (no tie)=0; p0=0; Std. Err.=0 β1 (weak)=-42912; p1=0; Std. Err.=12045 β2 (asym.)=-4622; p2=0; Std. Err.=12092 β3 (sym.)=-4534; p3=0; Std. Err.=11757	Highly supported

CHAPTER V DISCUSSION

With respect to hierarchical alignment, individuals' information search boundary spanning activities are best able to reach the targeted audiences. Little is known about whether or not an individual's coordination boundary spanning activity is able to reach the audience. Such situation might result from the limited number of such activities, occurring in ESM. ESM is not popular for individuals to complete tasks or projects compared to email, Skype, instant messaging, or any task-oriented communicative tools. As for representational boundary spanning activities in ESM, the study found that individuals tend not to seek hierarchically aligned targeted audiences.

With respect to goal alignment, individuals' coordination and information search boundary spanning activity respectively result in goal alignment, which leads to greater effectiveness of boundary spanning, whereas representational boundary spanning activity is unable to achieve goal alignment, which refers to lower effectiveness of boundary spanning. The messages in coordination and information boundary spanning activities may be much more clear and easy for responders to be interpreted than the ones in representation boundary spanning activity. Individuals who engage in representation boundary spanning activity tend to "tailor" the words in subtle way but they are thus not easily understood and interpreted. Hence, future research explore the role of message ambiguity in obtaining goal alignment, where it appears that representational postings—due to their "bragging" nature—may be more ambiguous in nature than information and coordination postings.

Moreover, weakly and asymmetrically (similar to weakly) tied individuals who engage in information search boundary spanning activity are the most likely to achieve goal alignment, though symmetrically (strongly) tied ones also positively affect goal alignment but revealing a

smaller relationship. Accordingly, overall, individuals' information search boundary spanning activity can lead to greater effectiveness and the reach of targeted audiences to achieve boundary spanning success.

Last, with respect to time lag, the stronger the tie between the dyadic individuals, less time between the responder comment and the original posting created on the posting created by poster. Therefore, strongly tied individuals who engage in information search boundary spanning activities can achieve boundary spanning success, as it is much easier for them to get the response in a short time compared to more weakly tied individual who engage in information search boundary spanning activity. Trust operated by symmetric (strong) tie thus can achieve boundary spanning success.

CHAPTER VI IMPLICATIONS FOR RESEARCH AND PRACTICE

Representational boundary spanning is a dominant activity due to visibility (Treem and Leonardi, 2012) afforded by ESM but was found to be ineffective because of the lack of goal alignment. Additionally, individuals engaging in representational boundary spanning tend not to seek hierarchically aligned audiences, though the visibility afforded by ESM seems promising for individuals to engage in these type of interactions. Moreover, coordination boundary spanning activity is not affected by tie strength and was insignificant in terms of triggering hierarchical alignment, though it leads to goal alignment, which creates the effectiveness of boundary spanning success. Furthermore, information search boundary spanning activity is able to reach the targeted audiences because of hierarchical alignment. Information search boundary spanning activity is also effective because of goal alignment when a poster and responder have a weak or asymmetrical (similar with weak tie) tie. Additionally, tie strength is important for information search boundary spanning activity. Although strong tie leads to effective information search boundary spanning activity due to its goal alignment, weak and asymmetrical ties outperform the symmetric (strong) tie, which responders to Granovettor's the strength of weak tie. However, tie strength is not important for representational and coordination boundary spanning activities. Moreover, strongly tied individuals tend to respond to the question faster than weakly tied ones, which further validates the importance of common ground with shared language (Chiu et al., 2006) and relationship heuristics (Uzzi, 1997) possessed in the pair of individuals with strong relationship. These finding imply that different strategic goals require different types of relationships. For instance, if one needs a high-quality answer, weak ties provide more "effective" responses. However, if one requires a fast response—maybe in an urgent situation—strong ties offer better support.

Yet the main theoretical contribution of this study lies in offering a perspective of the dyadic interaction between a poster and a responder and using the dyadic perspective to delineate boundary spanning success. This approach is novel as the existing literature has only focused on the boundary spanning activities as enacted by the individual without considering the reciprocating actions of the responding party which is crucial in determining the success of such activities.

In addition for advancing theories of boundary spanning, the study offers practical contribution. The results can provide the managers or higher executive levels individuals with the improvement for information exchange by employing the effect of tie strength on the attainment of quality and quick responses for information search boundary spanning activity in ESM. In other words, the managers should encourage individuals who would like to get the best quality of response to ask the questions in open group, as the potential audiences would be much more diverse than the ones in closed group. On the other hand, if an individual who wants to get quick response, he or she could post the questions in the groups where people with whom he or she has ever worked with, as there are more strongly tied individuals there.

CHAPTER VII LIMITATIONS AND FUTURE RESEARCH

The study aims to explore trust as measured through an individuals' tie strength to explore its effects on hierarchical alignment, goal alignment, and time lag—as the proxies of boundary spanning success—for the three boundary spanning activities. The study does not rule out other predictors for trust and only considers tie strength as a proxy of trust from a network perspective. Other antecedences involve individual's geographical diversity, group's maturity, and organizational structure. Similarly, the study only looks at boundary spanning success via activities. The study only concludes hierarchical alignment, goal alignment, and time lag for boundary spanning success. Future research could explore external outcome metrics unrelated to ESM use per se, such as overall team performance and innovativeness as well as job satisfaction. Additionally, future research could broaden the scope to individual-level and group-level factors, such as individual's experience and history of using social media as well as group leadership.

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