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The Significance of Instant Messaging at Work

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Abstract—Instant messaging has become increasingly prevalent in social life. However, whether to use IM at work remains controversial, due to its unquantified benefits for organizations. In this study we employ the suggestive metaphor of social network theory to examine IM’s impact on organizational performance. Specifically, we propose that IM has the potential to enhance organizational agility by enabling quality communication, building interlocutors’ mutual trust and establishing relationship networks in the workplace. The conceptual model is validated by 253 survey responses collected from employees of Chinese organizations. The data indicates that IM supports social networks, which contribute substantially to organizational agility. The theoretical and practical implications of the findings are discussed.

Keywords—social network theory (SNT); instant messaging (IM); organizational agility

I. INTRODUCTION

Communication is an essential activity for human beings. A core aspect of the discipline of information systems (IS) involves the design of collaborative tools that facilitate communication at work [1] and enable the achievement of organizational agility [2]. For this reason, various technologies (e.g., pervasive email and video conferencing) have been proposed to support communication and enhance work performance. However, it is rarely the case that these technologies can deliver the quality of social interaction that we are accustomed to in face-to-face encounters.

Instant messaging (IM) is viewed primarily as a social communication tool. In the work environment, the advantages of using an IM include staying connected with colleagues and customers and thus providing instant communication. However, organizations are often concerned about security risks and decreased productivity [3] associated with IM use, suggesting that workplace use of IM is controversial. A recent survey [4] suggests that only 35% of employees have adopted IM in the workplace. Given this situation, it is not clear if IM provides value to firms.

In this study, we attempt to address the above-mentioned dilemma about IM use. We employ social network theory (SNT) as we develop a conceptual model, focusing on the contribution of IM use at work on organizational agility. A social network connotes the complex sets of relationships

linking social entities through society [5]. Based on this connotation, social networks have been further characterized as consisting of “interconnected individuals who are linked by patterned communication flows” [6]. IM is an impactful tool because it has the distinction of facilitating the nearly-transparent interaction among interlocutors by forming a communication network. In the work environment, IM tools have the potential to address an inherent deficiency of other online computer-mediated communication (CMC) technology – the limited opportunity for collaborators to signify their willingness both to communicate with and to receive instant feedback from each other. The communication gap between interlocutors can be bridged by IM, given that it is an instant channel for quality communication. In turn, interlocutors foster mutual trust via frequent and spontaneous IM interactions and form an effective social network for work. This richly interactive social network renders organizations the ability to be reactive, flexible and agile to collaborators’ and customers’ requests, and environmental changes.

Following this introduction, we justify the above arguments in a theoretical development where we introduce the research model and explain the hypotheses in Section II. We then describe our research method in Section III. Following the data analysis and results in Section IV, we discuss the study’s implications and contributions.

II. THEORETICAL DEVELOPMENT

IM, as a communication tool, has the potential to enhance organizational agility through building social networks in the workplace. We draw on the suggestive metaphor of SNT to develop a research model that examines IM’s effects on improving organizational agility. The model in Figure 1 describes how IM use at work can create an effective social network, in which quality communication, strong trust and a relationship network play prominent roles and subsequently contribute to organizational agility. The research model is divided into three sections: the networking tool, the social network itself, and network outcomes. The construct definitions and scales are listed in Table I.

2.1 Strengthening Social Networks at Work with IM

Over the last few decades, scholars have offered powerful insights in explaining the complex set of relationships

among actors in social systems at all levels from interpersonal and inter-organizational and international dimensions. The history of the social network metaphor can be traced back to [4], who suggested that social relationships should be metaphorically considered as nodes (i.e., actors within the network) and ties. Building on this concept, a communication network can be described as “the interpersonal linkages created by the sharing of information in the interpersonal communication structure” [13]. In line with these speculations, “networks are based on communication and trust” [14].

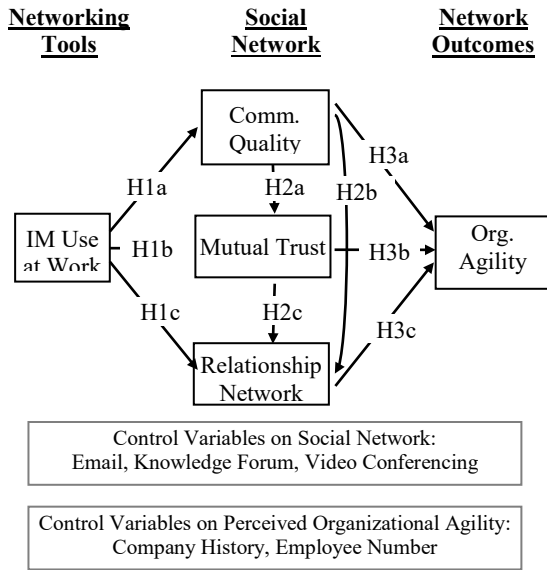


Figure 1. Proposed Research Model

TABLE I. CONSTRUCTS AND CONCEPTUALIZATIONS

Con-structs	Definitions	Source
IM Use at Work	The employee’s use of IM as a work-related contact and communication tool to ask questions, answer questions, share files and engage in work-related socialization	[1, 7]
Communication Quality	The employee’s perception of the quality of communication in terms of being timely, adequate, accurate, complete, interactive and effective	[8]
Mutual Trust	The extent to which trust is placed by the members of the focal network in each other	[9,10]
Relationship Network	Personalized networks of influence and social relationships, stressing personal relationships, associations, connections, ties and social networks	[11]
Organizational Agility	A response to the challenges posed by the business environment raised by change and uncertainty	[2]

In Chinese society, the notion of a social network is synonymous with guanxi and close personal ties [11]. In such a network, social interaction glues members together dyadically through reciprocal obligations [14]. This has been long regarded as a key component of business success in China [11], as asserted by The Economist: “If you don’t have the patience to learn about guanxi old boy, you might as well pack your bags and go home” [15]. Even though guanxi is an emerging topic in IS, researchers have employed the network analysis technique to illustrate how guanxi can be formed and its influence on business. For instance, guanxi in a network adds value not only at the individual level, but also at the community level [17].

Functioning primarily as a social networking tool, IM has been widely used for the purpose of maintaining interpersonal relationships [18]. IM technology enables pop-up messaging and instant reaction. Once a message is received, a two-way, near-synchronous communication channel is formed. This channel is lifelike and embodies a transparency that resembles a face-to-face mode of communication. Prior studies have identified the role of IM in enhancing interaction, which encompasses active control, two-way communication and synchronicity [18]. When interlocutors have the spatial capability for personal and direct interaction, trust is more likely both to develop and to be prevalent [19]. As a highly interactive tool, IM mimics face-to-face communication patterns. It thus has been considered as significantly contributing to communication quality and interlocutors’ personal relationships [20].

A similar impact can be observed in the work environment. If employees can ask questions and seek clarifications, this may enhance their perception that communication is accurate, complete, timely and effective [8]. This process can also be enabled by an IM. Several case studies [1, 7], have demonstrated that the use of IM at work helps employees develop a solid work relationship and so enabled them to discuss emergent issues and build mutual understanding. Specifically, IM use among collaborators helps promote collaborative exchanges, leading to strong and trusting ties [1]. By using IM, interlocutors in the work place can easily ask for, share and exchange knowledge by instantly connecting to their contacts. Over time, people develop stable working relationships (guanxi) through such information/knowledge sharing processes in IM. Therefore, an IM tool enhances the “visibility” of an employee’s work activities and prompts conversations, leading to higher work performance.

The existing literature on IM provides us with rich information to understand IM use at work. However, IM’s contributions to communication and the sequential impacts on shaping an organization’s performance still remain controversial [3]. This is largely due to IM’s potential negative consequences overtaking their functional value. Although there is case study evidence that IM has helped communication and collaboration in the organization context [1, 7], the value that IM tools can create at the organizational level requires formal and theoretically informed investigations [7].

In the digital era, the distributed nature of work requires working professionals to collaborate and communicate across multiple networks rather than in a single work group.

Consequently, the deployment of IM in the workplace has the potential to enhance each individual's reach. It enables a new form of work, as well as an informal way of interaction, by connecting working professionals with common interests, overcoming the limitations of space, time, and even cost. Such a network-based work practice enables an interactive two-way communication process with a fine degree of control that helps employees establish mutual trust in each other. Therefore, we hypothesize that:

Hypothesis 1a: The use of IM enhances the communication quality in the workplace.

Hypothesis 1b: The use of IM enhances the employees' mutual trust in the workplace.

Hypothesis 1c: The use of IM enhances the work-related relationship network.

2.2 Correlating the Components of Social Networks

Interaction is embedded in social networks, as articulated by SNT [5]. However, interlocutors' mutual trust does not develop in a single information exchange event, but only in repeated communication involving long-lasting relationships with identifiable interaction partners [19]. Correspondingly, the correlations among communication, trust and relationships have been emphasized, as indicated by "*networks are based on communication and trust*" [13, p.262]. In the organizational context, work relationships are task-based, which means trust develops as work is undertaken [21].

In China, communication is highly social and informal [22], but it leads to employees' mutual trust because it can convey rich information [23]. The more accurate, complete, timely, adequate and effective the interaction, the more mutual understanding and trust can be achieved. The business environment in China is characterized by a number of factors, including high levels of risk, imperfect information dissemination, and a legal system that is neither adequate in the protection that it affords to transacting partners, nor consistent in the way that rules are enforced [16]. In this situation, it is not particularly surprising that participants seek to acquire and maintain persistent and pervasive relationship networks. The development of guanxi depends on trust because trust fosters a focus on future conditions, reducing the concern that the other party will act opportunistically [24]. Trust has long been considered as the most necessary element of a successful relationship. When one party thinks that the other party is trustworthy and helpful, there is a higher chance that relationship can be developed in the work environment. By engaging in social activities through trust building, employees form a loosely structured network that is based mainly on guanxi [25]. Taken together, these studies provide a solid conceptual ground for the existence of social networks in the workplace, as well as their beneficial effects for work performance. Therefore, we hypothesize that:

Hypothesis 2a: Communication quality is positively associated with employees' mutual trust in the workplace.

Hypothesis 2b: Communication quality is positively associated with relationship networks in the workplace.

Hypothesis 2c: Employees' mutual trust is positively associated with relationship networks in the workplace.

2.3 Shaping Organizational Agility with Social Networks

Following prior research [2], organizational agility in this study refers to a response to the challenges posed by the business environment raised by change and uncertainty, emphasizing the ability of meeting customers' demands, leveraging resources, operating business processes and adapting to the environment. Organizational agility can be enhanced by two digital options: (1) reach – the extent to tie inter- and intra- organizational activities and information flows; (2) richness – the quality of information collected in this process [2]. This is consistent with the view that organizational performance can be achieved by network effects. The terms "network organization" [26], "organization networks" [27] and "flexible specialization" [28] have been frequently applied to emphasize organizational adaptation and flexibility, i.e. agility. Networks in these studies metaphorically refer to the inter- and intra-organizational coordination that is characterized by organic or informal social systems, in contrast to bureaucratic structures in firms and the formal communication relationships between them. Following this "network" metaphor, social mechanisms enhance coordination and reduce behavioral uncertainty among exchange parties [29]. Inside the network, information and social interaction, which can be facilitated by IM tools, lubricate interlocutors' relationships and help in trust building. The network effects and transaction costs reduce the costs of gaining competitive advantage in markets. From the organizational perspective, the ultimate goal of such networks is to thrive in a dynamic environment [28].

The view that social networks can strengthen organizational performance is in line with studies of guanxi in China. In virtually all economic negotiations and decisions, personal guanxi networks came to play a critical role, determining the organizations' performance [30]. In uncertain and dynamic business environments, the guanxi network to some extent guarantees resource availability and reciprocity, going beyond formal institutional support [11]. In a well connected network, vertical (i.e., with customers or suppliers) and horizontal (i.e., with colleagues) communication allows employees to access and share information about business problems and work flows. This is a process of consensus building that is likely to increase organizational performance [8]. Consistently, organizational efficiency and flexibility can be largely attributed to the quality of communication within social networks [32].

Socially connected employees can create and maintain relationships with each other and require information from each other within the network. IM-based connections enable networked actors to reach rich information and resources. It has been conceptually outlined that communication is the critical element needed to form the aggregate social network that subsequently leads to higher levels of organizational efficiency and flexibility [32]. When encountering situations characterized by uncertainty, employees may need in-depth, frequent, and effective access to complex knowledge, which is better transmitted through strong ties in a network [33]. In a well connected net, these strong ties are more likely to ensure that negotiation, coordination and compatibility are real-

ized so as to enhance organizational advantages. In this respect, the social network helps organizations to achieve a rapid response to environmental changes, customer demands, operation adjustment, and business opportunities. Therefore, we hypothesize that:

Hypothesis 3a: Communication quality is positively associated with organizational agility.

Hypothesis 3b: Employees' mutual trust in the workplace is positively associated with organizational agility.

Hypothesis 3c: Relationship networks in the workplace are positively associated with organizational agility.

2.4 Control variables

We expect that other communication tools, such as email, knowledge sharing forums and video conferencing, may contribute to social networks at work. Therefore we control their effects on social networks. We also include the company size and organization history in the research model as two control variables of organizational agility.

III.METHODOLOGY

We used the survey method to verify the research model. This section explains the development and validation of measures, and the data collection procedure.

3.1. Measurement Development

The independent variable, IM use at work, is measured with scales adapted from a study about the use of Electronic Knowledge Repositories at work [34]. This construct includes items about the frequency of using IM for contacts and communication, asking questions, answering questions, sharing files, and work-related socializations. The dependent variable, organization agility, is developed based on [2], covering customer agility, operational agility and operating agility. Agility in responding to industry environmental changes is also added in the scale following [35] and [36]. Relationship network is conceptualized as personal connections, ties and associations [11] and is considered "synonymous with the network of social business connections necessary to do business in ... [China]" [11, p. 146]. Following this conceptualization, the measure of relationship network in the current study stresses personal relationships, associations, connections, ties, guanxi and social networks. Regarding mutual trust between the focal participant and colleagues in the workplace, we adapt the scales from [10]. The measures include "making decisions beneficial to each other; willingness to provide assistance to each without exception; counting on each other at all times and the level of trust exist between the participant and colleagues in general". With respect to communication quality, the measures were adapted from [8], covering timely, accurate, adequate, complete, effective and interactive communication. Single questions were asked about the control variables, including the frequency of using email, knowledge forums, video conferencing at work, as well as company background such as company history and size.

3.2. Measurement Validation

In order to test the reliability and validity of the study's measurement items, card sorting exercises were first conducted before we proceeded with the pilot test [37]. In the pool of cards, 25 questions/statements were created for the study's 5 principal constructs. In the first round of card sorting exercise, the three judges were not provided with the construct names, and they were asked to label each item. In this round, the correct hit ratio was 89%. Based on these results and the judges' qualitative feedback, we revised the ambiguous or poorly worded items. The second round of the card sorting exercise was a structured sorting. The names of the study's 5 constructs were provided to another panel of judges (with the same characteristics as the first panel). A 97% correct hit ratio was achieved in this round, indicating that that most measurement items were placed under the theorized constructs. Since 97% suggests a satisfactory level of reliability for the items corresponding to the new scales [37], we did not conduct a third-round of card sorting.

A pilot study of the survey was conducted with a sample of 30 ethnic Chinese postgraduate students from a major university in Hong Kong. The purpose of this pilot study was to collect both survey responses and feedback on the survey questions. It enabled us to further validate the measures used in the large-scale data collection.

3.3. Data Collection

We collected data on a voluntary basis from working professionals in China who are also undertaking part-time postgraduate study at one of the following universities: Tsinghua University (Beijing), University of Science and Technology (Hefei), Xi'an Jiao Tong University (Xi'an) and Shenzhen University (Shenzhen). Over a period of four weeks, we collected 259 responses, a response rate of 68%. After removing invalid responses (i.e., those who failed to respond on ten or more survey items), a total of 253 valid data points was achieved, yielding a valid response rate of 66%. We used the method recommended by [38] to assess the non-response bias. Specifically, this was verified by showing that: (1) the respondents' demographic characteristics were similar to those currently registered at the universities concerned, and (2) the t-test of the demographic characteristics of the participants who responded in the first two weeks with those who responded in the second two weeks did not significantly differ ($p > .10$). Therefore, response bias was not considered to be a concern in this study. Considering that the responses were collected from four different cities, we also compared these four groups of respondents based on their demographics. The ANOVA test results showed insignificant differences in all comparisons between groups. Therefore these 253 data points were all pulled together as the data set for subsequent statistical analysis. The demographic characteristics of these 253 respondents are presented in Table II.

IV.DATA ANALYSIS

Before analyzing the research model, we first conducted measures validation at the construct level. The robustness of the research model was then confirmed by PLS analysis and several additional robust checks.

4.1 Validating the Measurement at the Construct Level

We used the Statistical Package for the Social Sciences (SPSS) and Partial Least Squares (PLS) to calculate construct validity and reliability. The convergent and discriminant validity were first confirmed with the factor analysis: (1) the factor loading scores on their expected factors are all above 0.6. Moreover, the factor loading scores are much higher on their expected factors than the other factors (i.e., own loading scores are higher than cross loading scores); (2) all eigenvalues of the constructs are larger than the suggested value of 1.0; (3) the communality scores are all higher than the suggested value (0.50). These results indicate adequate reliability of measures [39].

TABLE II. DEMOGRAPHIC CHARACTERISTICS (N=253)

Items	Indicators	%	Items	Indicators	%
Gender	Male	62.9%	Position	Non-Management Employee	60%
	Female	37.1%		Manager	22%
Education level	Primary/ secondary school	3.6%	Age range	18-25	24.6%
	College	21.8%		26-35	64.3%
	Undergraduate	49.2%		36-45	9.9%
	Master or above	25.4%		46 and above	1.2%
Company Location	Beijing (The Capital, N. CN)	22.9%	Number of Employees	50 or below	24.5%
	Shenzhen (S. CN)	27.3%		51-100	16.1%
	Hefei (E. CN)	27.3%		101-500	30.5%
	Xi'an (W. CN)	22.5%		501-1000	11.2%
Company History	1-5 years	28.0%	Contacts in IM	None	1.8%
	6-10 years	31.7%		1-10	23.6%
	11-25 years	17.9%		11-20	20.1%
	26-50 years	14.6%		21-50	29.7%
	51-100 years	4.9%		51-99	15.7%
	Over 100 years	2.8%		100-200	7.8%
Industry Type	Public relations	4.2%	Contacts Related to Work in IM (%)	None	1.8%
	Manufacturing	18.4%		1%-20%	17.4%
	IT industry	23.8%		21%-40%	23.8%
	Commerce	5.9%		41%-60%	26.2%
	Education	2.9%		61%-80%	23.3%
	Tourism	6.3%		80%-100%	10.8%
	Entertainment	0.4%	Number of Different IM Tools (such as MSN, QQ, ICQ, Company Owned IM) Used at Work	None	1.6%
	Publishing	5.0%		1	13.3%
	Telecomm.	5.0%		2	36.1%
	Government	5.0%		3	36.5%
	Services	7.1%		4	8.8%
	Finance and Banking	6.7%		5 or above	3.6%
	Logistics and Transportation	0.8%			
	Others	13.4%			

Second, construct reliability was assessed by identifying the composite reliability scores, all of which are above 0.90 (Table III), suggesting acceptable internal consistency. The square roots of the Average Variance Extracted (AVE) are all above 0.80, which is greater than all other cross correla-

tions. This shows that all constructs capture more construct-related variance than error variance. Taken together, these results demonstrate adequate convergent and discriminant validity for all constructs used in this study.

TABLE III. DESCRIPTIVE STATISTICS, CORRELATION MATRIX, AND AVERAGE VARIANCE EXTRACTED OF PRICIPLE CONSTRUCTS

Principal Constructs	Mean (STD)	Reliability	1	2	3	4	5
1. IM Use at Work	5.0 (1.3)	.91	.80				
2. Comm. Quality	5.0 (1.1)	.95	.51**	.84			
3. Mutual Trust	4.9 (1.2)	.92	.32**	.62**	.87		
4. Relationship Network	5.7 (1.1)	.90	.42**	.49**	.49**	.80	
5. Org. Agility	4.8 (1.2)	.91	.30**	.42**	.46**	.46**	.85

**Correlation significant at p<0.01 level.
Diagonal elements are the square root of the AVE from their indicators. Off-diagonal elements are correlations between constructs.

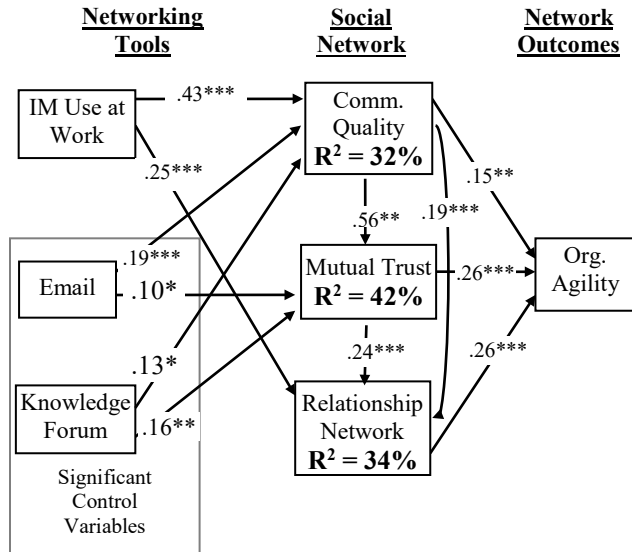
We also tested for common method bias. First, evidence for common method bias exists if one principal factor counts for the majority of the variance explained [40]. Our principal components factor analysis indicates that each principal factor explains roughly equal variance (11.32%~19.21%), suggesting the lack of substantial common method bias. Second, the correlation matrix (Table III) shows that the highest inter-construct correlations are below 0.63, while common method bias is usually evidenced by extremely high correlations ($r > .90$) [41]. Third, we included “a marker variable” [42] (meaning a conceptually non-related question) in the survey to adjust for common method bias. Three ex ante questions set for this marker variable were: “please indicate how satisfied you are (1) with your current study; (2) with your family; (3) with your life in general”. However, our correlation tests indicate the correlations of those items and the items used to measure the principal constructs were not significant (average $r=0.04$; average $p=0.86$), suggesting the lack of evidence on common method bias. In sum, these three tests provided evidence that common method bias is not a serious problem in this study.

Finally, to test for multicollinearity, collinearity diagnostics for constructs were also conducted. The analysis shows that the collinearity indicators – tolerance values and variance inflation factors – are all less than the acceptable cut-off points [39]. These results indicate that this study does not suffer from severe multicollinearity problems.

4.2 Testing the Research Model

The structural model in this study was examined using PLS. As shown in Figure 2, the PLS results indicate that the research model is supported by the data, except hypothesis 1b. The results show that IM use at work ($b=0.43$, $p<0.01$) has a significant impact on communication quality, with an explained variance of 32%, thus supporting H1a. Its effects on establishing the relationship network are also significant

($b=0.25, p<0.01$), thus supporting H1c. On the other hand, its direct influence on mutual trust is only modest, rejecting H1b. Regarding the impacts of communication quality on mutual trust and the guanxi network, the statistical results render support for H2a (communication quality \rightarrow mutual trust: $b=0.56, p<0.01$), and H2b (communication quality \rightarrow relationship network: $b=0.19, p<0.01$). Meanwhile, mutual trust has a significant effect on relationship network ($b=0.34, p<0.01$), validating H2c. Integrating communication quality (H3a: $b=0.15, p<0.05$), mutual trust (H3b: $b=0.26, p<0.01$) and relationship network (H3c: $b=0.26, p<0.01$) explained of organizational variance is 30%.



(Note: $*p<0.10$; $**p<0.05$; $***p<0.01$;
Only significant links are shown.)

Figure 2. PLS Results of Structural Model

The data also indicate both email and knowledge forum contribute to strengthen the communication quality and mutual trust at work, while they only have moderate effects on relationship network.

4.3 Robust Checks

Our premise of the current research model is that IM use at work contributes to organizational agility through the building of social networks. In order to further verify social networks' mediating effect, we follow Baron and Kenny's testing method for mediation [43]. An alternative model capturing the direct link from the IM use at work to organizational agility was structured and tested in PLS. The results showed that the original significant direct effect of IM use at work on organizational agility ($b=0.35, p<0.01$) becomes insignificant when communication quality, trust and guanxi network are included in the model. This robust test provides additional support for the full mediating role of social networks in the proposed research model.

Likewise, we used the same method to examine the mediation of communication quality between IM use and mutual trust. When communication quality was excluded from the

research model, the effect of IM use at work on mutual trust was significant ($b=0.32, p<0.01$). This suggests that communication quality fully mediates the path between IM use and mutual trust, providing a convincing explanation for the insignificant influence of IM use at work on building trust.

The data indicate that participants aged 26-35 count for 64.3% of the total valid sample. In order to examine the role of age, we first conducted an ANOVA test using age as the grouping factor. The results show that significant differences exist in IM usage, communication quality and relationship network (but not mutual trust and organizational agility) where the participant group aged 36-45 (25 participants) resides at the significantly high end of the construct values. This result suggests different age groups have natural variance in their construct values. Second, we added age as a moderator on the path between using IM and social network in the original research. Significant negative moderation effects were observed in the path between IM use at work and communication quality, also in the path between IM use at work and relationship network. These results suggest IM is particularly effective in enhancing their communication quality and strengthening relationship network, and thus it is easier to shape the social network among young employees.

Given that a large proportion of participants (60%) are non-management employees, it is of interest to explore the influence of participants' position in using IM at work. We follow the same procedure to examine the significance of position in this study. However, our tests – ANOVA test, re-analysis of research model with three separated samples by position groups, moderating test – indicate position does not play a significant role in this study.

V. DISCUSSION AND IMPLICATIONS

This research has several key findings and implications, as well as providing a ground for future studies, as explained below.

5.1 Key Findings

Although IM is generally considered to be a social networking tool, our study witnesses the contributions of IM at work in shaping organizational agility. Specifically, our data explains that IM is an effective CMC tool that can enhance the quality of work-related communication and relationship networks. Although IM's direct effect on building employees' mutual trust is not significant, the results indicate that communication quality fully mediates the direct relationship between IM use and trust. This finding suggests that IM-enabled quality communication is the building block for trust in the work environment. The higher the quality of interactions, the more likely mutual trust can be formed in the work place. Furthermore, IM records work contacts in the buddy list, which is instrumental for the formation of relationship networks.

Our study provides empirical evidence on the existence and significance of social networks in the workplace that are facilitated by IM technology. IM has fundamentally changed the ways in which collaboration takes place, allowing actors in the social network to ask questions and get feedback on demand. When problems are not easily addressed in the local

office, employees can reach out to their networked contacts elsewhere. Social ties between local and distant colleagues are thus important and good relationship networks can enhance organizational agility, with information and other resources circulated over a network. The collaboration enabled by IM is in synch with the notion of “a social network”, in which the relationships are active instantly for the particular task at hand [1]. IM-based work communication is used in peer-peer and superior-subordinate interactions, inside and outside organizations. Over time, people establish comfortable working relationships built on prior collaboration and socialization, which influences an organization’s performance as a whole.

5.2 Implications

Social networks have been relatively little studied in the workplace, so this is a first attempt in this respect, conceptualizing the social network from an integrative view of communication, trust and relationship networks. These three elements are closely interrelated, while interactive communication is the cornerstone of an effective network. The conceptual research model proposed in this study articulates the underlying elements of a social network: communication, trust and relationships, adding granularity to the prevailing symbolic denotation of social ties and providing an alternative theoretical lens to investigate the efficacy of social networks in the business context.

Specifically, this study provides clear evidence on IM’s contribution on social relations at work, with an explained variance of 34%. People at work are using IM to send out solicit answers to quick questions from colleagues, allowing relationships to develop based on CMC interaction rather than physical appearance. IM, together with other CMC tools, allow people at work to coordinate their conversations at more convenient times. The feeling of being connected creates an interactive atmosphere that contributed to a feeling of trustfulness and social connection.

Agility is vital for organizations if they are to survive and thrive in the contemporary environment. IT can play a strategic role to enhance organizational agility [2], with IM technology a significant contributor. In this research, we have developed a theoretical perspective to capture the contribution of IT to organizational agility. We direct our focus on IM and highlight its roles in bundling reach and richness for organizations. This theorizing responds to a recent call for research on agility, explaining how organizations will benefit from a specific digital option [2]. Integrated with SNT, a strong linkage between the choice of IM and organizational performance has been established.

Practically, our research has verified that IM significantly contributes to the establishment and sustenance of social networks. In turn, an effective social network with quality communication, high degrees of trust and close relationship networks renders organizational agility. This suggests that IM is a valuable CMC tool in the workplace. In the current highly competitive and turbulent business environment, immediate interaction between colleagues and customers is necessary for achieving a high degree of responsiveness to change. By taking advantage of IM’s networking effects,

organizations can better respond to customer needs, leverage resources and adapt to the environment.

5.3 Limitations and Suggestions for Future Research

Widespread use of IM may paradoxically introduce negative consequences for individual productivity or information security, topics not addressed in the current study. These consequences also deserve empirical investigation. Additional research comparing advantages and disadvantages with larger samples will be valuable if it addresses the concerns about the downside of IM use in the business context.

Meanwhile, the current study has employed the suggestive metaphor of SNT. More understanding of IM use at work could also benefit from mapping the employees’ nodes and ties in the social network structure, exploring how the central connection accounts for shaping organizations’ performance, and discerning how the nodes and ties in a work-related context change over time.

Finally, our study is constrained in that only one type of social networking tool – IM technology – is the investigation focus. Nowadays, rich online work-related communication is often achieved by integrating different media together to create a synthesized communication environment. Future studies designed to investigate the synthesized effects of social networking tools (such as IM, Wiki, Weblogs and FaceBook, and organizations’ proprietary social platforms) on organizational performance can help to justify the legitimate adoption of social networking tools as a whole in the workplace. Future investigation of specific tools designed for work-related social networking will also benefit the design and application of social networks in workplace.

VI. CONCLUSION

In Deloitte’s latest global predictions on technology growth, one key highlight is the potential for social networks to enhance organization performance [44]. Among social networking technologies, IM is a typically rich communicative tool. What makes IM prevalent in organizations is that it both simplifies and speeds up workplace communication. IM supports networked individuals via connecting, shifting interactions in bounded social networks. Such effective networks bundled with quality communication, trust and interpersonal relationships act as an impetus to organizational agility. IM is a grassroots application, yet although its impact on organizations is often controversial, we have seen that it has captured the IT-performance benefits – “the most significant emerging technologies will be those that deliver cost-efficiency, contribute to environmental sustainability and drive new forms of personal and business collaboration” [44]. We look forward to more theoretical and practical studies on this promising social networking tool.

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