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Dimensions of Social Capital and Innovation Capabilities of Firms: The Performance of Information Technology as a Mediator

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Abstract *This paper empirically inquire the relation of social capital dimensions (relational social capital, structural social capital, and cognitive social capital), organization innovation capabilities, and the performance of information technology (IT) as a mediator in the said relationships. A total of 263 workers of different management cadres from software SMEs (Zhongguancun Software Park, Beijing, China) were randomly selected. However, 143 respondents submitted the complete response. Thus, the response rate was 54%. For the empirical investigation, the present paper uses Partial Least Squares, Structural Equation Modeling (PLS-SEM) and Importance-Performance Matrix Analysis (IPMA) techniques to analyze the survey data. The direct and indirect relationship between dimensions of social capital and organizational innovation capabilities is significant. However, IT generates a partial mediation effect. IPMA highlights the importance of relational and structural social capital to innovation capabilities, however, IT is indicated as the key driver that trigger the effect of social capital on organization innovation capabilities. Future studies guidelines and limitations are explained at the end of this paper*

Key Words:

Social Capital, Innovation Capabilities, Social Exchange Theory, Information Technology, PLS-SEM, IPMA

Introduction

Innovation is a high-cost transaction, unpredictable, and hazardous business practice that relies on effective, multidimensional, and productive knowledge sharing and exchange among individuals (Sanchez-Famoso, Maseda, & Iturralde, 2014). Innovation capabilities (ICs) perform an important role to increase the firm output and maintain its sustainable advantage over competitors (Wu, Su, & Wang, 2013). The need for ICs has increased due to the tough business environment, and paradigm shift (from labor to knowledge economy) in fast-developing countries

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such as China and India. Organizations use different internal and external knowledge resources and technologies to enhance their ICs and performance (Bao, Chen, & Zhou, 2012). Organizations' learning capacity and ICs are meticulously linked to its resources and capabilities to utilize these resources. Internal resources are important to enhance ICs and performance, especially in small size firms (Sanchez-Famoso et al., 2014).

Social Capital (SC) refers to the network of connections, which enhances the worth of the members who create the network, by permitting them access to the network inserted resources (Castro & Roldán, 2013; Nahapiet & Ghoshal, 1998). There are two forms of SC (internal and external) (K.-C. Chang, Wong, Li, Lin, & Chen, 2011). Internal SC consists of intra-organization social relationships among all levels of employees and departments. In contrast, external SC comprises inter-organization relationships at organizational as well as individual levels (Burt, 2000; K.-C. Chang et al., 2011). Several authors confirm that internal SC is a key strength of a firm to enhance its ICs (Bao et al., 2012; Sanchez-Famoso et al., 2014). SC has three forms, structural SC, relational SC, and cognitive SC (Sanchez-Famoso et al., 2014). In the present study, dimensions of SC as a source of ICs are in focus and information technology (IT) as a mediator.

Drawing on social exchange theory and theory of knowledge creation and transformation, the interaction among people with similar interests, backgrounds, or objectives is a source of knowledge creation and innovation (Yang & Wang, 2011). Several authors confirm that SC capital plays a significant role to enhance the ICs (Burt, 2000; K.-C. Chang et al., 2011; Pérez-Luño, Medina, Lavado, & Rodr'\iguez, 2011). However, the present study investigates the degree of relationship between different dimensions of SC and organization ICs. Researchers considered that IT performs a significant role in the development of social networks, SC, knowledge sharing, and ICs (Agrawal, Muhammed, & Thatte, 2011). The research questions of this paper are, what is the association between the dimensions of SC and organization ICs and how IT mediates this relationship? This study has three-fold objectives. First, it investigates the degree of relationship between dimensions of SC and organization ICs. Second, how IT mediates the effect of these dimensions of SC on organization ICs. Third, Importance-Performance Matrix Analysis (IPMA) approach highlights which dimension of SC is most important to enhance the organization ICs. Research context of the present study is small and medium scale enterprises (SMEs), Zhongguancun Software Park, Beijing, China.

Theoretical Background and Hypothesis Development

In 1958, George Homans, a sociologist, presented the frame of social exchanges theory. Homans explained that "the exchange of activity, tangible or intangible, and more or less rewarding or costly between at least two persons" (Cook,

Cheshire, Rice, & Nakagawa, 2013). According to social exchange theory and knowledge creation and transformation theory, a social interaction among people in a structural paradigm can a source of knowledge creation and innovative ideas generation (Yang & Wang, 2011). As discussed in the preceding part of the present paper, innovative knowledge and ideas are key sources of ICs and contemporary innovations. It indicates that the process of knowledge creation and innovation highly depend on the nature of interaction and level of social exchange activities among people.

Through the paradigm of structuralism, organizations develop their social networks to promote interaction and social exchange activities at the individual level as well as an organizational level to enhance their knowledge repositories and ICs. Scholars mentioned that organizations' social networking at different levels is the main source of SC (Burt, 2000; K.-C. Chang et al., 2011; Pérez-Luño et al., 2011). SC not only depends on norms, values, and trust among members of a social network but also on the quality and quantity of contributors (Sanchez-Famoso et al., 2014). From the above discussion, it is clear that social exchange activities at the individual as well as organizational levels are a source of SC leads to ICs.

Knowledge Sharing and Information Technology

ICs perform an important role to sustain the organization competitive advantage in the market. Organization ICs highly depend on innovative knowledge and contemporary notions. Theory of knowledge creation and transformation also highlights the significance of knowledge sharing and its impact on organization ICs (Nonaka, 1994)(Pérez-Luño et al., 2011). Several scholars consider IT playing an important role in not only knowledge creation and sharing but also knowledge transformation (Agrawal et al., 2011; Walsham, 2001). IT facilitates social networking, knowledge sharing, and SC development in different ways. For instance, there are different barriers to knowledge sharing and social interactions such as temporal, physical, cultural, linguistic, and social. However, IT provides multiple applications to decrease these hurdles such as internet-based discussion groups, social websites management information systems, online meeting software allow a geographically isolated group of people to interact, translators, and easy access to knowledge repositories (Agrawal et al., 2011). In other words, IT facilitate social networking and connections development. Through these networks, IT facilities in knowledge creation, sharing, transformation, and its management (Davison, Ou, & Martinsons, 2013). With this interaction and knowledge sharing, innovative notions and knowledge enhance the ICs of the workers and the organizations in different dimensions like product, services, system, market, and processes (Davison et al., 2013; Krebs, 2008).

Innovation Capabilities

The capability to create innovative products, markets, and services, through inventive procedures and practices with the assistance of strategic novel introduction is called innovation capabilities (Wang & Ahmed, 2004). The entire activities (e.g. technological, organizational, scientific, social, financial, and commercial) are necessary to create, implement and introduce new or upgraded products, services, or processes that are included in the scope of innovation (Léger & Swaminathan, 2007). With reference to the degree of organizational ICs, there are two kinds, radical ICs, and incremental ICs. The notion development from existing explicit knowledge and in the result of that notion use, if some improvement happens in existing products, services or processes is called organization incremental ICs. On the other hand, ideas' extraction from tacit knowledge repositories and in the result of its use some new or transformational product, service or process introduce into the market is called organization radical ICs (Castiaux, 2007; Pérez-Luño et al., 2011). In the literature, five dimensions of innovation and ICs are explained. These innovation dimensions include product, process, marketing, behavioral, and strategic innovations (Camps & Marques, 2014). Accessibility and utilization of resources helps the firms to enhance their ICs in different dimensions at different degrees (radical, incremental) of innovation.

Relational Social Capital and Innovation Capabilities

Relational SC denotes to definite features of relationships, like mutual trust, friendship, and promise that influence the mutual behaviors of members (Nahapiet & Ghoshal, 1998), (Akram, Lei, Hussain, Haider, & Akram, 2016). Relational SC helps in the development of SC through norms, shared goals, and associations that people develop through their communications (Castro & Roldán, 2013). Mutual trust and similar goals are key drivers of knowledge sharing; especially tacit and strategic level knowledge, which is important for ICs. Organizational level relational SC is usually developed through the interaction of strategic leadership and official interaction of employees from different organizations and cultures (Akram et al., 2016). Several authors argued that connections based on mutual trust motivate the employees as well organization to exchange knowledge and explore innovative notions which in turn positively impact on organizations' ICs (Sanchez-Famoso et al., 2014;Pérez-Luño et al., 2011;Camps & Marques, 2014). Thus, it is hypothesized:

H1(a) The organization relational SC has a positive relationship with ICs.

Structural Social Capital and Innovation Capabilities

The patterns and strength of ties among the participants of a social network refer to the structural dimension of SC (Camps & Marques, 2014). The structural SC offers channels and platforms for information and resource stream and provides specific advantages to network members (Nahapiet & Ghoshal, 1998). In a new social network at the individual or organizational level, members first do interaction and share experiences then start to develop and share mutual trust, distinctiveness, and norms, and finally develop a common vision and aim. This pattern of social network indicates that structural SC provides a base for relational and cognitive SC (Al-Tabbaa & Ankrah, 2016; Nahapiet & Ghoshal, 1998). Frequent social interactions help employees to know each other, share rich information, and build a common understanding. However, it depends on types of relationships and their worth within the network (Sanchez-Famoso et al., 2014). Above discussion indicate that structural dimension of SC provides a foundation to knowledge workers for knowledge creation and sharing and contribute to the ICs development (Camps & Marques, 2014; Landry, Amara, & Lamari, 2002; Nahapiet & Ghoshal, 1998; Pérez-Luño et al., 2011; Sanchez-Famoso et al., 2014). Thus, it is proposed that,

H1(b) The organization structural SC has a positive relationship with ICs.

Cognitive Social Capital and Innovation Capabilities

The cognitive SC refers to the scope of a common shared vision between its participants that links them for a mutual purpose (Akram et al., 2016). The cognitive SC denotes to the shared language and framework within a specific structure. It helps in intra-organization and inter-organizations to share and integrate resources, reduce conflicts, and achieve common objectives (Sanchez-Famoso et al., 2014). With reference to social exchange theory, shared goals in the network motivate members and develop common perceptions and behaviors (Cook et al., 2013; Nonaka, 1994). The cognitive dimension of organizational SC targets resources like mutual interests and understanding the participants of the network and these resources assist in interaction and recombination among members of the network (Al-Tabbaa & Ankrah, 2016). Common goals of intra-organization and inter-organizations also support to accomplish the benefits of knowledge transfer and exchange, which leads to organizational ICs (Inkpen & Tsang, 2005). Several scholars confirmed that the organization cognitive SC is helpful in organizational ICs development (Akçomak & Ter Weel, 2009; Camps & Marques, 2014; Landry et al., 2002; Sanchez-Famoso et al., 2014). Thus, it is hypothesized that,

H1(c) The organization cognitive SC has a positive relationship with ICs.

Mediating Role of Information Technology:

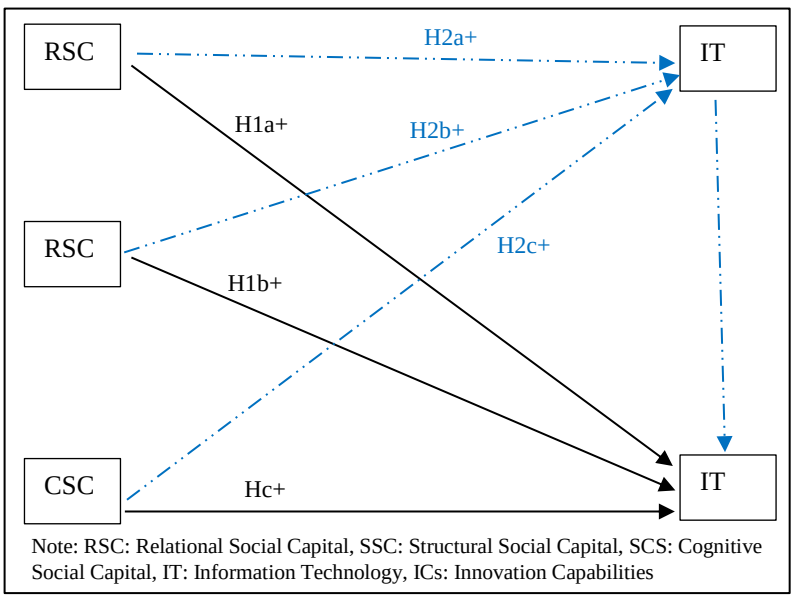
IT plays a dual role. Firstly, IT applications help in social network development and easy interaction among members. Secondly, for the sake of knowledge management and knowledge sharing, IT provides access to knowledge repositories and helps in knowledge management (Agrawal et al., 2011). Effective and innovative knowledge enhance individual and organization ICs. Thus, it is proposed that,

H2(a) IT mediates the relationship between relational SC and ICs.

H2(b) IT mediates the relationship between structural SC and ICs.

H2(c) IT mediates the relationship between cognitive SC and ICs.

Research Model



Note: RSC: Relational Social Capital, SSC: Structural Social Capital, SCS: Cognitive Social Capital, IT: Information Technology, ICs: Innovation Capabilities

Method

Context and Sample

In this study, with "random sampling approach" 263 workers of different management cadres from software SMEs (Zhongguancun Software Park, Beijing, China) were selected as the sampling component. Entire contributors were nominated irrespective of their sex, qualification, position, and capabilities. The

instrument was developed in English and Chinese languages. Before data collection, the key subjects of the instrument were also explained to the workers. Individual connections and e-mail based approaches were adopted for data collection. Entire data gathering period was 40 days and 143 employees provided comprehensive forms; thus, the reply percentage was 54 %.

Construct Measurement

A 5 points Likert-type scale (1= strongly disagree to 5= strongly agree) is used to measure all items of variables with a survey based instrument, accepted from different earlier papers with some adjustments as per paper objectives. Total 21 items are measured for five constructs. The references to indicators used in this paper are as follows,

- Relational SC (RSC) (Akram et al., 2016; Atuahene-Gima & Murray, 2007),
- Structural SC (SSC) (Akram et al., 2016; Jaworski & Kohli, 1993),
- Cognitive SC (CSC) (Akram et al., 2016; Tsai & Ghoshal, 1998),
- Information Technology (IT) (Agrawal et al., 2011),
- Organization ICs (ICs)(Svetlik, Stavrou-Costea, & Lin, 2007).

Cronbach's alpha for 5 constructs RSC, SSC, CSC, IT, ICs are 0.779, 0.831, 0.794, 0.872 and o.894 correspondingly.

Partial Least Square, Structural Equation Modeling (PLS-SEM)

Partial least square, structural equation modeling (PLS-SEM), a second generation multivariate statistical technique is used to evaluate the direct and mediating and moderation effects of the variables (Hair, Hult, Ringle, & Sarstedt, 2016). Multivariate data examination includes the use of statistical approaches that at the same time analyze numerous factors such as estimations related with people, organizations, occasions, s, circumstances etc. (Hair Jr et al., 2016). SEM is utilized to either investigate or affirm the theory. Exploratory modeling includes creating theory while confirmatory modeling confirms/reject the theory (Hair et al., 2016). SEM-PLS is a good approach to measure the insights and practices of the respondents. Smart PLS-3, software is a latest and friendly user instrument for small data analysis (N=143) (Hair et al., 2016).

Results and Analysis

Employees' Demographic Trends

Table 1 presents the demographic tendencies of the workers in IT firms, Beijing, P.R. China. From total 143 respondents, 76 were males and 67 females, the majority of the respondents' age was between 20 to 35 years. Thirty-two percent

of respondents experience was above 10 years. A reasonable ratio of all levels of management (lower, middle, and upper) was included in the sample data. The education level of most of the respondents was university, and college graduates.

Table 1. Demographic Trends, *N = 143*

Trends	Group	Numbers	Ratios
Gender	Man Women	76 67	53% 47%
Age	20 – 35 Years 36 – 50 Years	84 59	59% 41%
Experience	Less than 10 years 10 to 20 years	97 46	68% 32%
Job Position	Lower Middle Upper	50 64 29	35% 45% 30%
Education	School College University	15 62 66	10% 43% 47%

Model Assessment

Table 2 explains the internal consistency, reliability and convergent validity of the model. The outer loading values of all variables are higher than 0.70 (Hair Jr et al., 2016). Composite reliability (CR) and Cronbach's Alpha figures of all indicators are also higher than 0.70 that are within the defined boundary (Hair Jr et al., 2016). Researchers indorse the limit of average variance extracted (AVE) 0.5 or higher (Hair Jr et al., 2016). All variables' AVE is above the limit of 0.5 as shown in table 2. R^2 figures also indicate a robust model and good association among constructs (Bari, Fanchen, & Baloch, 2016). All variables are measured at 0.05% significant level.

Table 2. Model Assessment

Dimensions	Items	OLs	CR	α	AVE	R^2
Relational Social Capital	RSC.1	0.753	0.857	0.779	0.601	---
	RSC,2	0.762				

	RSC,3	0.773				
	RSC,4	0.810				
Structural Social Capital	SSC,1	0.841	0.886	0.831	0.661	---
	SSC,2	0.786				
	SSC,3	0.807				
	SSC,4	0.818				
Cognitive Social Capital	CSC,1	0.730	0.863	0.794	0.614	---
	CSC,2	0.712				
	CSC,3	0.835				
	CSC,4	0.848				
Information Technology	IT,1	0.751	0.907	0.872	0.662	0.597
	IT,2	0.810				
	IT,3	0.854				
	IT,4	0.833				
	IT,5	0.817				
Innovation Capabilities	ICs,1	0.867	0.926	0.894	0.759	0.684
	ICs,2	0.879				
	ICs,3	0.860				
	ICs,4	0.878				

**Level of significance 0.05%*

Discriminant Validity

In Table 3 confirms the discriminant validity of this study. As per Fornell-Lacker method, "the square root of each AVE is equated to the correlation of all constructs down in the same column and established that all AVE square root (values) are higher than the correlation values in each column" (Hair Jr et al., 2016).

Table 3. Fornell-Lacker Criteria

Constructs	CSC	ICs	IT	RSC	SSC
CSC	0.783				
ICs	0.692	0.871			
IT	0.709	0.776	0.814		
RSC	0.706	0.694	0.677	0.775	
SSC	0.675	0.685	0.663	0.645	0.813

**Level of significance 0.05%*

Table 4, the second method heterotrait–monotrait ratio (HTMT) test is also performed to confirm the validity of the model. In all scenarios, HTMT ratios are

within the range of 0.85 or 0.90 (Hair Jr et al., 2016). All the above checks established that the present paper model is consistent and effective for further investigations.

Table 4. HTMT Ratios

Constructs	CSC	ICs	IT	RSC
ICs	0.800			
IT	0.820	0.876		
RSC	0.886	0.826	0.816	
SSC	0.785	0.779	0.757	0.783

**Level of significance 0.05%*

Furthermore, every set of the indicators in the study is verified for any potential collinearity in the data for reliable and improved outcomes. All VIF outcomes are under the limit of 5.00 (Hair Jr et al., 2016). It refers that there is no problem of collinearity among all variables.

Direct Relationship

Through smart PLS-SEM-3 software, the bootstrapping method is employed to evaluate the degree of significance, Table 5, clarifies that all independent variables RSC (β=0.193, t-value=5.007, f^2=0.049), SSC (β=0.194, t-value=4.848, f^2=0.054) and CSC (β=0.117, t-value= 2.691, f^2=0.016) have significant direct relationship with endogenous construct ICs. With the support of direct significant associations among variables, the hypotheses H1 (a), H1(b) and H1(c) are accepted at 0.05% level of Significance.

Table 5. Direct Relationship

Direct Effect	Path Coefficient (t-value)	Effect size (f^2)	Confidence Interval (95 %)	(p-Value) 0.05%	Outcomes
RSC→ ICs	0.193 (5.007)	0.049	(0.118-0.270)	0.000	Accepted (H1-a)
SSC→ ICs	0.194 (4.848)	0.054	(0.118-0.275)	0.000	Accepted (H1-b)
CSC→ ICs	0.117 (2.691)	0.016	(0.034-0.205)	0.007	Accepted (H1-c)
RSC→ IT	0.266 (5.389)	0.079	(0.171-0.366)	0.000	
SSC→ IT	0.256 (5.687)	0.079	(0.168-0.343)	0.000	
CSC→ IT	0.349 (6.536)	0.126	(0.241-0.449)	0.000	
IT→ ICs	0.434 (8.959)	0.240	(0.339-0.530)	0.000	

**Level of significance 0.05%*

Mediation Relationship

With smart PLS-SEM,3, the bootstrapping technique, with replacement, five thousand randomly drawn samples at 0.05% degree of significance are used. To measure the effect of mediation variance accounted for (VAF) method is applied. The VAF > 80% designates full mediation, ≥ 20% and ≤ 80% VAF depicts partial mediation, while < 20% VAF specifies no mediation effect (Ali & Park, 2016; Bari, Fanchen, & Baloch, 2016). Table-6 elucidates that IT partially mediates the effects of all independent variables (RSC, SSC, and CSC) on dependent variables (ICs). Thus, hypotheses H2(a), H2(b) and H2-(c) are accepted. However, CSC has a highest indirect effect (VAF=56.13%) on organization ICs.

Table 6. Indirect Relationship

Mediation Relationship	Direct Relationship (t-value)	Indirect Relationship (t-value)	Total Relationship	VAF (%)	Level of Mediation	Decision
RSC→IT→ ICs	0.193 (5.007)	0.115 (4.456)	0.308	37.33	Partial Mediation	Accepted (H2-a)
SSC→IT→ ICs	0.194 (4.848)	0.111 (4.681)	0.305	36.39	Partial Mediation	Accepted (H2-b)
CSC→IT→ ICs	0.117 (2.691)	0.151 (5.520)	0.269	56.13	Partial Mediation	Accepted (H2-c)

**Level of Significance 0.05*

Importance-Performance Matrix Analysis (IPMA)

Importance-performance matrix analysis (IPMA) is an advanced technique presented in PLS-SEM investigation (Hair Jr et al., 2016).

IPMA enhances the traditional PLS-SEM results revealing of path coefficient assessments, considering the normal estimations of the latent variable scores. (Hair Jr et al., 2016; Hock, Ringle, & Sarstedt, 2010; Kristensen, Martensen, & Gronholdt, 2000). PLS-SEM, IPMA enlighten the structural path model aggregate effects on a specific target construct (ICs). Bari & Fanchen, (2017) explains that the total effect represent the exogenous constructs' importance for the target construct, and their average latent construct scores represent their performance (Hair Jr et al., 2016).

With the constant environment, one-degree rise of the exogenous construct' (RSC, SSC, CSC, and TI) performance raises the performance of the target construct (ICs) by the magnitude of the exogenous' unstandardized aggregate effect (Hair Jr et al., 2016). Table 7, explains that RSC has the best performance and importance (among three dimensions of SC) to ICs. However, IT with low

performance has the highest importance to ICs. It indicates, the organization should do more focus on IT to enhance the ICs.

Table 7. Importance-Performance Matrix Analysis

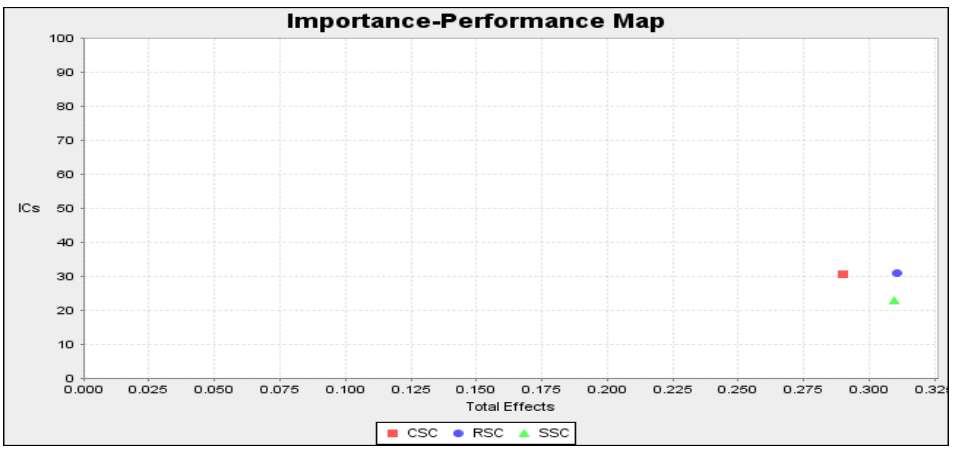
Constructs	Direct Relationship	Indirect Relationship	Total Effect/ Importance	Performance
RSC	0.194	0.116	0.310	30.880
SSC	0.197	0.112	0.309	22.932
CSC	0.127	0.163	0.290	30.572
IT	0.445	----	0.445	29.271

**Level of significance 0.05%*

Importance-Performance Map for ICs:

Figure 2, shows the (unstandardized) total effects/ importance of RSC, SSC, and CSC on x-axis and y-axis represents the average unstandardized and rescaled latent construct (ICs) scores (performance). As figure 2, depicts that lower right side of the importance-performance (ICs) map have high importance and lowest performance area where RSC is placed. Therefore, the little change in RSC performance can create more effect on ICs than SSC and CSC (Hair Jr et al., 2016).

Figure 2. IPMA, Constructs Map

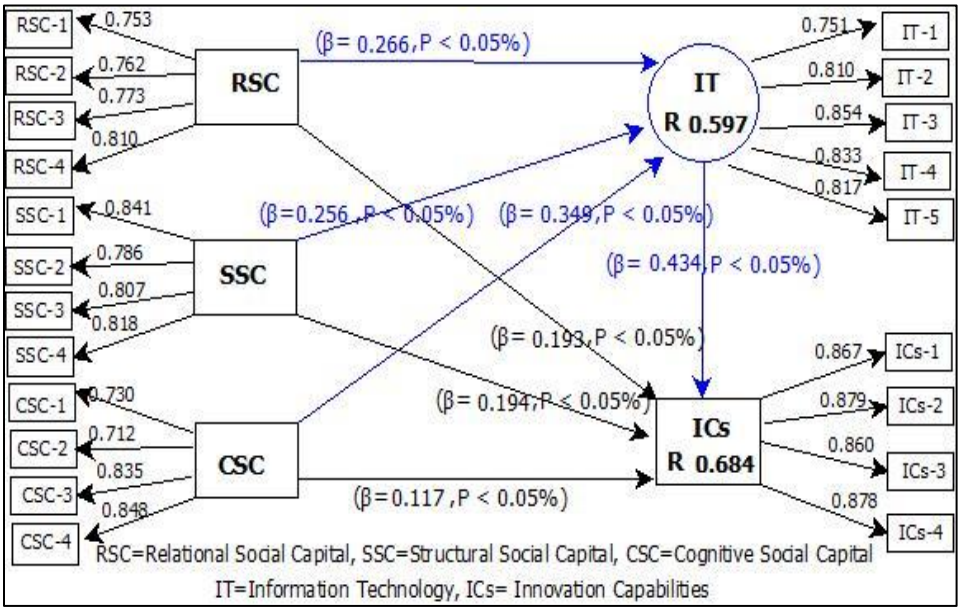


Discussion

The target of this paper was to examine the relationship between dimensions of organization SC and organization ICs, mediating role of IT between the

relationship of SC dimensions and organizational ICs in the situation of the IT industry, China. The outcomes of this paper approve the positive and significant association between RSC, SSC, and CSC and ICs. These outcomes are also linked with the earlier studies (Camps & Marques, 2014; Landry et al., 2002; Pérez-Luño et al., 2011; Sanchez-Famoso et al., 2014; Svetlik et al., 2007).

Figure 3. Developed Model



These results also confirm the application of social exchange theory and knowledge sharing and transformation theory in the situation of the IT industry, China (Cook et al., 2013; Nonaka, 1994). The full model is explained in Figure 3 with important figures. IT complementary mediates the association between RSC, SSC, and CSC and organization ICs (product, process, strategic, and services) (Agrawal et al., 2011; Davison et al., 2013; Dibrell, Davis, & Craig, 2008)(M. K. Chang, Cheung, & Tang, 2013). However, IT highly mediates the effect of CSC among three dimensions of SC on organizational ICs. CSC helps in intra-organization and inter-organizations to share and integrate resources, reduce conflicts, and achieve common objectives and IT increases the strength of CSC (Agrawal et al., 2011).

An important contribution of the present study is highlighting the most important dimension of SC to increase the firm ICs in the background of the IT industry (software SMEs) in China. IPMA explains that the relational dimension of SC highly performs and creates the highest effect on ICs. On the other side, the

structural dimension of SC has considerably low performance than relational SC but almost the equal effect on ICs. Therefore, the structural dimension of SC is equally important as relational SC. However, IT has the highest importance/ total effect on ICs.

Study Boundaries and Future Investigations

Similar to other research papers, this paper also has certain limitations. First, this study evaluates the organizational ICs collectively (incremental and radical) with four dimensions (product, process, strategic, and services). In the future, a separate investigation of radical and incremental organizational ICs is recommended. Second, the cross-sectional data is collected and used in this paper. In future studies, time lag or longitudinal approaches are recommended for data collection. Third, the results and managerial implications of the present study are drawn from the data collected from IT firms, Beijing, China. The application of the present study model may produce different results in other industries and contexts. Therefore, the present study model application in other countries and industries are recommended. Fourth, the application of IT highly depends on the education level of employees, therefore, respondents' education as a moderator on ICs can be investigated in future studies.

Conclusion

The pioneers the use of PLS-SEM and IPMA techniques to examine the mediating role of IT for ICs of software firms in Beijing, China. The results describes that RSC has the greatest performance and effect (among three dimensions of SC) to ICs. However, IT with low performance has the highest importance to ICs. It indicates that firms should do more focus on IT to effective utilization of SC and increase the level of ICs. In short, IT performs the critical role to enhance the effect of SC dimensions on organization ICs. The researchers recommend respondents' education as a moderator on ICs in future studies.

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