

2006

The Effects of Relational and Institutional Factors on Electronic Supply Chain Management Adoption: Does Organizational Culture Matter?

Weiling Ke

Clarkson University, wke@clarkson.edu

Hefu Liu

University of Science and Technology of China, Liuhf@mail.ustc.edu.cn

Kwok Kee Wei

The City University of Hong Kong, isweikk@cityu.edu.hk

Jibao Gu

University of Science and Technology of China, jibao@ustc.edu.cn

Huaping Chen

University of Science and Technology of China, hpchen@ustc.edu.cn

Follow this and additional works at: <http://aisel.aisnet.org/pacis2006>

Recommended Citation

Ke, Weiling; Liu, Hefu; Wei, Kwok Kee; Gu, Jibao; and Chen, Huaping, "The Effects of Relational and Institutional Factors on Electronic Supply Chain Management Adoption: Does Organizational Culture Matter?" (2006). *PACIS 2006 Proceedings*. 83. <http://aisel.aisnet.org/pacis2006/83>

This material is brought to you by the Pacific Asia Conference on Information Systems (PACIS) at AIS Electronic Library (AISeL). It has been accepted for inclusion in PACIS 2006 Proceedings by an authorized administrator of AIS Electronic Library (AISeL). For more information, please contact elibrary@aisnet.org.

The Effects of Relational and Institutional Factors on Electronic Supply Chain Management Adoption: Does Organizational Culture Matter?

Weiling Ke
School of Business
Clarkson University
wke@clarkson.edu

Hefu Liu
USTC-CityU Joint
Advanced Research Center
University of Science and
Technology of China
The City University of
Hong Kong
Liuhf@mail.ustc.edu.cn

Kwok Kee Wei
The City University of
Hong Kong
isweikk@cityu.edu.hk

Jibao Gu
School of Management
University of Science and
Technology of China
jibao@ustc.edu.cn

Huaping Chen
School of Management
University of Science and
Technology of China
hpchen@ustc.edu.cn

Abstract

Drawing upon relational exchange theory, institutional theory, organizational culture and IS theories, we derive a model to study factors affecting firms' electronic supply chain management adoption. In particular, we examine the effect of trust, normative, mimetic and coercive pressures on eSCM adoption. Also, we assess the moderating role played by organizational culture in this effect. The research model is tested by data collected with executive MBA students enrolled with a large university in China. Managerial implications and theoretical contribution of this study are discussed.

Keywords: Electronic Supply Chain Management, Trust, Institutional theory, Organizational Culture

1. Introduction

With tightly coupled information systems and business processes, electronic supply chain management (eSCM) allows firms to share proprietary information and make joint decisions (Bakos 1991; Chwelos et al. 2001; Subramani 2004). This transparency and collaboration allow firms to reduce “bullwhip effect” and enhance the performance of supply chains (Barua et al. 1997; Subramani 2004). However, eSCM is a double-edged sword. While it provides great potential benefits for a firm, it also exposes the focal firm to more uncertainty stemming from partners' opportunistic behaviors (Williamson 1985). Hence, whether to adopt eSCM is a challenging strategic decision for a firm and research on factors affecting this decision may have significant managerial implications and theoretical contributions.

In the IS literature, we have a plethora of studies on factors affecting firms' adoption of interorganizational systems (IOS) (e.g., Bensaou 1997; Chwelos et al. 2001; Clemons et al. 1993; Hart and Saunders 1998; Premkumar et al. 1995; Teo et al. 2003). A recurring

thesis of these studies is that social relationship with partners and institutional factors play a critical role in firms' adoption of IOS (Bensaou 1997; Hart and Saunders 1998; Teo et al. 2003). In the similar vein, we examine these factors' effect on eSCM adoption. Different from prior research, this paper incorporates the moderating effect of organizational culture. There is a growing consensus that organizational culture affects firms' decision making among strategic management scholars (e.g., Detert et al. 2000; Fey et al. 2003; Zammuto et al. 1992). Organizational culture is defined as a system of socially transmitted behavior patterns that serve to relate human communities to their ecological settings (Keesing 1974; Schein 1985; Schein 1990). An organizational culture manifests itself in the ends the organization seeks and the means it uses to attain them (Child 1987; Zammuto et al. 1992). Therefore, organizational culture plays an important role in firms' decision on collaborating with their partners. Yet, organizational culture, as the belief and values of a firm, has been consistently ignored by IS researchers in their studies of IOS adoption.

The purpose of this paper is to address this inadequacy and study factors affecting firms' eSCM. In particular, we study how trust towards partner firms and external pressures, including normative, mimetic and coercive pressures, affect the focal firm's adoption of eSCM. Also, we examine how organizational culture moderates the relationships between these salient factors and eSCM adoption intention. To test the predictions of the theories, we collected data with executive MBA students in a large university in China.

The following sections of this paper are organized as follow: part two presents this study's theoretical background and hypothesis development; part three describes the research methodology employed; part four is our data analysis and research findings; and part five is our discussion and conclusion.

2. Theoretical Background and Hypothesis Development

Figure 1 depicts our research model, which incorporates the effect of trust and institutional factors on organizations' eSCM adoption, and the moderating effect of organizational culture.

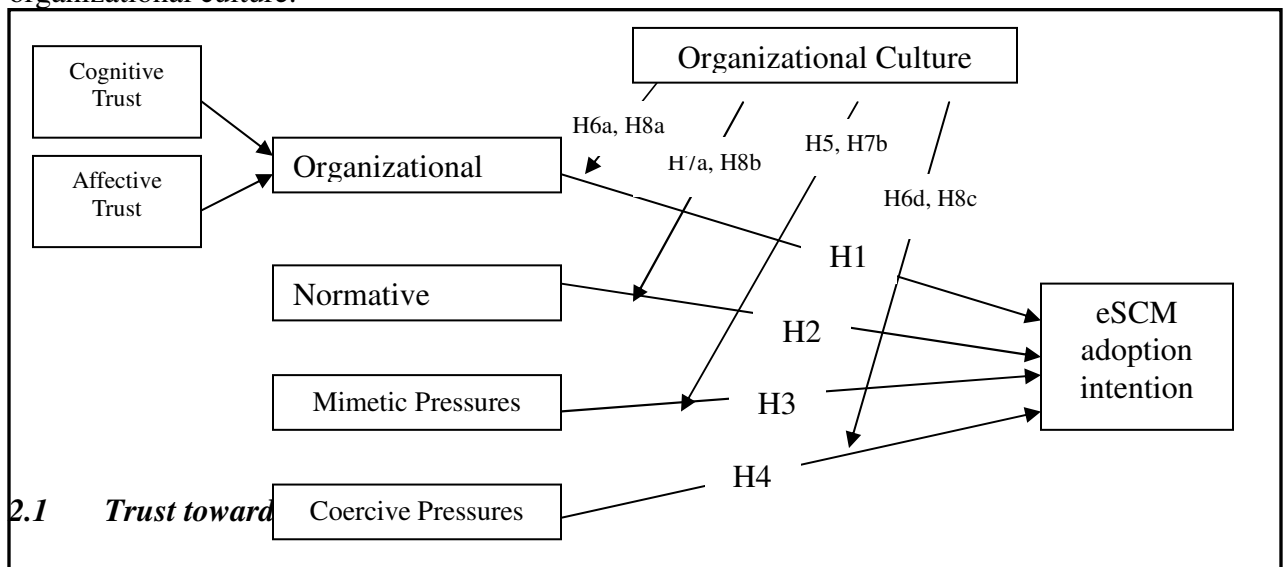


Figure 1: Research model of eSCM adoption intention

Trust, as an unavoidable dimension of social interaction, is generating great interest in various disciplinary studies (e.g., Lewis et al. 1985; Zaheer et al. 1994). Each discipline offers unique insights into the nature of trust, its definition and the processes through which it develops. Yet, these studies tend to agree that trust denotes the confidence of a party about transacting with another party under conditions of uncertainty (Kramer et al. 1996; McAllister 1995). The core principle of trust is the optimistic belief that the other's actions will be beneficial rather than detrimental to the focal party. In this paper, we define trust as the focal firm's belief that the partner firm "(a) makes good-faith efforts to behave in accordance with any commitments both explicit or implicit, (b) is honest in whatever negotiations preceded such commitments, and (c) does not take excessive advantage of another even when the opportunity is available" (Cummings et al. 1996).

According to relational exchange theory (Poppo et al. 2002; Mcneil 1980; Ring and van de Van 1992), trust towards trading partners allows firms to collaborate with each other in an uncertain environment that makes explicit contracts too expensive, if not impossible. Empirically, the extant literature provides consistent support for this argument (e.g., Bensaou 1997; Ganesan 1994; Hart et al. 1998; Zaheer et al. 1998; Andaleeb 1995). Though risk is always embedded in cooperation and its existence is the precondition for trust nurturing, trust enables organizations to take risk as it reduces the perceived risk of cooperation (e.g., Mayer et al. 1995). Therefore, trust is a critical factor that leads firms to cooperate with each other in an uncertain environment.

eSCM requires participating firms to integrate the supply chain at a technical, application and business management level (Kotzab et al. 2003). While eSCM may enhance supply chain performance, it exposes the participating firms to risk stemming from partners' opportunistic behaviors. Specifically, a firm shares its proprietary information and makes joint decisions with partners in eSCM, which leads to the focal firm's even higher dependence on trading partners. Given the sensibility and intangibility of information shared and easy duplication of electronic data, eSCM incurs great risk for the focal firm. Trust, as a fundamental ingredient and lubricant of social interaction, helps the organization overcome the psychological barrier imposed by high risk involved in this cooperation. Therefore, we contend that trust towards trading partners leads the focal firm to adopt eSCM.

H1: The focal firm's eSCM adoption intention is positively associated with its trust towards its trading partners.

2.2 Institutional Pressures

According to institutional theories, institutional environment plays a critical role in affecting organizations' structures and actions (Burns and Wholey 1993; Goodstein 1994; Han 1994). In particular, they posit that organizations face pressures to conform to the shared notions of appropriate forms and behaviors and violating them may jeopardize organizations' acquiring resources and social support (DiMaggio et al. 1983; Tolbert 1985). Therefore, organizations' innovation adoption could be influenced by the pressure to be isomorphic with their environment (Schelling 1978; Teo et al. 2003). These

isomorphic pressures can be categorized into three types: coercive, mimetic, and normative pressures (DiMaggio et al. 1983).

Generally, normative pressures operate through interconnected relationships and result from expectations of professionals regarding how work should be conducted (DiMaggio et al. 1983). Through inter-organizational channels, these expectations are transferred and gradually become shared norms (Jeyaraj et al. 2004). Though these norms are some latent, informal rules, they have a strong effect on management's decision making (DiMaggio et al. 1983; Teo et al. 2003). In the context of eSCM adoption, normative pressures stem from the extent of adoption among trading partners and the focal firm's participation in industry, business, and trade associations (Teo et al. 2003). When there is a high prevalence of adoption of eSCM by the focal firm's trading partners and a sanctioning of eSCM adoption by industry, business and trade organizations, the focal organization might be pushed into some similar behaviors (Burt 1982). Hence, we have the following hypothesis:

H2: The focal firm's adoption of eSCM is positively related with its perceived normative pressures.

By contrast, mimetic pressures stems from the prevalence of a practice in the focal organization's industry and the perceived success of the adoption by the focal firm's competitors (DiMaggio et al. 1983). As "standard response to uncertainty" (DiMaggio et al. 1983), mimetic pressures force an organization to imitate other organizations' practices in uncertain environments. In order to remain competitive, an organization model itself on other organizations (Lai et al. 2006), especially those that have adopted prevalent practices and those that have been perceived as a success in the focal organization's industry. In extant IS research, it is found that mimetic pressures have a positive relationship with innovation adoption (Teo et al. 2003). In a similar vein, we posit that mimetic pressures influence the focal firm's intention to adopt eSCM, when eSCM is in vogue and there are success adoption cases in the focal firm's industry (Benders et al. 2006). Hence, we have the following hypothesis:

H3: The focal firm's adoption of eSCM is positively related with its perceived mimetic pressures.

Coercive pressures are the formal or informal pressures exerted on the focal firm by other organizations that the focal firm is dependent on (DiMaggio et al. 1983). A dominant organization may demand other organizations to adopt structures or practices that serve its own interest and these organizations may comply with such demand to secure their access to scarce resources provided by this dominant party (Hart et al. 1998; Teo et al. 2003; Pfeffer and Salancik 1978). Therefore, perceived dominance of trading partner adopters and conformity with parent corporation's practices are the major sources of coercive pressures (Teo et al. 2003). In the context of eSCM, when trading partners that control scarce and important resources request the focal firm to adopt eSCM, the focal firm is likely to comply and adopt eSCM in order to secure its own survival. Hence, we have the following hypothesis:

H4: The focal firm's adoption of eSCM is positively related with its perceived coercive pressures.

2.3 Organizational Culture

Organizational culture is a system of socially transmitted behavior patterns that serve to relate human communities to their ecological settings (Keesing 1974; Schein 1985; Schein 1990). According to Quinn and Rohrbaugh's (1983) competing values model, organizational culture can be categorized into four types: group, developmental, hierarchical and rational. These types of organizational culture are determined along two dimensions reflecting different value orientations: internal versus external focus and control versus flexibility. Since organizations are likely to reflect multiple value systems (Quinn and Kimberly 1984), their culture is of multiple dimensions, that is, we expect to see organizations be of multiple culture types, with some being stronger than others (Gregory 1983; Reynolds 1986).

The group culture values flexibility and has an internal focus. With this internal focus, an organization assumes that it is not controlled by its external environment. It regards focusing on people and processes within the organization as the key to organizational success. Thus, innovations are adopted mostly based on the judgment of internal engineers and managers (Detert et al. 2000). External parties, such as competitors, are not referred to as benchmarks (Detert et al. 2000). Given that mimetic pressures are defined as the extent of adoption among competitors and perceived success of competitor adopters, we posit that mimetic pressures have low effect on eSCM adoption when the focal firm scores high on group culture. Hence, we have the following hypothesis:

H5: Mimetic pressures will have a more significant impact on intention to adopt eSCM when the group culture of the organization is lower than higher.

The developmental culture emphasizes flexibility and an external focus (Quinn et al. 1983). Organizations with this culture tend to maintain congruence with a changing environment (Buenger et al. 1996) and encourage entrepreneurship, creativity and risk taking (Quinn 1988). With the goal of acquiring resources, these organizations adopt innovation based on what external stakeholders' request and use external benchmarks for performance evaluation (Detert et al. 2000; Deshpande et al. 1993; Zammuto et al. 1992). Therefore, dominant trading partners, with their control over scarce resources, can exert strong influence on a developmental organization's eSCM decision making (Lai et al. 2006). On the other hand, risk taking is developmental culture's key value (Harrington et al. 2005) and it encourages experimentation (Berthon et al. 2001). This risk-loving characteristic leads a developmental organization to make aggressive decisions, even when it has limited information on trading partners' trustworthiness. Hence, we have the following hypotheses:

H6a: Organizational trust will have a more significant impact on intention to adopt eSCM when the developmental culture of the organization is lower than higher.

H6b: Coercive pressures will have a more significant impact on intention to adopt eSCM when the developmental culture of the organization is higher than lower.

The hierarchical culture is characterized by its emphasizing control and internal focus (Quinn et al. 1983). Similar to group culture, hierarchical culture assumes that an organization's excellence is caused by internal factors (Detert et al. 2000; Ruppel et al. 2001), i.e., modeling successful competitors does not help the organization due to the their internal differences (Detert et al. 2000). Thus, these organizations do not follow what their competitors do. Following the logic, we contend that mimetic pressures have low impact on eSCM adoption when the focal firm scores high in hierarchical culture. In addition, hierarchical culture's emphasizing stability and control makes it conservative and easy to comply to rules (Harrington et al. 2005). Due to its respect for authority and orders, organizations with this type of culture would align with the legitimate structures and behaviors recognized by trading partners (Berthon et al. 2001), which means that these organizations tend to conform to normative pressures. Hence we have the following hypotheses:

H7a: Normative pressures will have a more significant impact on intention to adopt eSCM when the hierarchical culture of the organization is higher than lower.

H7b: Mimetic pressures will have a more significant impact on intention to adopt eSCM when the hierarchical culture of the organization is lower than higher.

The rational culture emphasizes on maintaining stability and external focus (Quinn et al. 1983). Given that its primary objectives are planning, productivity, and efficiency (Zammuto et al. 1992), an organization of rational culture makes decisions based on rational-economic criteria and follows contracts closely (Ruppel et al. 2001). It deals with environmental uncertainty by control structures (Ruppel et al. 2001). Given that eSCM incurs high uncertainty and it is infeasible to draft a complete contract, only with high level of trust would the organization scoring high on rational culture enter the eSCM collaboration tie. Hence we have the following hypothesis:

H8a: Organizational trust will have a more significant impact on intention to adopt eSCM when the rational culture of the organization is higher than lower.

In addition, rational culture favors stability and has low tolerance for uncertainty (Detert et al. 2000). Given the high uncertainty involved in eSCM, normative pressures may have little impact on an organization of high rational culture, though its external focus calls for response to environmental legitimacy (Buenger et al. 1996; Quinn et al. 1983). Similarly, this risk-averseness may damper the dominant partners' efforts in requesting this organization to adopt eSCM. Hence, we have the following hypotheses:

H8b: Normative pressures will have a more significant impact on intention to adopt eSCM when the rational culture of the organization is lower than higher.

H8c: Coercive pressures will have a more significant impact on intention to adopt eSCM when the rational culture of the organization is lower than higher.

3. Research Method

3.1. Sample

To test our research model, we employed survey method to collect data. Survey questionnaire were sent to executive MBA students in a large university in China. These students met our sample requirement for three reasons. First, all of these students had taken supply chain management courses, thus they had the knowledge background of eSCM. Second, as executives of organizations, they knew their organizational culture and had direct contact with the organization's partners. Third, most of them made eSCM adoption decisions on the behalf of their organizations in the real world.

Based on the class rosters provided by the instructors, we sent out 202 questionnaires at the beginning of the classes. Among the 151 questionnaires returned to us, 17 incomplete questionnaires were discarded. Therefore, we achieved a response rate of approximately 66%. Table 1 shows the profile of these sample subjects.

3.2. Measures

We adapted the well tested measurement items offered by the extant literature. In the questionnaire, all items were measured with 7-point Likert scales, ranging from strongly agree to strongly disagree. Two first-order constructs — affect-based trust and cognition-based trust — are used as formative factors to model organizational trust. Both of them were measured by 3 items adapted from Cummings and Bromiley's (1996) paper. We used measurement scales from Teo et al's (2003) to measure institutional pressures. Specifically, normative pressures were measured by two items on the extent of eSCM adoption among the focal firm's trading partners; mimetic pressures were measured by three items on the extent of eSCM adoption among competitors and perceived success of these adopters; coercive pressures were measured by six items on perceived dominance of supplier adopters and customer adopters. We derived the twelve items measuring organizational culture, with three for each organizational culture type, based on the work by Harrington and Guirmaraes' (2005) paper. Also, we adapted items to measure eSCM adoption intention from Teo and his colleagues' work (2003).

With these items, we first developed an English questionnaire, which was then translated into Chinese by the second author. We hired a professional translator who knew nothing about our study to translate the Chinese questionnaire back to English. No semantic discrepancies were found when we compared the translated English questionnaire with the original English version, which suggests that the Chinese questionnaire is equivalent to the English one.

3.3. Data Analysis and Results

We chose PLS Graph version 3.0. to analyze our data due to two reasons. First, we had a formative construct, i.e., trust, in our model, and PLS can estimate formative constructs (Chin 1998). Second, PLS is more suitable for prediction, especially for a research model that is under developing and has not been tested extensively (Marshall 2003; Teo et al. 2003). Due to the dearth of study on organizational culture's effect on IOS adoption, our research is of exploratory nature. Thus, PLS is for our study.

To validate our research model, we examined the loading of measurement items on their intended constructs, which were all greater than 0.6 and significant at the 0.01 level (Table 2). It suggested sufficient convergent validity. In addition, we assessed convergent validity by composite reliability values and discriminant validity by AVE values and items cross-loadings. The results in Table 1 suggest that our measurement scales demonstrate sufficient convergent validity and discriminant validity with composite reliability values ranging from 0.833 to 0.928 and all AVE scores ranging from 0.616 to 0.811. Meanwhile, the square root of the average variance extracted for each construct, as shown in Table 2, was greater than the correlations between constructs, which confirms the discriminant validity.

Construct	Items	Cronbach's Alpha	Composite Reliability	AVE
Group Culture (GC)	3	0.805	0.883	0.717
Developmental Culture (DC)	3	0.806	0.885	0.721
Hierarchical Culture (HC)	3	0.794	0.867	0.688
Rational Culture (RC)	3	0.839	0.869	0.692
Organizational Trust (OT)	12	0.774	0.882	0.791
Normative Pressures (NP)	2	0.736	0.883	0.790
Mimetic Pressures (MP)	3	0.707	0.833	0.625
Coercive Pressures (CP)	6	0.876	0.906	0.616
Adoption Intention (AI)	3	0.883	0.928	0.811

Construct	OT	NP	MP	CP	AI
Organizational Trust (OT)	0.889				
Normative Pressures (NP)	0.081	0.889			
Mimetic Pressures (MP)	0.069	0.703	0.791		
Coercive Pressures (CP)	0.138	0.562	0.760	0.785	
Adoption Intention (AI)	0.274	0.481	0.491	0.527	0.901

**The shaded numbers in the diagonal row are square roots of the AVE*

The structural model testing results are shown in Table 3 and 4. We tested our hypotheses by examining the significance of the path coefficients and the percentage of variance explained. Hypothesis 1 to 4 are supported, except Hypothesis 3, which is about mimetic pressures' affecting eSCM adoption intention. To test the hypotheses on the moderating effect of different organizational culture, the mean score of each type of organizational culture was used to split the sample into two subsamples, labeled "high" and "low". Our data analysis indicated that Hypothesis 6a, 8a, 8b, and 8c are supported, Hypothesis 6b is not supported and Hypothesis 5, 7a and 7b are not supported due to the insignificance of the effect in both of the specific high and low cultures.

Table 3. Path Coefficient for the full model and culture models

Model (Num. of Case) (R ²)	OT	NP	MP	CP
Full Model (134) R ² =0.370	0.207** (2.954)	0.239* (2.379)	0.075 (0.877)	0.307** (2.889)
Group H (63) R ² =0.364	—	—	0.022 (0.223)	—
Group L (71) R ² =0.399	—	—	0.055 (0.284)	—
Developmental H (64) R ² =0.390	0.109 (1.116)	—	—	0.327 (1.682)
Developmental L (70) R ² =0.333	0.257* (2.616)	—	—	0.258* (2.066)
Hierarchical H (63) R ² =0.465	—	0.174 (1.732)	0.008 (0.066)	—
Hierarchical L (71) R ² =0.303	—	0.252 (1.629)	0.117 (0.615)	—
Rational H (53) R ² =0.375	0.304* (2.578)	-0.003 (0.097)	—	-0.060 (0.566)
Rational L(81) R ² =0.465	0.167* (2.171)	0.406** (3.548)	—	0.476** (4.130)

* Significant at 5% level of significance ** Significant at 1% level of significance

Table 4. Results of Hypothesis Testing	
Hypothesis	Results
H1: The firm's eSCM adoption intention is positively associated with its trust towards its trading partners.	Supported
H2: The focal firm's adoption of eSCM is positively related with its perceived normative pressures.	Supported
H3: The focal firm's adoption of eSCM is positively related with its perceived mimetic pressures.	Not Supported
H4: The focal firm's adoption of eSCM is positively related with its perceived coercive pressures.	Supported
H5: Mimetic pressures will have a more significant impact on intention to adopt eSCM when the group culture of the organization is lower than higher.	Not Supported Neither effect is significant.
H6a: Organizational trust will have a more significant impact on intention to adopt eSCM when the developmental culture of the organization is lower than higher.	Supported
H6b: Coercive pressures will have a more significant impact on intention to adopt eSCM when the developmental culture of the organization is higher than lower.	Not Supported
H7a: Normative pressures will have a more significant impact on intention to adopt eSCM when the hierarchical	Not Supported Neither effect is significant.

culture of the organization is higher than lower.	
H7b: Mimetic pressures will have a more significant impact on intention to adopt eSCM when the hierarchical culture of the organization is lower than higher.	Not Supported Neither effect is significant.
H8a: Organizational trust will have a more significant impact on intention to adopt eSCM when the rational culture of the organization is lower than higher.	Supported
H8b: Normative pressures will have a more significant impact on intention to adopt eSCM when the rational culture of the organization is lower than higher.	Supported
H8c: Coercive pressures will have a more significant impact on intention to adopt eSCM when the rational culture of the organization is lower than higher.	Supported

4. Discussion and Conclusion

4.1. Discussion of Findings

This study constitutes the first tests of the effect of relational and institutional factors on eSCM adoption and how organizational culture affects this effect, an area that has not been examined by previous studies on inter-organizational innovation adoption. Consistent with relational exchange theory, our study finds that the focal firm's trust towards partners has a positive effect on its eSCM adoption intention. Also, in line with institutional theory, normative and coercive pressures lead organizations to adopt eSCM. Among these three salient factors, coercive pressures have the strongest influence. Trading partners' request for adopting eSCM plays a particularly major role in influencing firms' decision on whether to adopt eSCM. This finding may be related to our research context. In China, *Guanxi* plays a crucial role in determining the existence of a business relationship. Maintaining a good relationship with trading partners is critical for firms' survival. Therefore, it is not surprising to see coercive pressures have a strongest effect on firms' eSCM adoption intention among the four independent variables.

Different from previous studies (e.g., Chwelos et al. 2001; Teo et al. 2003), this study indicates that mimetic pressures do not have a significant effect on firms' eSCM adoption intention. According to Teo and his colleagues (2003), mimetic influence is enhanced by the innovation's complexity. eSCM is a highly complex innovation that requires integration of technology, application and strategies among participating firms. Therefore, we would expect that mimetic pressures have a relatively high effect on eSCM adoption intention. This inconsistency of our results can be explained by the newness of eSCM in China. Though eSCM adoption has become prevalent in developed countries, it was introduced in China only in recent years. Therefore, it is too early to see the consequence of eSCM adoption by the focal firm's competitors and there are few success eSCM cases in the industry.

In addition, our research confirms the moderating role played by organizational culture in the relationships between trust and institutional pressures. All hypotheses on different effect of trust, normative and coercive pressures in different rational culture levels are

supported. In the two cases that mimetic pressures are proposed to have more significant effect in lower group and hierarchical culture, the hypotheses are not supported. This is consistent with the results of the full model, in which mimetic pressures are not significant in influencing firms' eSCM adoption intention. Similarly, the normative pressures' more significant influence in higher hierarchical culture can not be confirmed due to the insignificance in both lower and higher levels of hierarchical culture. Also, coercive pressures turn out to have more significant effect in lower development culture, which is to the contrary of our proposition. This may be due to the stronger influence of flexibility on decision making than external focus in organizations of developmental culture. Flexibility in structuring is the means for these organizations to attain their goals of growth and resource acquisition (Quinn and Rohrbaugh 1983). eSCM makes organizations more dependent on trading partners and thus constrains participating firms' flexibility and responsiveness to future changes. Therefore, organizations of high developmental culture may choose to weigh flexibility more than complying with partners' request for adopting eSCM.

4.2. Limitations and Future Research

Since this study was conducted in China. Caution must be exercised when generalizing our research findings to organizations in different institutional and cultural environment. Future research should look into the effect of relational and institutional factors on eSCM adoption in different countries and cultures. Also, our results provide no empirical support for mimetic influence. Though we provide above-mentioned explanation, future research should be conducted to further investigate its effect and test the validity of our explanation. In addition, we collected data with executive MBA students may cause some bias since these subjects have taken supply chain courses and are well aware of the benefits and cost of eSCM. Other executives, especially in China, may not have similar knowledge. Therefore, their decision making process may be different from our subjects and institutional pressures may play a more important role. Future research should send questionnaire randomly to organizations to reduce bias.

4.3. Implications for Theory and Practice

We extend the applicability of relational theory and institutional theory to the highly complex eSCM context. Our study examines both relational and institutional factors' effect in one model, which makes it different from previous studies. For example, Teo and his colleagues (2003) study institutional factors only and Hart and Saunders (1998) study trust and coercive pressures' effect.

Also, we assess the moderating effect of organizational culture, the most important factor affecting managers' decision making. Though different organizational culture can lead to different adoption decisions among organizations in similar environment, such effect has never been examined by IS scholars. Our study highlights the importance of organizational culture in organizations' eSCM decision.

This study provides several implications for practice. First, our results suggest that facilitators should emphasize trust nurturing in the supply chain. With the optimistic belief about partners, firms tend to adopt eSCM. Second, coercive pressures, the

influencing strategy suggested not be used in developed countries (Barley et al. 1992), play a major role in leading firms to adopt eSCM in developing countries. Therefore, dominant firms should exert their influence on dependent partners to promote eSCM adoption. Third, the legitimization of eSCM adoption in the industry is another way to facilitate eSCM adoption as normative pressures are another effective source of influence. Fourth, facilitators should choose appropriate means to encourage eSCM adoption based on the focal firm's organizational culture characteristics.

References:

- Bakos, J.Y. "Information Links and Electronic Marketplaces: The Role of Interorganizational Information Systems in Vertical Markets," *Journal of Management Information Systems* (8:2), Fall 1991, pp 31-52.
- Barley, S.R., and Kunda, G. "Design and Devotion: Surges of Rational and Normative Ideologies of Control in Managerial Discourse," *Administrative Science Quarterly* (37:3), September 1992, pp 363-399.
- Barua, A., and Lee, B. "An Economic Analysis of the Introduction of an Electronic Data Interchange System," *Information Systems Research* (8:4) 1997, pp 398-422.
- Benders, J., Batenburg, R., and van der Blonk, H. "Sticking to Standards: Technical and Other Isomorphic Pressures in Deploying ERP-Systems," *Information and Organization* (43:2), March 2006, pp 194-203.
- Bensaou, M. "Interorganizational Cooperation: The Role of Information Technology an Empirical Comparison of US and Japanese Supplier Relations," *Information Systems Research* (8:2), June 1997, pp 107-127.
- Berthon, P., Pitt, L.F., and Ewing, M.T. "Corollaries of the Collective: The Influence of Organizational Culture and Memory Development on Perceived Decision-Making Context," *Academy of Marketing Science* (29:2), Spring 2001, pp 135-150.
- Buenger, V., Daft, R.L., Conlon, E.J., and Austin, J. "Competing Values in Organizations: Contextual Influences and Structural Consequences," *Organization Science* (7:5), September-October 1996, pp 557-576.
- Burt, R.S. *Toward a Structural Theory of Action: Network Models of Social Structure, Perception, and Action* Academic Press, New York, 1982.
- Child, J. "Information Technology, Organization, and the Response to Strategic Challenges," *California Management Review* (30:1), Fall 1987, pp 33-50.
- Chin, W.W. "Issues and Opinion on Structure Equation Modeling," *MIS Quarterly* (22:1) 1998, pp vii-xvi.
- Chwelos, P., Benbasat, I., and Dexter, A.S. "Research Report: Empirical Test of an EDI Adoption Model," *Information Systems Research* (12:3) 2001, pp 304-321.
- Clemons, E.K., and Row, M.C. "Limits to Interfirm Coordination through Information Technology: Results of a Field Study in Consumer Packaged Goods Distribution," *Journal of Management Information Systems* (10:1), Summer 1993, pp 73-94.
- Cummings, L.L., and Bromiley, P. *The Organizational Trust Inventory: Development and Validation*, Thousand Oaks, CA. , 1996.
- Deshpande, R., Farley, J.U., and Frederick E. Webster, J. "Corporate Culture, Customer Orientation, and Innovativeness in Japanese Firms: A Quadrad Analysis," *Journal of Marketing* (57), January 1993, pp 23-37.

- Detert, J.R., Schroeder, R.G., and Mauriel, J.J. "A Framework for Linking Culture and Improvement Initiatives in Organizations," *Academy of Management Review* (25:4) 2000, pp 850-863.
- DiMaggio, P., and Powell, W.W. "The Iron Cage Revisited: Institutional Isomorphism and Collective Rationality in Organizational Fields," *American Sociological Review* (48:2) 1983, pp 147-160.
- Fey, C.F., and Denison, D.R. "Organizational Culture and Effectiveness: Can American Theory Be Applied in Russia?," *Organization Science* (14:6) 2003, pp 686-706.
- Ganesan, S. "Determinants of long-term orientation in buyer-seller relationships," *Journal of Marketing* (58:2) 1994, pp 1-19.
- Harrington, S.J., and Guimaraes, T. "Corporate Culture, Absorptive Capacity and IT Success," *Information and Organization* (15) 2005, pp 36-63.
- Hart, P.J., and Saunders, C.S. "Emerging Electronic Partnerships: Antecedents and Dimensions of EDI Use from the Supplier's Perspective," *Journal of Management Information Systems* (14:4), Spring 1998, pp 87-111.
- Jeyaraj, A., Balser, D., Chowa, C., and Griggs, G. "Institutional Factors Influencing E-Business Adoption," Proceedings of the Tenth Americas Conference on Information Systems New York, 2004, pp. 2638-2642.
- Keesing, R.M. "Theories of Culture," *Annual Review of Anthropology* (3:1) 1974, pp 73-97.
- Kotzab, H., Skjoldager, N., and Vinum, T. "The Development and Empirical Validation of an E-Based Supply Chain Strategy Optimization Model," *Industrial Management & Data Systems* (103:5) 2003, pp 347-360.
- Kramer, R.M., and Tyler, T.R. *Trust in organizations : frontiers of theory and research* Sage, Thousand Oaks, Calif., 1996.
- Lai, K.-h., Wong, C.W.Y., and Cheng, T.C.E. "Institutional Isomorphism and the Adoption of Information Technology for Supply Chain Management," *Computers in Industry* (57) 2006, pp 93-98.
- Lewis, J.D., and Weigert, A. "Trust as a Social Reality," *Social Forces* (63:4) 1985, pp 967-985.
- Marshall, R.S. "Building Trust Early: The Influence of First and Second Order Expectations on Trust in International Channels of Distribution," *International Business Review* (12) 2003, pp 421-443.
- Mayer, R.C., Davis, J.H., and Schoorman, F.D. "An Integrative Model of Organizational Trust," *Academy of Management Review* (20:3) 1995, pp 709-734.
- McAllister, D.J. "Affect- and Cognition-based Trust as Foundations for Interpersonal Cooperation in Organizations," *Academy of Management Journal* (38:1) 1995, pp 24-59.
- Poppo, L., and Zenger, T. "Do Formal Contracts and Relational Governance Function as Substitutes or Complements?," *Strategic Management Journal* (23:8), August 2002, p 707.
- Premkumar, G., and Ramamurthy, K. "The Role of Interorganizational and Organizational Factors on the Decision Mode for Adoption of Interorganizational Systems," *Decision Sciences* (26:3), May-June 1995, p 336.
- Quinn, R.E. *Beyond Rational Management* Jossey-Bass, San Francisco, CA, 1988.

- Quinn, R.E., and Rohrbaugh, J. "A Spatial Model of Effectiveness Criteria: Towards a Competing Values Approach to Organizational Analysis," *Management Science* (29) 1983, pp 363-377.
- Ruppel, C.P., and Harrington, S.J. "Sharing Knowledge through Intranets: A Study of Organizational Culture and Intranet Implementation," *IEEE Transactions on Professional Communication* (44:1), March 2001, pp 37-52.
- Schein, E.H. *Organizational Culture and Leadership* Jossey-Bass, San Francisco, 1985.
- Schein, E.H. "Organizational Culture," *The American Psychologist* (45:1), February 1990, pp 109-119.
- Subramani, M. "How do Suppliers Benefit From Information Technology Use in Supply Chain Relationship?," *MIS Quarterly* (28:1), March 2004, pp 45-74.
- Teo, H.H., Wei, K.K., and Benbasat, I. "Predicting Intention to Adopt Interorganizational Linkages: An Institutional Perspective," *MIS Quarterly* (27:1), March 2003, pp 19-49.
- Williamson, O.E. *The Economic Institutions of Capitalism* Free Press, New York, 1985.
- Zaheer, A., McEvily, B., and Perrone, V. "Does trust matter? Exploring the effects of interorganizational and interpersonal trust on performance," *Organization Science* (9:2) 1998, pp 141-159.
- Zaheer, A., and Venkatraman, N. "Determinants of electronic integration in the insurance industry: An empirical test," *Management Science* (40:5) 1994, p 549.
- Zammuto, R.F., and O'Connor, E.J. "Gaining Advanced Manufacturing Technologies' Benefits: The Roles of Organization Design and Culture," *Academy of Management Review* (17:4) 1992, pp 701-728.