



香港城市大學
City University of Hong Kong

專業 創新 胸懷全球
Professional · Creative
For The World

CityU Scholars

Emergence and development of inter-organizational relationships in international supply chains

The Macedonian winery case

Mirkovski, Kristijan; Davison, Robert; Schneider, Christoph

Published in:

18th Americas Conference on Information Systems 2012, AMCIS 2012

Published: 01/01/2012

Document Version:

Post-print, also known as Accepted Author Manuscript, Peer-reviewed or Author Final version

Publication record in CityU Scholars:

[Go to record](#)

Publication details:

Mirkovski, K., Davison, R., & Schneider, C. (2012). Emergence and development of inter-organizational relationships in international supply chains: The Macedonian winery case. In *18th Americas Conference on Information Systems 2012, AMCIS 2012* (Vol. 2, pp. 1109-1117)
<https://aisel.aisnet.org/amcis2012/proceedings/IssuesInIS/4/>

Citing this paper

Please note that where the full-text provided on CityU Scholars is the Post-print version (also known as Accepted Author Manuscript, Peer-reviewed or Author Final version), it may differ from the Final Published version. When citing, ensure that you check and use the publisher's definitive version for pagination and other details.

General rights

Copyright for the publications made accessible via the CityU Scholars portal is retained by the author(s) and/or other copyright owners and it is a condition of accessing these publications that users recognise and abide by the legal requirements associated with these rights. Users may not further distribute the material or use it for any profit-making activity or commercial gain.

Publisher permission

Permission for previously published items are in accordance with publisher's copyright policies sourced from the SHERPA RoMEO database. Links to full text versions (either Published or Post-print) are only available if corresponding publishers allow open access.

Take down policy

Contact lbscholars@cityu.edu.hk if you believe that this document breaches copyright and provide us with details. We will remove access to the work immediately and investigate your claim.

Emergence and Development of Inter-Organizational Relationships In International Supply Chains: The Macedonian Winery Case

ABSTRACT

Recent developments in information and communication technology (ICT) have facilitated integration along supply chains. Besides technological advancement and governmental support, Small and Medium Sized Enterprises (SMEs) still face significant challenges when integrating into global supply chains. Underlying business partners' relationships are found to be a significant factor for ICT use and adoption due to the supplier-customer mediation role. This study identifies six factors – trust, distrust, communication, information sharing, collaboration and ties – of inter-organizational relationships, and explores their impact on ICT use and adoption by SMEs operating in an international wine supply chain that spans Northern, Central, Southeastern Europe and Southern China. This paper presents insights about inter-organizational relationships in an international supply chain from a cross-country perspective and advises managers how to manage their supply chain relationships.

Keywords

Inter-organizational relationships; cross-country study; SMEs;

INTRODUCTION

Organizations in today's hyper-competitive business environment have to effectively and efficiently enhance their competitiveness in order to survive and thrive. They attempt to improve their business agility so as to be more flexible and responsive to customers' changing needs. In an effort to attain this level of business agility, organizations have decentralized their value adding activities throughout distributed supply chains - functioning as one networked enterprise. According to Akkermans et al. (1999) cooperation, collaboration, information sharing, trust, partnerships, shared technology, and management of integrated supply chain processes are the fundamental elements of supply chain integration. An abundance of research has been undertaken into the low levels of ICT adoption by SMEs. Lawson et al. (2003) revealed that concerns for security and privacy of transactions, high implementation costs, lack of government support and lack of IT knowledge are the most common barriers of ICT adoption among Australian SMEs. Most ICT adoption studies focus on investigating technological, environmental and organizational factors rather than inter-organizational relationships in supply chains. In this research, we study how inter-organizational relationships influence the use and adoption of ICT in SME supply chains. Hence, this study examines ICT use and adoption of SMEs in the context of international supply chains between Macedonia and Hong Kong.

CASE BACKGROUND: MACEDONIAN WINE INDUSTRY AND INTERNATIONAL WINE SUPPLY CHAIN

The supply chain of the Macedonian wine industry spans the territories of Northern, Central and Southeastern Europe, and the Asia Pacific. The Macedonian wine industry is composed of thousands of unintegrated small grape farmers, vertically integrated vineyards and eighty officially registered wineries. More than 70% of the vineyards are owned and maintained by individual farmers; larger agricultural conglomerates control the rest. Macedonian wineries represent focal organizations, where raw materials are aggregated to create bottled wine as a final product. The suppliers of raw materials, which constitute an integral part of the wine supply chain, are situated in Northern (France), Central (Germany), and South Eastern (Macedonia, Greece, Bulgaria, and Serbia) Europe (see Figure 1).

The selected wineries for the case study are SMEs and are integrated with their downstream supplier chain partners ICT to primarily support information flow. To a certain extent, most supply chain participants utilize ICT - mail, instant messaging, video conferencing, web file hosting services, and mobile technologies - to communicate, share information and collaborate to communicate, share information and collaborate. Supply chain information integration is further fostered by inter-organizational relationships among the transacting parties.

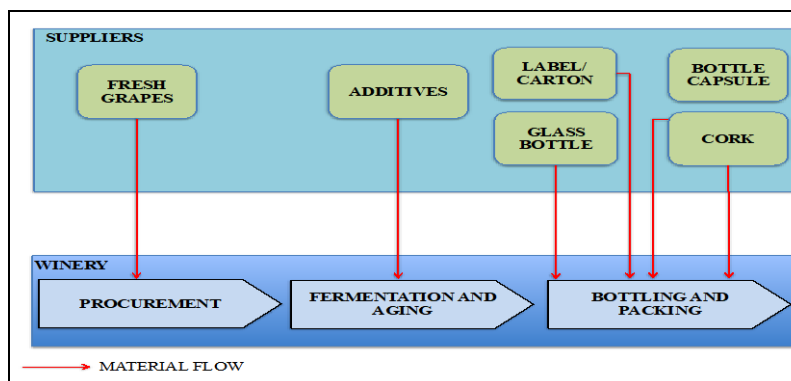


Figure 1: Wine Production Process and Supply of Raw Materials

INTER-ORGANIZATIONAL RELATIONSHIPS AND ICT USE AND ADOPTION

ICT Adoption Theories

The most widely used models in the ICT adoption literature are Technology-Organization-Environment (Tornatzky and Fleischer, 1990) and Diffusion of Innovations (Rogers, 1995). These models have been widely validated and can be generalized to any type of IT adoption. Nevertheless, underlying business partners' relationships are a significant factor for ICT use and adoption due to the supplier-customer mediation role. Lin (2008) recognized that adoption of ICT in the supply chain context requires joint efforts by two or more organizations, which emphasizes business partners' relationships. ICTs differ from conventional information systems in the sense that they provide functionalities such as establishment of integrated

business process and the facilitation of inter-organizational cooperation. Compatibility and complexity factors of the DOI model are not regarded as adoption barriers for flexible ICT due to their ease of use and high system compatibility. Most ICTs use Internet connections and technologies that are simple to understand and compatible with other information systems within organizations. Additionally, TOE and DOI models have a tendency to emphasize cost related factors, which are not relevant to the low implementation costs of ICT. Therefore, we assume that most supply chain partners adopt ICT based on their relationships rather than factors related to TOE and DOI models.

Transaction Cost Economics

The theory of Transaction Cost Economics (TCE) is deployed to explain ICT use and adoption in supply chains. The theory states that organizations should consider purchasing standard products from external specialized manufacturers to avoid excessive costs of in-house production. For products that require high degree of customization, TCE advocates internal production. When faced with such manufacturing decisions, organizations have to take into consideration production and transaction costs (Williamson, 2005). According to Shang et al. (2005) lack of trust between business partners contributes to increase in transaction costs, where organizations impose preventive mechanisms – information search, contact, negotiation, contract, monitoring, assurance, and inspection – to reduce transactional uncertainty associated with outsourcing. Use and adoption of ICT in inter-organizational context reduce transaction costs and therefore are seen as an essential component of supply chains. This study examines whether ICT use and adoption decrease transactional costs by being platform that enables information search, contact, negotiation, contract, monitoring, assurance, and inspection in supply chain environments.

RESEARCH PROPOSITIONS

Trust and Distrust

Ratnasingam et al. (2002) regarded inter-organizational trust as “the subjective probability with which organizations assess that another organization will perform potential transactions according to their confident expectations”. Inter-organizational trust is seen as trust between two business entities that are conceptualized as two abstract systems (Zaheer et al., 1998). Trust is an essential element of the social capital that is directly linked to supplier performance (Zaheer et al., 1998) and satisfaction (Geyskens et al., 1998). Lee and Lim (2003) discovered that inter-organizational trust affected the extent of ICT adoption and data exchange performance. They revealed that trust among supply chain partners positively influenced information integration and exchange. Consequently:

Proposition 1a: Trust has a positive impact on ICT use and adoption by SMEs in supply chains.

The levels of trust and distrust are of particular importance for buyer-supplier relationships in supply chains. Chu and Fang (2006) acknowledged that distrust has a negative impact on buyer-supplier relationships, deteriorating the performance of both buyers and suppliers due lack of information disclosure and suspicion in information validity. Hence, distrust should also have a negative effect on inter-organizational communication, information sharing and collaboration, decreasing the probability of joint ICT use and adoption by supply chain partners.

Proposition 1b: Distrust has a negative impact on ICT use and adoption by SMEs in supply chains.

Communication and Information Sharing

To successfully implement ICT, supply chain partners need to have well-established communication and information sharing. One critical success factor in supply chain management is the free sharing of information (Lamming, 1993). According to Macbeth (1998) supply chain partners exchange both routine and strategic information, depending on their level of commitment. Sharing of operational information such as inventory, demand forecast, product planning, and product delivery, between trading partners enhances supply chain visibility. Therefore, we suggest that business partners who emphasize communication and information sharing in their supply chain operations are more likely to adopt ICT.

Proposition 2a: Communication has a positive impact on ICT use and adoption by SMEs in supply chains.

Proposition 2b: Information sharing has a positive impact on ICT use and adoption by SMEs in supply chains.

Collaboration

For successful attainment of integrated supply chains, collaboration among trading partners is critical. Supply chain collaboration is defined as concentrated bilateral efforts of business partners in terms of joint programs, formal agreements, and joint boards that have the objective of improving operational efficiency, product quality and customer satisfaction (Mohr and Spekman, 1994). Subramani (2004) discovered that ICT use has significant influence on buyer-supplier relationships. Hence, it can be presumed that supply chain partners will use and adopt ICT if significant collaboration efforts are evident in their business interactions.

Proposition 3: Mutual collaboration has a positive impact on ICT use and adoption of SMEs in supply chains.

Ties

Kale et al. (2000) found that socialization assisted in the development of inter-personal relationships and trust in supply chain exchange relationships. In the Macedonian context, the term *vrski* (meaning ‘connections’) is used to describe a network of contacts that an individual can draw on to prevail upon another to perform a favor or service. *Vrski* is comparable with *guanxi* in the Chinese culture, with an emphasis on personal relationships or social connections, reflecting mutual interests and benefits (Yang, 1994). *Guanxi* is recognised as being deeply embedded into the social norms of Chinese society and as having a significant impact on both personal and organizational relationships, including supply chain management and supplier development (Lee and Humphreys, 2006). Ties are relevant to this study since personal relationships facilitate supply chain interactions among business partners.

Proposition 4: Ties have a positive impact on ICT use and adoption by SMEs in supply chains.

RESEARCH MODEL

Six factors – trust, distrust, communication, information sharing, collaboration and ties – were identified as core to the inter-organizational relationships of business partners in supply chain environments and are presented in the research framework (see Figure 2).

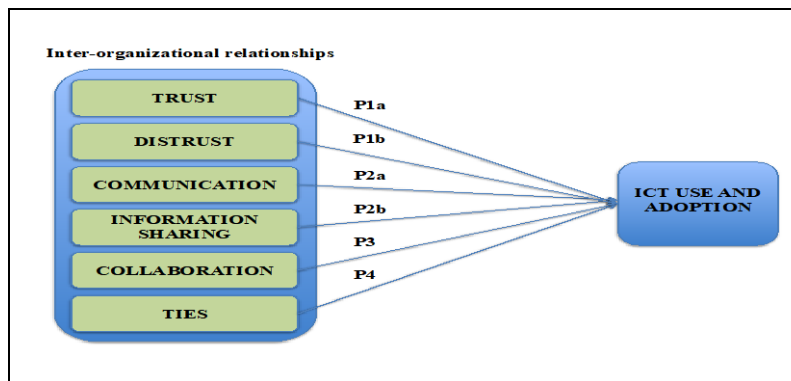


Figure 2: Research Model

RESEARCH METHODOLOGY

An interpretive multiple case study approach was chosen, given the exploratory nature of the research context and the complex set of variables (Yin, 1994). A comprehensive investigation of the inter-organizational factors in upstream and downstream parts of an international wine supply chain was conducted, with qualitative interview-based data collected, supplemented with official company documents and on-site observations – in two wineries and one importer/distributor. Interviews were conducted with two Macedonian winery managers and one manager in Hong Kong importer/distributor, selected on the basis of their extensive knowledge about supply chain operations and buyer-supplier relationships. The research context included wineries, first-tier suppliers (manufacturers of glass bottles, bottle capsules, labels/cartons, additives and corks, and grape farmers) and importer/distributor. The selected suppliers belong to the upstream part of the international wine supply chain in Europe and the selected importer/distributor is included in the downstream part of the international wine supply chain in Hong Kong.

The template analysis technique (King, 2004) was adopted for thematic analysis of the transcribed interviews and observation notes, company documents and researcher thoughts. The analysis involved hierarchical coding where the identification of broader themes precedes narrower and more specific ones. The final coding template embodied nine themes related to inter-organizational relationships, ICT use and adoption. Statements corresponding to these themes were selected, coded and analyzed with NVivo 9.

CASE STUDY

Delta Winery

Delta is family-owned and focuses on limited quantity production of high quality wines. Wine production is a core function, which is managed in-house. Other primary activities such as inbound and outbound logistics, grape growing and harvesting, marketing, and sales are outsourced. The organizational structure is flat with low levels of job specialization. Delta works

with a small circle of locally resident and trusted regional representatives of the various first-tier supply chain partners. Similarly, more than 90% of grapes are acquired from small, local grape farmers. In initial negotiations with new suppliers, Delta preferred to establish face-to-face contact. In most cases, suppliers were asked to personally come to Delta's premises to introduce their company and products, and provide samples for testing. The owner/manager largely relied on non-verbal communication – body language, posture, facial expression, eye contact, clothing, voice and speaking style – to develop an initial perception about the trustworthiness of a particular supplier. As the cooperation deepens, the owner/manager and other employees preferred to communicate informally and develop strong social ties with their suppliers by operating in a “hassle-free” buyer-supplier exchange environment:

“I told you that we have really open and relaxed relationships and ways of dealing with our suppliers. I can call my suppliers anytime I want and ask them how are they doing. [...] Whenever, I am in Greece for other things such as vacation or shopping, I have a habit to go and visit him there.”

An informal communication style is adopted with local/regional suppliers, but a more formal style with suppliers located in France and Germany that can transform to a more informal style with time. The importance of emotional and obligational attachment in buyer-supplier relationships was stressed, which “lubricated” interactions. The winery regarded its trusted suppliers as personal friends and practiced extensive social interactions with them. The owner/manager recognized that the convention of giving and receiving favors is an integral part of business with suppliers:

“Sometimes I help him and in return he does me a favor. I think that is really normal. [...] Actually, we did many favors to the relatives of our grape farmers.”

The establishment of social ties with suppliers was seen as compensation for the need for information content certainty and precision regarding shipping dates and product availability. Delta deliberately nurtured social ties through interpersonal interactions so as to gather more reliable information about suppliers' capability to deliver on time. During these informal meetings, the owner/manager was in a better position to judge the delivery capabilities of suppliers:

“When you have face-in-face meetings with new suppliers you can get a pretty good idea of what kind of people they really are, by the direction of your conversation.”

The existence of distrust in suppliers' manufacturing and delivery capabilities caused Delta to engage in constant control and inspection activities. In particular, they were suspicious about the capabilities of grape farmers and label/carton suppliers, indicating that they had to have comprehensive control and monitoring mechanisms to ensure an acceptable level of quality. Delta sent out its own team to personally inspect grape quality at each subcontracted vineyard before harvest. Delta had frequent face-to-face meetings with each grape farmer to provide instructions about pruning, tying, stripping leaves and thinning out bunches of grapes, which impeded e-collaboration:

“Therefore, whenever there is a new label design, I prefer to ‘stand on their heads’ until they get things done as they should.”

Strong social ties helped lubricate Delta's long-term business relationships suppliers. Their interactions tended to involve informal and non-verbal communication, which enabled the winery to develop and confirm trust towards suppliers. Hence, Delta occasionally relied on ICT to communicate, share information and collaborate with suppliers and expressed low interest for adoption of advanced ICT.

Epsilon Winery

Epsilon is family owned and specializes in production of entry- and mid-level wines. Epsilon employs approximately 30 workers who are responsible for grape-growing and wine production. Its business model is flexible and efficient with an organic organizational structure, low job specialization, and top-down decision-making. The winery exports 90% of its production. According to the manager, the most important aspect of wine production was working with reliable and stable suppliers to avoid potential difficulties related to delivery of sub-quality and unhygienic supplies that had direct impact on the final product quality. Epsilon distrusted suppliers' manufacturing and delivery capabilities and preferred to cooperate with well-known, ISO-certified manufacturers. In particular, the manager expressed a wariness for grape farmers' operations, which was related to winery's decision to grow and harvest 50% of the grapes in its own vineyards:

“... you can't leave the whole work at your suppliers' hands. You have to control a reasonable part of the whole production process to avoid mistakes in terms of low productivity.”

To reduce uncertainty, Epsilon relied on formal contractual relationships with suppliers that were facilitated by formal and verbal communication. The winery frequently and interchangeably used ICT such as email, instant messaging and

videoconferencing to communicate and share information regarding shipping dates and product availability. Nevertheless, the manager didn't express much interest to adopt more advanced ICT due to distrust in technological capabilities and readiness:

“For a winery of our rank and size, it is better to communicate and share information in an informal way. I think all these efforts have to be done from both sides, supplier and us, which might not lead to significant increased productivity and efficiency.”

Epsilon preferred to hold face-to-face meetings with new suppliers to assess their trustworthiness. The combined use of ICT and face-to-face meetings was recognized as a beneficial practice. For sharing technical product specifications, the winery relied solely on face-to-face communication to eliminate any possible misunderstandings. More importantly, it was acknowledged that solid business ties were essential for successful long-term cooperation with suppliers:

“[On face-to-face meetings] you can see what and who are your suppliers. In international trade, it is important to sign contracts with your supplier. And the best assurance for successful cooperation is allowing flexible payment terms.”

Epsilon didn't seem to prioritize the cultivation of social ties with its suppliers. It was mentioned that formal contractual relationships should not be complemented with social ties due to the opportunistic behavior of suppliers. Similarly, distrust in suppliers' commitment and readiness were regarded as main contributors to the low adoption potential for advanced ICT, and pre-manufacturing and physical collaboration (see Figure 5 and Figure 6):

“In Macedonia, if you try to have more informal relationships with any of your suppliers they might get too relaxed which might have a negative effect on their productivity. They think that if you are good with them in social life, you will tolerate them in the business.”

Omega

Omega is a Hong Kong based importer and distributor of Macedonian wines that was established in 2009. Its primary activities are sales, marketing, and distribution of wines from Delta and Epsilon in Hong Kong, Macau and Mainland China.

General Manager

Omega's general manager has the responsibility to communicate and share information, working as a link between the Asian market and Macedonian wineries. In the initial negotiations with suppliers, the manager had a preference for face-to-face interactions. These in-person discussions were mostly of an informal character and regarded as “investment” in the development of long-term business relationship with suppliers:

“At the beginning of our cooperation, I have flown to Macedonia to personally meet with managers and see their vineyards. At my visit to Macedonia, I had the chance to sit down and negotiate face-to-face with the managers. Establishing this initial contact is of great importance for future cooperation because it shows your devotion to the business relationship.”

In the case of short-term suppliers, it was pointed out that face-to-face interactions were not necessary and such arrangements could be conducted over email and video conferencing tools. Nevertheless, ICT is not a direct substitute for face-to-face negotiations due to lack of medium richness. Moreover, it is crucial to involve social cues in the initial negotiations due to the nature of wine industry, which in turn enabled the company to find out more about suppliers' personality, interest, and behavior:

“Whenever you talk about social topics you can find out more about suppliers personality and interest, which are closely related to their business decisions. Once you know their personality, it is easier to decide how you need to treat that particular supplier.”

Interestingly, it was revealed that mobile applications are deployed to facilitate initial negotiations with suppliers. It was mentioned that mobile applications are more likely to be used in negotiations with trusted and long-term suppliers for direct information sharing. Moreover, due to the need for information content certainty and timeliness, Omega tended to use email and mobile applications to share shipping dates and product availability information.

Regarding wine customization, email and instant messaging tools are preferred. Product requirement information is shared with suppliers over email, and instant messaging tools are used to confirm details or straighten out misunderstandings. In this way Omega is able to have formal communication and unidirectional information sharing, which reduces the process uncertainly. Omega is willing to adopt more sophisticated ICT, such as a wiki-based solution with integrated chat function, to streamline its wine customization process. Additionally, Omega collaborates with its suppliers in the design of new wine labels through email and video conferencing tools.

Established trust has an impact on joint adoption of more sophisticated ICT with suppliers. Similarly, long-term relationships lead to more integrated inter-organizational operations and improved collaboration across supply chains:

“Currently we are using different communication tools but as our cooperation widens we will be forced to find common grounds and synchronize our information sharing efforts. If we have better relationships with our suppliers, we are more likely to try and find solutions together, solutions that will make our operations more effective and efficient.”

Omega’s manager acknowledged the value social ties with suppliers and their supportive role in building long-term business relationships. It was noticed that Omega has both emotional and obligational attachment towards its suppliers. Nonetheless, distrust was evident regarding suppliers’ claims.

“Well, it is important to do them favors sometimes because it shows that you have understanding. In such a way, your business relationship is strengthened [...] which opens doors for other types of cooperation.”

DISCUSSION

Delta and Epsilon needed to develop initial trust in their suppliers before they started using ICT for communication, information sharing, and collaboration. Having face-to-face meetings to discuss and finalize all commercial, payment, and delivery terms of a contractual relationship was essential for establishment of initial trust in new suppliers. Fundamentally, Macedonian wineries relied on both non-verbal communication and formal contractual relationships to develop initial trust in new suppliers, and afterwards switched to electronic communication and information sharing. Similar to the Macedonian wineries, Omega didn’t use ICT for communication, information sharing and collaboration with suppliers and in the short-term. Omega had a preference for face-to-face interactions with its suppliers in the initial negotiations, until trust was developed and confirmed as business commitments deepened. As trust developed over time, Delta, Epsilon and Omega started to see each other as strategic partners, which encouraged them to adopt more advanced ICT such as e-procurement and a wiki-based collaboration platform to support supply chain operations. Therefore, we suggest that trust has a positive influence on ICT use and adoption by SMEs in supply chains.

We also noted that distrust has both positive and negative influences on ICT use in supply chains depending on the situation. Distrust in suppliers’ manufacturing and delivery capabilities compelled wineries to implement strict monitoring mechanisms to avoid consignments with sub-standard supplies, which involved face-to-face interactions and rarely ICT to communicate, share information and collaborate. Similarly, distrust in suppliers’ ICT readiness discouraged wineries to consider further supply chain integration with the adoption of advanced ICT. Unlike the Macedonian wineries, Omega extensively relied on ICT to reduce information content uncertainty and lateness related to shipping dates and product availability. In addition, Omega was pressured to adopt advanced ICT to reduce the complexity of wine customization process.

Prior research acknowledged that the establishment of communication ties among business partners is crucial for supply chain success (Chong, 2006). We found that communication had both positive and negative impacts on ICT use and adoption by SMEs in supply chains. On the one hand, an informal, non-verbal communication style with suppliers was closely associated with occasional use of ICT and low adoption potential for advanced ICT. Strong social ties with suppliers implied a preference for face-to-face meetings, which lowered the use of ICT for communication, information sharing, and collaboration in buyer-supplier exchanges. On the other hand, a formal and verbal communication style facilitated frequent and inter-changeable use of ICT. Delta and Epsilon wineries and Omega relied on formal and verbal communication with suppliers over a variety of ICT applications. Furthermore, information sharing has both positive and negative impacts on ICT use and adoption. Supply chain partners involved in dynamic bi-directional information sharing were less likely to use ICT and preferred face-to-face interaction, and wineries engaged in one-directional information sharing in supply chains were inclined to interchangeable and synchronized use of ICT (cf. Dennis et al., 2008). Similar to the Macedonian wineries, Omega used ICT, such as mobile applications, to supports its ad-hoc information sharing needs.

Collaboration is considered to be a significant factor of inter-organizational relationships in supply chains. Dhillon and Caldeira (2000) recognized that collaboration is one of the key success factors of ICT implementation. This study shows that supply chain partners involved in extensive collaborative efforts with their suppliers are likely to frequently use ICT. Wineries engaged in wide collaborations had confidence in suppliers’ manufacturing and delivery capabilities, and frequently used ICT to coordinate collaborative processes. Likewise, Omega had extensive collaborative efforts with its suppliers for the large-scale wine customization, which encouraged the company to further integrate supply chain processes through adoption of advanced ICT.

Relationships are also a significant factor related to ICT use and adoption. Ahuja and Lumpert (2001) mentioned that social ties enable business partners to align their mutual objectives. We found that social ties reduced supplier pressure and distrust

in inter-organizational exchanges. Wineries that developed and nurtured strong social ties with suppliers had the tendency to informally interact, which implied a preference for non-verbal communication and face-to-face dealings, occasionally used ICT to communication, information sharing and collaboration. Wineries that were bound to their suppliers by formal contractual relationships preferred formal interaction and were prone to frequently using ICT to support their one-directional information sharing with suppliers, and were more likely to adopt advanced ICT. Like Macedonian wineries, the Hong Kong importer/distributor had the tendency to frequently use ICT for communication, information sharing and collaboration with suppliers with whom they sustained long-term and mutually fair business relationships. With such suppliers, Omega was comfortable to use extensively ICT and even expressed a desire for adoption of advanced ICT.

CONCLUSIONS, IMPLICATIONS AND CONTRIBUTIONS

Regarding practical contributions, companies that have the intention to jointly use and adopt ICT with their international supply chain partners will be able to apply strategies derived from these findings. Initially, firms have to develop solid business ties with their suppliers by nurturing social interaction through out the years of cooperation, which will enable to establish trust in suppliers' manufacturing and delivery capabilities and switch towards electronic communication, information sharing, and collaboration. Secondly, to encourage ICT adoption by their suppliers, firms have to extensively communicate with and educate them how communication can be enhanced by the use of ICT. Thirdly, firms have to choose partners with which they have significant collaborations.

In terms of theoretical contributions, this paper has extended prior research conducted in developed counties and provides significant potential by investigating the correlation between inter-organizational factors and ICT use and adoption in Macedonian SMEs. This study introduced a different research approach, which extends beyond the models of TOE and DOI and focuses on inter-organizational factors rather than innovation factors of traditional ICT adoption theories. Moreover, it can be concluded that ICT use reduces transactional costs associated with inter-organizational exchanges in an international supply chains by enabling trading partners to search, communicate and share supply chain information. Delta, Epsilon, and Omega used a variety of ICT applications to exchange shipping dates, product availability, technical product specification, and collaboratively designed with suppliers. Nonetheless, TCE couldn't solely explain the usage and adoption behavior of Macedonian wineries and the Hong Kong distributor/importer. In several cases wineries and the importer/distributor didn't rely on ICT to interact with their suppliers despite its capabilities to reduce transactional costs, which suggest capability-task mismatch. Actually, supply chain partners relied on combination of several ICTs - mail, instant messaging, video conferencing, web file hosting services, and mobile technologies – attain the needed adequate medium richness to communicate, share information and collaborate. Therefore, TCE should be used together with the Theory of Media Synchronicity Theory (Dennis et al., 2008).

REFERENCES

1. Ahuja, G., & Lampert, C.M. (2001) Entrepreneurship in Large Corporations: a Longitudinal Study of How Established Firms Create Breakthrough Inventions. *Strategic Management Journal*, 22 (6-7): 521-543.
2. Akkermans, H., Bogerd, P., & Vos, B. (1999) Virtuous and Vicious Cycles on the Road Towards International Supply Chain Management. *International Journal of Operations and Production Management*, 19 (5-6): 357-366.
3. Chong, A.Y.L. (2006) Migrating Supply Chain Management Online: a Study in Malaysian Companies. *INTI Journal*, Special Issue: 184-193.
4. Chu, S.Y., & Fang, W.C. (2006) Exploring the Relationships of Trust and Commitment in Supply Chain Management. *Journal of the American Academy of Business*, 9(1): 224-228.
5. Dennis, A.R., Fuller, R.M., & Valacich, J.S. (2008) Media, Tasks, and Communication Processes: A Theory of Media Synchronicity, *MIS Quarterly*, 32(3): 575-600.
6. Geyskens, I., Steenkamp, J.B., & Kumar, N. (1998) Generalizations About Trust in Marketing Channel Relationships Using Meta-Analysis. *International Journal of Research in Marketing*, 15(3): 223-248.
7. King, N. (2004) *Using Templates in the Thematic Analysis of Text*. In C. Cassell and G. Symon (Eds.) *Essential to Qualitative Methods in Organizational Research*. London: Sage.
8. Lamming, R. C. (1993) *Beyond Partnership – Strategies for Innovation and Lean Supply*. Prentice Hall: London.
9. Lawson. R., Alcock, C., Cooper, J., & Burgess. L. (2003) Factors Affecting Adoption of Electronic Commerce Technologies by SMEs: An Australian Study. *Journal of Small Business and Enterprise Development*, 10(3): 265-276.

10. Lee, P.K.C., & Humphreys, P.K. (2006) The Role of Guanxi in Supply Chain Management Practices. *International Journal of Production Economics*, 106(2): 450-467.
11. Lin, H. (2008) Empirically Testing Innovation Characteristics and Organizational Learning Capabilities in e-Business Implementation Success. *Internet Research*, 18 (1): 60-78.
12. Macbeth, D. K. (1998) *Partnering – Why not?* In: Proceedings of the 2nd Worldwide Symposium on Purchasing and Supply Chain Management, Stamford England: Chartered Institute of Purchasing and Supply: 351-362.
13. Mohr, J. B., & Spekman, R.E. (1994) Characteristics of Partnership Success: Partnership Attributes, Communication Behavior, and Conflict Resolution Techniques. *Strategic Management Journal*, 15(2): 135-152.
14. Ratnasingam, P., Pavlou, P.A., & Tan, Y.H. (2002) *The Importance of Technology Trust for B2B Electronic Commerce*. Proceedings of the 15th Bled eCommerce Conference: eReality, Bled.
15. Rogers, E.M. (1995) *Diffusion of Innovations*. The Free Press, New York, NY.
16. Shang, R., Chen, C.C., & Liu, Y. (2005) *Internet EDI Adoption Factors: Power, Trust and Vision*. Proceedings from Seventh International Conference on E-commerce (ICEC'05), Xi'an, ACM, New York, NY, pp. 101-108.
17. Subramani, M. (2004) How do Suppliers Benefit from IT Use in Supply Chain Relationships, *MIS Quarterly*, 28 (1): 45-74.
18. Tornatzky, L., & Fleischer, M. (1990) *The Processes of Technological Innovation*. Lexington Books, New York, NY.
19. Williamson, O. (2005) *Transactional Cost Economics*. In: C. Menard and M. Shirley, ed. 2005. Handbook of New Institutional Economics. New York: Springer. Section I.
20. Yang, M. (1994) *Gifts, Favors and Banquets: The Art of Social Relationships in China*. Cornell University Press, Ithaca, NY.
21. Yin, R.K. (1994) *Case Study Research: Design and Methods*. 2nd ed. Newbury Park, California, Sage.
22. Zeheer, A., McEvily, B., & Perone, V. (1998) Does Trust Matter? Exploring the Effects of Interorganizational and Interpersonal Trust on Performance. *Organization Science*, 9(2): 141-159.