



INTER-ORGANIZATIONAL RELATIONSHIP AND INNOVATION PERFORMANCE IN ELECTRONIC SUPPLY CHAINS

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ABSTRACT

Purpose - To address this important issue in supply chains, this paper presents a research model to examine the factors influencing the innovation performance and implementation in electronic supply chains.

Methodology– We analyze data collected from 252 of the top 1000 Taiwanese manufacturing firms in 2011 listed by *Business Weekly*. Our research model comprises two research hypotheses with three constructs, including institutional orientation, relational benefits and innovation performance. The hypotheses are tested via an empirical study of electronic supply chains.

Findings - The findings demonstrate that electronic supply chain members should reinforce their relational benefits and institutional view of relational governance so as to improve their innovation performance for achieving competitive advantage of electronic supply chains

Value - Our results show that relational benefits improving the positive effect of institutional orientation on innovation performance.

Keywords: institutional orientation, relational benefits, innovation performance

INTRODUCTION

Inter-organizational relationships are established, maintained and enhanced to achieve competitive advantages for all parties involved (Cheng, 2011). In an electronic supply chain, different types of relationships are formed based on the type of collaboration, from close collaborative product development to simple buy-and-sell interaction. A supplier partnership in the electronic supply chains implies the agreement between a manufacturing firm and its suppliers or subcontractors. It includes sharing risks and benefits that come along with the relationship. The buyer-seller relationships, for its part, reflect strategic relationships among independent firms. Both partners in a relationship tend to collaborate together if they perceive cooperation with each other will bring benefits or value.



Inter-organizational innovation performance has increasingly become key determinants of electronic supply chains' competitive advantages (Wang, Yeung, and Zhang 2011). The performance of an organization in inter-organizational relationships such as electronic supply chains for achieving its business goals often depends on the innovation performance that it develops and implements with its partners (Azadegan 2011). Inter-organizational innovation performance within an electronic supply chain has thus become a common practice, because it enhances the competitive advantage of the electronic supply chain as a whole.

To take full advantage of innovation performance, manufacturers must understand the factors influencing inter-organizational innovation performance. Existing research on this important issue has paid little attention to the causes of the innovation performance in an inter-organizational context (Petersen, Handfield, and Ragatz 2005; Wang, Yeung, and Zhang 2011). In particular, no study has examined how the interactive factors of inter-organizational relationships affect innovation performance and these relationships. To achieve the benefits of inter-organizational innovation performance, it is important in the maintenance of good relationships.

To verify this new research model, we first examine how the institutional orientation of a company affects its attitude toward inter-organizational innovation performance. Then, we look into how factors of relational and institutional view affect the connection between institutional orientation and inter-organizational innovation performance. Specifically, we examine how relational benefits affect the interaction between institutional orientation and innovation performance.

In the following sections, Section 2 presents theoretical framework and hypothesis development. The data collection method and research design are described in Section 3, and the study findings are presented in Section 4. Finally, Section 5 provides a discussion of the results, and Section 6 concludes the paper and offers directions for future research.

THEORETICAL FRAMEWORK AND HYPOTHESIS DEVELOPMENT

Institutional Orientation

In an electronic supply chain, a strong institutional orientation means that the willingness of a firm to build and to maintain positive relationships with its partners is enhanced (Dwyer, Schurr, and Oh 1987; McFarland, Bloodgood, and Payan 2008). The firm will choose to conform to the "rules of the game" to avoid being locked out of cooperative relationships

and to ensure access to relational resources (DiMaggio and Powell 1983; Tolbert 1985; North 1990; Liang *et al.* 2007; Cheng 2011). With collaborations between partners will boost the innovation performance (Wang, Yeung, and Zhang 2011). Thus, it is reasonable to propose that the higher the institutional orientation between partners improve inter-organizational innovation performance. It is thus hypothesized that:

Hypothesis 1: Institutional orientation is positively related to innovation performance

Relational Benefit

The critical role of relational benefits is always a top priority when a company decides whether or not to form partnerships with others. They are crucial in determining the level of commitment to product profitability, customer satisfaction, and market share. Similarly, when the relational benefits provided by one company are greater than those provided by others, customer loyalty improves. The willingness of customers to build and maintain long and positive relationships with the company is subsequently enhanced (Gwinner, Gremler, and Bitner 1998). Therefore, relational benefits between partners are so substantial that can affect relationship effectiveness in electronic supply chains. Thus, the higher the relational benefits between partners increase the effect of institutional orientation on innovation performance. Therefore, It is hypothesized that:

Hypothesis 2: The association between institutional orientation and innovation performance is moderated by relational benefits such that the association is significantly stronger when a high level of relational benefits is present.

RESEARCH METHOD

To develop the survey instrument, pools of items are identifies from this literature in order to measure the constructs of this research model. All measures of this survey instrument were developed from the literature. The expressions of these items are adjusted, where appropriate, to the context of marine transportation logistics. The items measured on a seven-point Likert scale, ranging from 'strongly disagree' (1) to 'strongly agree' (7).

In order to improve content and appearance of the 12-item questionnaire, a pre-test of it was performed on a sample comprising three academic researchers and five Ph.D. Students. The empirical study aims at top 1000 manufactory enterprises selected from directories of 2011 Business Weekly top 1000 firms in Taiwan. This resulted in 252 effective responses and a

total response rate of 25.2%. A Chi-square analysis of the industry distribution of the respondents showed no difference from the industry distribution of all the firms used in the survey. This suggested no non-response bias in the returned questionnaires.

RESEARCH RESULTS

Structural equation modeling (SEM) with LISREL 8.54 (Joreskog and Sorbom 1993) was used to test and analyze the hypothesized relationships of the research model. SEM aims to simultaneously examine the inter-related relationships among a set of posited constructs, with each construct being measured by one or more observed item(s) (measures). SEM involves the analysis of two models: a measurement (or confirmatory factor analysis) model and a structural model (Anderson and Gerbing 1988). The measurement model specifies the relationships between the observed measures and their underlying constructs, which allowed to inter-correlate, and the structural model specifies the posited causal relationships among the constructs.

Institutional orientation is positively associated with innovation performance. relational benefits is positively associated with the effect of institutional orientation on innovation performance. The overall fit of the structural model is acceptable, since all measures of fit reach an acceptable level ($\chi^2 = 209.128$, $df = 112$, $p < 0.01$; GFI = 0.911; AGFI = 0.862; CFI = 0.915; NFI = 0.909; RMSEA = 0.046). The result shows that institutional orientation (H1: $\gamma = 0.182$, $t = 3.902$, $p < 0.001$) is significantly associated with innovation performance, and its interactions with relational benefits (H2: $\gamma = 0.421$, $t = 4.018$, $p < 0.001$) is significantly associated with innovation performance.

DISCUSSION AND CONCLUSION

Conforming to the hypothesis, institutional orientation has the strongest positive influence on inter-organizational innovation performance. This finding is consistent with Bello, Lohtia, and Sangtani (2004). In Taiwan's electronic supply chains, this factor plays the most significant role in undermining inter-organizational innovation performance. Institutional orientation means there are formally through rules or laws, or informally through certain cultural expectations between electronic supply chain members. Violating these rules may bring a firm's legitimacy into question and jeopardize its access to scarce resources and social support (DiMaggio and Powell 1983; Tolbert 1985; Liang *et al.* 2007). Thus, institutional orientation can impact partners' ability to process rationalize, and exercise discretion in inter-organizational innovation performance.



We also find that the association between institutional orientation and innovation performance is positively moderated by relational benefits, consistent with the finding of Petersen, Handfield, and Ragatz (2005) and Wang, Yeung, and Zhang (2011) that a good relationship increases inter-organizational innovation performance. It is not surprising that relational benefits constitute the greatest contributing factor, and, not unexpectedly, a Taiwan's manufacturing firms will form inter-organizational relationships only when it can benefit from the relationship. For example, one party from the cooperation relationship could be the net-gainer at any one time. Therefore, there would be no cut-and-run because the party perceives that only through continuity of collaboration can gains be achieved in the future (Dodgson 1993). This indicates that organizations tend to collaborate together if they perceive cooperation with each other will bring benefits and good performance.

It is of strategic importance for an organization to understand the factors influencing the performance of innovation developed and implemented with its partners in an inter-organizational relationship such as electronic supply chains. In this study, we find that the institutional orientation is positively associated with innovation performance. We also find that relational benefits between electronic supply chain members increase the willingness of partners to enhance their relationships to improve the performance of innovation. When both sides in an electronic supply chain perceive cooperation with each other will bring benefits, organizations tend to increase the closeness of the relationship. The findings of the study provide practical insights in understanding how enhanced inter-organizational relationship benefits can help enhance inter-organizational innovation performance.

ACKNOWLEDGEMENTS

This research was supported by the National Science Council of Taiwan, ROC, under Contract NSC 99-2410-H-224-010-MY3.

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