

## **7. Conclusion**

### **7.1 Summary**

Many organizations are reengineering their business processes in order to take full advantage of supply chain collaboration. This dissertation seeks to uncover the key company-owning capability that can contribute to the supply chain collaboration. The proposed framework measures the supply chain capability in four levels: (1) the technology capability in terms of IOS usage and integration as well as information technology infrastructure, (2) the transaction risk resolution capability, (3) the capability to maintain good relationships, and (4) the capability to reduce uncertainties of external environment.

To pretest the applicability of this model, we conduct interviews with three companies in Taiwan PC industry. The findings are consistent with our model. Though these companies play different role in the PC industry, all of them agree the technology capability, good relationship, and risk resolution capability are success factors of supply chain collaborations, and thus companies owning these capabilities are able to achieve better supply chain performance.

To further test the model, we conduct a general survey with main Taiwanese PC firms during spring 2005. After a series of measurement assessment, the supply chain capability construct is adjusted as a second-order model. The model consists of two groups of items. The first group captures the firm capability for resolving the transaction risk. The other group presents the inter-firm capabilities for promoting good relationship and managing the environment uncertainties with trading partners.

Despite this research does not empirically validate the relationship between the supply chain capability and the supply chain performance, we provide a descriptive statistical analysis to initially understanding the relationship between the supply chain capability and the IOS types as well as the supply chain roles. We find that firms' supply chain capability can affect their IOS adoption. That is, firms with higher supply chain capability are more able to adopt complex IOS technologies (e.g., EDI/EOI and RosettaNet). We also observe that firms in different supply chain sector require different supply chain capability to maximize their collaboration performance. For instance, service providers have the highest supply chain capability of all the other supply chain roles, and the raw material suppliers have the lowest.

### **7.2 Limitations and Implications of Future Research**

As with any empirical investigation, weaknesses in the methodology and data will be present (Lewis and Byrd 2003). First, the number of observations upon which the analyses are

performed is in the barely acceptable range. It is recommended that five data points be collected for every estimated parameter in a structural equation model (Segars and Grover 1998); however, some researchers (Fuller and Swanson 1992) have worked with ratios as low as 2:1. Segars and Grover (1998) mention that complex models may require even large sample size; therefore when models are complex and samples are small, the hypothesized model will be rejected too often (Segars and Grover 1998). Although we have cited evidence that our sample size is minimally adequate, we recognize that other researchers might take exception to our small size. Second, the survey data utilized in this study are collected from firms in the Taiwan PC industry. Although the utilized sampling frame has been widely-used in similar studies and contains organizations which likely participate in the activity of interest, no claim of external validity for this study's findings can be made. Instead, these findings can only be generalized to the population of firms within the sampling frame.

However, at the very least, the components of supply chain capability and the measurement instrument developed in this study provide a good starting point for further investigations of the supply chain capability construct. Validated supply chain capability measures can help managers better gauge the characteristics of the collaborations. IT researchers can build upon the model developed in this study through further examination of the factors that are discovered. Further research can be conducted by the cross-industry or cross-country survey in the future to verify these results.