

UNIVERSITY OF SOUTHERN QUEENSLAND

**THE IMPACT OF TECHNOLOGICAL
CAPABILITY ON POWER, TRUST AND INTER-
FIRM RELATIONSHIP PERFORMANCE**

A dissertation submitted by

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ABSTRACT

This study investigates the impact of technological capability on power, trust and inter-firm relationship performance between manufacturers and their suppliers within the supply chain context. This study also verifies the mediating effect of power and trust in the relationship between technological capability and inter-firm relationship performance. Building from the perspective of supply chain management, Resource Base View, power, and trust theories; a conceptual model is developed and the hypotheses are drawn to show the interrelationship between these constructs.

This study adopts a mixed method approach where data is collected in two phases. Phase One consists of a quantitative based approach whereby data is obtained through paper-based postal survey questionnaires. Phase Two involves qualitative method and the data is acquired through a series of case study interviews. In phase one, the survey questionnaires were mailed to 800 Malaysian manufacturing companies listed in the Federation of Malaysian Manufacturers Directory 2009. A total of 132 surveys were received of which 126 responses were usable, signifying a response rate of 15.75 per cent. The partial least square (PLS) statistical approach has been conducted to test the research hypotheses. Meanwhile in phase two, the data was collected from five manufacturing organisations. Case study approach was chosen and the data was analysed by identifying specific themes that emerged from the interviews, followed by cross case analysis.

The quantitative results indicate that there is an association between technological capability and the inter-firm relationship performance. The PLS path coefficient shows positive direction (0.2782) which is significant at $p < 0.001$. This finding is supported by the qualitative result that found the association between both constructs and thus confirms that the Resource Based View theoretical perspective can be applied to the association between firm competitive advantage and the relationship performance in the context of Malaysian manufacturing supply chain.

The role of relationship power (which focuses on the non-mediated power based in the quantitative phase) is also examined in this research. The quantitative phase confirms that there is a positive association (PLS path coefficient of 0.6943) between technological capability and power which is significant at $p < 0.001$. The association between power and the inter-firm relationship performance is also found to be positive (PLS path coefficient of 0.2710) and significant at $p < 0.005$. Interestingly, the quantitative analysis also found that power significantly mediates the positive relationship between technological capability and inter-firm relationship performance. The Sobel test of mediation effect indicates z value of 2.652 and significant at $p < 0.01$. Meanwhile, the qualitative phase confirms these associations with a caution that technological capability might also create coercive power along with the non-mediated power based in the relationship.

The empirical results from the quantitative data analysis also reveal the association between technological capability, trust and inter-firm relationship performance constructs. The findings suggest that there is a positive association between technological capability and trust at significant level of $p < 0.001$ (PLS path coefficient of 0.6170). The association between trust and the inter-firm relationship performance is also found to be positive (PLS path coefficient of 0.3252) and significant at $p < 0.001$. This research also reports the mediation impact of trust on the positive association between technological capability and inter-firm relationship performance. The Sobel test of mediation effect indicates z value of 3.703 and significant at $p < 0.001$. As expected, the qualitative findings provide support for these associations and, interestingly, add to the possibility of benevolence trust occurrence in a relationship as a result of technological capability deployment.

This research contributes to the literature by offering further understanding of Resource Based View theory in the context of a developing country viewpoint (Malaysia) since previous studies have largely focused on developed countries. This research also expands the theoretical application of Resource Based View by examining the mediating effects of both power and trust constructs in enhancing relationship performance outcomes and thus provides linkages between Resource Based View theory, power-dependency theory and trust theory. This study also contributes to the knowledge by extending the previous research on measuring technological capability, power, trust and inter-firm relationship performance by conceptualising them as multi-dimensional constructs.

This thesis recommends that policy makers should encourage Malaysian manufacturers to focus on the development of inter business relationships, and technological capability in order to sustain a high level of business performance among them. In this notion, emphasis should be given by the policy maker to continuously providing support in high technology activities such as promoting the growth of R&D activities. Finally, this research is useful to the business community in the manufacturing sector since it provides useful information to management on the advantages of possessing technological capability which can form the basis of making future decisions in technology related expansions.

CERTIFICATE OF DISSERTATION

I certify that the ideas, results, analyses and conclusions reported in this dissertation are entirely my own effort, except where otherwise acknowledged. I also certify that the work is original and has not been previously submitted for any awards, except where otherwise acknowledged.

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LIST OF ACRONYMS AND ABBREVIATIONS

AMT	Advance Manufacturing Technology
APITD	Action Plan for Industrial Technology Development
AVE	Average Variance Extracted
CBSEM	Covariance base Structural Equation Modelling
CFA	Confirmatory Factor Analysis
EDI	Electronic Data Interchange
FMM	Federation of Malaysian Manufacturers
GDP	Gross Domestic Product
ICT	Information and Communication Technology
IFR	Inter-firm Relationship Performance
IMP	Industrial Master Plan
IT	Information Technology
KEMP	K-Economy Master Plan
MIMOS	Malaysian Institute of Micro Electronics Systems
MNC	Multi-National Corporation
MSC	Multimedia Super Corridor
NIE	New Industrializing Economies
PLS	Partial Least Square
R&D	Research and Development
RFID	Radio Frequency Identification Device
SCM	Supply Chain Management
SEM	Structural Equation Modelling
SME	Small and Medium Enterprises