

Copyright is owned by the Author of the thesis. Permission is given for a copy to be downloaded by an individual for the purpose of research and private study only. The thesis may not be reproduced elsewhere without the permission of the Author.

**IT Capability, Customer Information
Handling, and Privacy Protection: A
Resource-based View of Organisational
Performance**

Yiyi Tang

2007

IT Capability, Customer Information Handling, and Privacy Protection: A Resource-based View of Organisational Performance

A thesis presented in partial fulfilment of the requirements for the degree of
Master of Information Science
in
Information Systems
at Massey University, Auckland,
New Zealand.

Yiyi Tang

2007

Abstract

What is the influence of Information Technology (IT) capability, and customer relationship management (CRM) capability on organisational information privacy protection behaviour, and ultimately how do these relationships impact on organizational performance? What are the relationships between different types of IT capabilities (i.e. outside-in, inside-out, and spanning capabilities) and how do they impact on performance (i.e. directly or indirectly)? This survey study attempted to answer these questions by empirically testing a research model based on the Resource Based-View (RBV) of the firm and the Comparative Advantage Theory of Competition to examine these relationships in the context of New Zealand firms engaged in IT supported CRM activities. RBV theory claims different subsets of a firm's resources (i.e. assets and capabilities) enable it to achieve initial and long-term competitive advantage (Barney, 1991). The role of different types of IS resources in achieving advantage has not been fully explored with some prior work finding evidence of direct effects but most finding only indirect effects of IS resources in general (Wade & Hulland, 2004).

In addition, Comparative Advantage Theory claims a comparative advantage in resources leads to a competitive advantage in market position which in turn leads to superior financial performance (Hunt & Morgan, 1995). In turn, an organisation's use of customer information primarily for internal knowledge or external relationship building may be related to its privacy protection capability and how it measures performance (Greenaway & Chan, 2005) but these propositions had not yet been empirically tested. A review of the Information Systems literature showed that very little prior work had been done on organisational level privacy protection behaviours. The findings from my study begin to address these gaps in the literature.

This research makes the following contributions to the academic literature on CRM.

First, it empirically tested proposals found in the literature which suggested considering information privacy protection as a resource based on claims made by RBV theory. Second, the research splits IS capabilities into three groups (IS inside-out capability, outside-in capability and spanning capability), splits CRM capabilities into two groups (customer knowledge capability and customer relating capability) and splits organisational performance into two groups (effectiveness and efficiency) in order to assess the role of privacy protection practice as a mediating mechanism between different IS and CRM capabilities and organisational performance outcomes.

The response data was analysed using Confirmatory Factor Analysis based on the Partial Least Squares parameter estimation technique, a form of Structural Equation Modelling. The findings show inside-out (internally focused) IT capabilities have a weak negative direct effect on customer relating capability. However, this can be mediated by investing in IT outside-in and IT spanning capabilities which have a positive impact on customer relating capability. Interestingly, IT Outside-in (externally focused) capabilities had a direct positive influence on customer knowledge capability. This was unexpected as earlier work predicted this relationship would be mediated by IT spanning resources.

As expected, a comparative advantage in customer knowledge capability had a moderate direct positive impact on efficiency, measured as financial performance. It also had a moderate direct positive impact on producing a comparative advantage in customer relating capability. This supports CRM theory which claims that a better understanding of customers based on collecting and processing customer information can lead to a better customer relating capability. But, as predicted, no relationship to privacy protection capability was found. In contrast, using IT to gain a comparative advantage in customer relating capability had a direct positive impact on establishing privacy protection behaviours that exceed guidelines. Treating privacy protection as a resource also appears to lead to greater effectiveness which in turn leads to greater efficiency.

In addition to contributing empirical evidence to support the conditions under which the proposed theoretical model applied, the results had several implications for practice. First, the findings provide organisations with greater awareness of how others in their industry are using IT to support customer relating and customer knowledge capabilities and how safeguarding or not safeguarding information privacy contributes directly to effectiveness and indirectly improves financial performance. Second, the findings are useful for raising consumer awareness about actual organisational information privacy practices. Most organisations in New Zealand reported meeting or exceeding industry guidelines. If the reported safeguards are in place and fair information handling practices are being followed, awareness of the results may help to reduce the high levels of privacy concern reported in consumer surveys. Lastly, privacy protection capabilities have a positive impact on performance, giving organisations an incentive to implement them.

Keywords: Resource Based View theory, organisational-level privacy practices, customer relating capability, customer knowledge capability, customer relationship management (CRM) performance

Acknowledgements

I would like to thank a number of people who have helped me with the writing of this thesis. First, my supervisor, Dr. Ellen Rose for her help and patience at all stages of this research. Her invaluable help and contributions have guided me through the research process. Thanks are also due to Jeremy Hunt, Crag Gatze, and Ricky Andrews for their assistance and advice in checking my grammar and the wording of questions used in my pre-test. Thanks are also due to the Australia New Zealand Advertising Association (ANZA) and the New Zealand Marketing Association for their help in conducting the survey. Lastly, I would like to thank Tong Liu, Jian Liang and all the others who have supported me with their friendship. The Massey University Human Ethics Committee (MUHEC) categorized the study as low-risk and granted approval to proceed with data collection on 10 May 2006.

Table of Contents

Abstract	iii
Acknowledgements	vi
Table of Contents	viii
List of Tables	x
List of Figures	xi
Chapter 1: Introduction and Background	1
<i>Purpose of the Study</i>	1
<i>Introduction</i>	2
<i>Background</i>	7
<i>Outline of the Study</i>	10
Chapter 2: Theoretical Framework	13
<i>Reasons for Choosing the Resource-Based View</i>	13
<i>RBV Theory and Relevant Extensions</i>	15
RBV Theory	15
RBV as an Explanation for the Contribution of IS Resources	17
RBV as an Explanation for Organisational Information Privacy Behaviours	20
RBV and Comparative Advantage	21
Research Model	22
<i>Variables in the Research Model</i>	23
IS Capabilities	23
1) IS Inside-out Capabilities	23
2) IS Outside-in Capabilities	24
3) IS Spanning Capabilities	25
b) IS planning and change management	26
Customer Relating Capability and Customer Knowledge Capability	26
1) Customer Relating Capability	27
2) Customer Knowledge Capability	27
Information Privacy Protection Capability	29
Efficiency and Effectiveness	30
<i>Research Hypotheses</i>	31
IS Inside-out, Outside-in and Spanning Capabilities	31
Direct Effect or Contingent Effect on Organisational Performance (Effectiveness and Efficiency)	37
CRC, CKC and Information Privacy Protection Capability	40
<i>Summary</i>	44
Chapter 3: Research Method	45
<i>Rationale for the Research Design</i>	45
<i>Data Collection</i>	46
Sampling Strategy	47
Ethical Issues in Accessing Participants	48

Questionnaire Design and Construct Measurement	49
Pre-testing and Pilot Study	51
Conducting the Full Survey.....	52
<i>Data Analysis</i>	53
Descriptive Statistics	53
PLS Path Modelling	54
Model Specification in PLS-Graph 3.0	56
Measurement (Outer) Model Procedures and Assessment.....	60
Structural (Inner) Model Assessment	61
Chapter Summary.....	61
Chapter 4: Results	63
<i>Descriptive Statistics on the Sample</i>	63
<i>Measurement (outer) Model</i>	66
Descriptive Statistics	66
Reliability and Convergent Validity	70
<i>Structural (inner) Model</i>	75
Chapter Summary.....	78
Chapter 5: Discussion	79
<i>Influence of IS capabilities on CRC/CKC</i>	79
<i>Influence of CKC, CRC and IPP on Organisational Performance</i>	84
<i>Role of Information Privacy Protection Capability</i>	86
<i>Summary</i>	88
Chapter 6: Conclusions	89
<i>Features and Key findings</i>	89
<i>Limitations and Future Research</i>	91
<i>Summary</i>	94
References	97
Appendix	129

List of Tables

Table 2.1 Prior work using RBV to examine investment in IS resources and firm performance.	16
Table 2.2 Summary of the correlation between investment in IS resource and CRM.....	36
Table 2.3 Summary of the effects of strategic information technology on performance.	39
Table 3.1 Original number of measurement items for each latent construct.	58
Table 4.1 Number of employees in the sample and NZ business population.	65
Table 4.2 Main area of business in the sample and NZ business population.	65
Table 4.3 Type of relationship with customers.	66
Table 4.4 Descriptive statistics on questions.	67
Table 4.5 Measurement model results.	71
Table 4.6 Results of the first test for discriminant validity.	72
Table 4.7 Items were removed to improve the Measurement Model.	73
Table 4.8 Results of the second test for discriminant validity.	74
Table 4.9 Other results for the Structural Model.	77
Table 5.1 Total direct and indirect effects of IS capabilities on firm performance.	81

List of Figures

Figure 2.1 General theoretical model of extended RBV Theory.....	22
Figure 2.2 Research model based on the RBV Theoretical Framework.....	23
Figure 3.1 Steps followed in Partial Least Squares Path Modelling.....	56
Figure 3.2 Specification of the path model.....	57
Figure 3.3 Run options used in the PLS-Graph 3.0 model specification.....	59
Figure 3.4 Output options using LV scores to assess construct validity.....	59
Figure 3.5 Re-sampling options used for the Bootstrap procedure.....	59
Figure 4.1 Job titles of respondents.....	64
Figure 4.2 Years engaged in IT-supported CRM.....	64
Figure 4.3. Significant paths in the Structural Model ($p \leq 0.05$; $t \geq 1.65$).....	76