# INFORMATION TO USERS

This manuscript has been reproduced from the microfilm master. UMI films the text directly from the original or copy submitted. Thus, some thesis and dissertation copies are in typewriter face, while others may be from any type of computer printer.

**The quality of this reproduction is dependent upon the quality of the copy submitted.** Broken or indistinct print, colored or poor quality illustrations and photographs, print bleedthrough, substandard margins, and improper alignment can adversely affect reproduction.

In the unlikely event that the author did not send UMI a complete manuscript and there are missing pages, these will be noted. Also, if unauthorized copyright material had to be removed, a note will indicate the deletion.

Oversize materials (e.g., maps, drawings, charts) are reproduced by sectioning the original, beginning at the upper left-hand corner and continuing from left to right in equal sections with small overlaps.

Photographs included in the original manuscript have been reproduced xerographically in this copy. Higher quality 6" x 9" black and white photographic prints are available for any photographs or illustrations appearing in this copy for an additional charge. Contact UMI directly to order.

Bell & Howell Information and Learning
300 North Zeeb Road, Ann Arbor, MI 48106-1346 USA
800-521-0600

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

# ALIGNING STRATEGY AND CUSTOMER INFORMATION FOR PERFORMANCE IN BUSINESS MARKETS

BY

DEBRA L. ZAHAY

A.B., Washington University, 1977
M.M., Northwestern University, 1980
J.D., Loyola University, 1983

THESIS

Submitted in partial fulfillment of the requirements
for the degree of Doctor of Philosophy in Business Administration
in the Graduate College of the
University of Illinois at Urbana-Champaign, 2000

Urbana, Illinois

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

UMI Number: 9990202

Copyright 2000 by
Zahay, Debra L.

All rights reserved.

UMI®

UMI Microform 9990202
Copyright 2001 by Bell & Howell Information and Learning Company.
All rights reserved. This microform edition is protected against
unauthorized copying under Title 17, United States Code.

Bell & Howell Information and Learning Company
300 North Zeeb Road
P.O. Box 1346
Ann Arbor, MI 48106-1346

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

© Copyright by Debra L. Zahay 2000

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

# UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

## THE GRADUATE COLLEGE

JULY 2000
(date)

WE HEREBY RECOMMEND THAT THE THESIS BY

DEBRA L. ZAHAY

ENTITLED ALIGNING STRATEGY AND CUSTOMER INFORMATION FOR PERFORMANCE IN BUSINESS MARKETS

BE ACCEPTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY

Director of Thesis Research

Head of Department

Committee on Final Examination†

Chairperson

† Required for doctor's degree but not for master's.

O-517

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

# ABSTRACT

The major goals of this research are to determine how to measure how well business units manage Customer Information and to place these capabilities in the context of their strategic choices of positioning and segmentation. This research supports the theoretical concept that learning organization theory provides an organizing framework for operationalizing the measures of how well business units manage Customer Information and a way to measure these capabilities.

The relationship between the Customer Information System (CIS) and Marketing Performance in terms of share of wallet, customer retention, lifetime customer value and return on investment is supported by this research, although somewhat overshadowed by the effect of strategic positioning choice. Marketing Performance variables mediate positioning strategy, the CIS and the ultimate performance variable, increases in business unit sales and net income. The true value of the CIS in the organization might be the ability to manage through these important metrics.

Although there is support for the idea that strategy and information management should be aligned to achieve competitive advantage, just implementing an effective strategy combination helps the business unit achieve competitive advantage as measured by the Marketing Performance variables above and by business unit growth. The decision to follow the "Both" strategy (Low-Cost and Differentiation simultaneously) could be considered a surrogate for "Strategic Excellence" in general. This strategy is associated with competitive advantage (Treacy and Wieserma1993) and in most cases requires coordination of information throughout the business unit as well as a deep and sophisticated knowledge of the customer.




Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

# DEDICATION

I dedicate this work to the following individuals:

To Seymour Sudman, who believed in me when it mattered,

To my grandparents Mary and Otto Hajek, Helen and Rudolph Zahay, and my parents, Joyce and Al Zahay, whose sacrifices made my dream possible,

To those who seek wisdom,

And to those who have the courage to start a new life.



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

# ACKNOWLEGEMENTS

I would like to acknowledge the following individuals and organizations:

My parents for their support, and for teaching me to be free to fulfill my potential, and particularly my mother, **Joyce Zahay**, for her devotion above and beyond the call of maternal duty during the last two summers.

My committee for their support in the following ways:

- **Abbie Griffin, my Advisor and Chair, for supporting my research goals**
- **James Hess, for being there from the beginning**
- **Anju Seth, for teaching me to think across disciplines**
- **Stan Wasserman, for his encouragement and wisdom**

For funding this research:

- **University of Illinois Graduate Studies Committee**
- **DePaul University Center for Interactive and Direct Marketing**
- **University of Cincinnati Direct Marketing and Policy Institute**

For countless phone calls and faxes:

**Blender and Associates, Harvey and Jane**

For their administrative support:

**The Manager and Staff at Gentry Square Apartments**

And the "Fifth, Sixth and Seventh Man" Awards go to the following:

**Rod McDonald, for an invaluable education in covariance analysis**

**Joe Mahoney, for introducing me to strategy, and much more**

**Mike Shaw, for the concept of shareability**

And to my true friends, you know who you are.



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

# PREFACE

Marketing database and interactive web technologies represent significant investments for business marketers. These investments are made in the hope of improved relationships with customers, and ultimately business unit performance. The successful use of marketing technology to improve customer relationships and marketing performance has been documented only by anecdotal stories but not tested by empirical means. Meanwhile, managers are bombarded with choices of software and consulting services to automate their business practices in this area. For example, there are currently over 400 software packages that claim to help with customer relationship management. This thesis represents one of the first attempts to empirically test the relationship between Customer Information System (CIS) development and business unit performance.



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

# TABLE OF CONTENTS

LIST OF TABLES ..... x
LIST OF FIGURES ..... xii

CHAPTER ONE: MOTIVATION, RESEARCH SUMMARY AND RESEARCH QUESTIONS ..... 1
MOTIVATION ..... 1
RESEARCH SUMMARY ..... 5
RESEARCH QUESTIONS ..... 7

CHAPTER TWO: LITERATURE REVIEW AND MODEL DEVELOPMENT ..... 8
CUSTOMER INFORMATION AND COMPETITIVE ADVANTAGE ..... 8
FROM CUSTOMER INFORMATION TO CUSTOMER INFORMATION SYSTEM ..... 10
Information generation (acquisition, specificity and quality) ..... 15
Customer Information Organizational Memory (addressability) ..... 20
Customer Information Dissemination ..... 21
Customer Information Interpretation (shareability) ..... 22
Summary of CIS Constructs ..... 22
CUSTOMIZATION, MARKETING INTERACTIVITY AND CUSTOMER INFORMATION ..... 23
Customization ..... 23
Interactivity and Interactive Marketing ..... 24
RELATIONSHIPS AND RELATIONSHIP PERFORMANCE ..... 26
STRATEGIC COHERENCE ..... 27
Strategy and Technology Management ..... 29
Strategic Choice ..... 30
Competitive Advantage ..... 31
SUMMARY OF LITERATURE ..... 33

CHAPTER THREE: MODEL AND HYPOTHESIS DEVELOPMENT ..... 34
MODEL DEVELOPMENT ..... 34
HYPOTHESIS DEVELOPMENT ..... 43
CONSTRUCTS AND THEIR OPERATIONALIZATIONS ..... 51
Positioning ..... 51
Product Market Focus (Segmentation) ..... 51
Customer Information System (CIS) ..... 51
*Generate: Capabilities Relating to Acquisition, Specificity, Quality* ..... 51
*Remember: Addressability* ..... 53
*Disseminate: Dissemination Capability* ..... 53
*Interpret: Shareability* ..... 54
Customization ..... 54
Interactive Marketing ..... 55
Relationship Performance ..... 55
Marketing Performance (Marketing Competitive Advantage) ..... 55
Business Unit Performance (Business Competitive Advantage) ..... 56



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Control Variables ..... 56
Other Background Variables ..... 57
Non-Response Bias ..... 57

CHAPTER FOUR: SURVEY METHOD AND SAMPLING, CONSTRUCT DEVELOPMENT AND TESTING ..... 58
SURVEY PRETEST ..... 58
SURVEY ADMINISTRATION ..... 59
DATA COLLECTION METHODOLOGY ..... 60
SAMPLING AND RESPONSE RATE ..... 62
Combined response ..... 62
Insurance ..... 63
Software ..... 64
RESPONDENT PROFILE ..... 65
NON-RESPONSE BIAS ..... 68
CONSTRUCT TESTING AND DEVELOPMENT ..... 70
CIS Construct Development ..... 72
*CIS-Exploratory Factor Analysis* ..... 73
*CIS-Confirmatory Factory Analysis* ..... 80
*Single Factor CIS Model* ..... 82
*Alternate CIS Models* ..... 93
Customization and Interactive Marketing Construct ..... 95
Relationship Performance Construct ..... 99
Marketing and Business Unit Performance Construct ..... 100
Strategy Constructs ..... 102
SUMMARY OF CONSTRUCTS ..... 104

CHAPTER FIVE: HYPOTHESIS TESTING AND RESULTS ..... 110
PRELIMINARY ANALYSIS ..... 110
HYPOTHESIS TESTING ..... 116
Overarching Hypothesis ..... 116
*Strategic Categories* ..... 116
*Strategic Excellence/CIS Alignment within Strategic Categories* ..... 125
*Summary of results testing H1* ..... 129
Testing the Hypotheses Associated with the Individual Paths ..... 129
Summary of Hypothesis Testing ..... 142
MODEL DEVELOPMENT ..... 142
Alternate Models and Robustness ..... 149
Model Fit ..... 151
Model Results ..... 152
Effect of Control Variables on Performance ..... 154
SUMMARY OF RESULTS ..... 157

CHAPTER SIX: DISCUSSION, MANAGERIAL IMPLICATIONS AND FUTURE RESEARCH ..... 158
DISCUSSION ..... 158
MANAGERIAL IMPLICATIONS ..... 162



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

LIMITATIONS ..... 164
FUTURE RESEARCH ..... 165

APPENDIXA: SURVEY ..... 177
APPENDIX B: FINAL SURVEY ..... 188
APPENDIX C: COVER LETTER ..... 193
REFERENCES ..... 194
VITA ..... 206



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

# LIST OF TABLES


| Table | | Page |
|---|---|---|
| Table 1: | Market Information Processing Behaviors | 11 |
| Table 2: | Examples of Customer Information Specific to Time and Person | 17 |
| Table 3: | CIS and Strategic Constructs, Sources and Related Hypotheses | 35 |
| Table 4: | Performance Constructs and Control Variables, Sources and Related Hypotheses | 41 |
| Table 5: | List of Hypotheses | 42 |
| Table 6: | Direct Marketing Review of Acquisition Sources | 53 |
| Table 7: | Profile of Respondents | 67 |
| Table 8: | Profile of Respondent Companies | 67 |
| Table 9A: | T-Tests for Differences in Means Between Respondents and Non-Respondents, Insurance Industry | 69 |
| Table 9B: | T-Tests for Differences in Means Between Respondents and Non-Respondents, Software Industry | 69 |
| Table 10: | EFA Factor Loadings Generate | 75 |
| Table 11: | EFA Factor Loadings Addressability | 76 |
| Table 12: | EFA Factor Loadings Dissemination | 77 |
| Table 13: | EFA Factor Loadings Shareability | 79 |
| Table 14: | Quality Summary | 82 |
| Table 15: | Acquisition Summary | 83 |
| Table 16: | Person and Time Specificity Summary | 84 |
| Table 17: | Dissemination Summary | 85 |
| Table 18: | Addressability Summary | 86 |
| Table 19: | Addressability Human Resources Summary | 86 |
| Table 20: | Shareability Access Summary | 87 |
| Table 21: | Shareabilty Modify Summary | 87 |
| Table 22: | Shareability of Customer Summary | 87 |
| Table 23: | CIS Items CFA results | 88 |
| Table 24: | CIS Item Number Reduction | 89 |
| Table 25: | CIS One-Factor Models | 90 |
| Table 26: | CIS Constructs Descriptive Statistics, N=209 | 92 |
| Table 27: | Comparison of CIS Factor Models | 93 |
| Table 28: | CIS Constructs Correlations | 95 |
| Table 29: | EFA Factor Loadings Interactive Marketing | 96 |
| Table 30: | EFA Factor Loadings Customization | 97 |
| Table 31: | EFA Factor Loadings Interactive Marketing and Customization | 97 |
| Table 32: | Customization Summary | 99 |
| Table 33: | Interactive Marketing Summary | 99 |
| Table 34: | EFA Factor Loadings Relationship Performance | 100 |
| Table 35: | EFA Factor Loadings Performance | 101 |
| Table 36: | Marketing Performance Summary | 101 |
| Table 37: | Business Unit Performance Summary | 102 |
| Table 38: | EFA Factor Loadings, LOWCOST, DIFFERN, BFOCUSED | 102 |




Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Table 39: LOWCOST Summary ..... 103
Table 40: DIFFERN Summary (Differentiation) ..... 104
Table 41: BFOCUSED Summary (Broad vs. Focused) ..... 104
Table 42: Non-CIS items CFA Summary ..... 105
Table 43A: Descriptive Statistics for Model Constructs N=209 ..... 106
Table 43B: Descriptive Statistics for Model Constructs N=206 ..... 107
Table 44A: Model Construct Correlations N=209 ..... 108
Table 44B: Model Construct Correlations N=206 ..... 109
Table 45: Differences in means between industries, Model Constructs ..... 112
Table 46: Differences in means between industries, CIS sub-constructs ..... 113
Table 47: Performance and Strategic Category ..... 118
Table 48: Differences in means between groups, CIS sub-constructs ..... 121
Table 49: CIS/Strategic Excellence Alignment and Performance ..... 127
Table 50: Differences in means between categories, Broad vs. Focused ..... 133
Table 51: Relationship between CIS Sub-Constructs, Customization and Interactive Marketing ..... 140
Table 52: Variables used in SEM Model ..... 144
Table 53: Alternate Models ..... 148
Table 54: Control Variables Regression Results, Dependent Variable, Marketing Performance ..... 156
Table 55: Results Summary ..... 157



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

# LIST OF FIGURES
## (All Figures follow text)


| Figure | | Page |
|---|---|---|
| Figure I: | Managing Customer Information | 167 |
| Figure II: | Generic Competitive Strategies | 167 |
| Figure III: | Paths to Competitive Advantage | 168 |
| Figure IV: | Path for Differentiation, Focused Strategies with Latent Variables | 168 |
| Figure V: | Path for Low Cost with Latent Variable | 169 |
| Figure VI: | Hypothesis 3a | 169 |
| Figure VII: | Hypothesis 5a | 170 |
| Figure VIII: | Initial CIS Factor Model | 170 |
| Figure IX: | EFA Results/CIS Variables | 171 |
| Figure X: | Final CIS Model | 171 |
| Figure XI: | Generic Competitive Strategies in Sample, N=209 | 172 |
| Figure XII: | Alignment Between CIS and Strategic Excellence Level Within Strategic Categories (SE, DF, LC, SIM) | 172 |
| Figure XIII: | Original Model: CIS Leads | 173 |
| Figure XIV: | Final Model: Strategy Leads CIS | 173 |
| Figure XV: | Separate strategy | 174 |
| Figure XVI: | Weighted Strategy | 174 |
| Figure XVII: | Insurance | 175 |
| Figure XVIII: | Software | 175 |
| Figure XVIX: | Strategy Leads All | 176 |




Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

# CHAPTER ONE: MOTIVATION, RESEARCH SUMMARY AND RESEARCH QUESTIONS

## MOTIVATION

The issue of the management of market relationships has been fueled by advances in information technology and is "moving steadily to the center of the strategy dialogue" (Day 1999). However, significant management investments in marketing database and interactive web technologies have not been well understood or documented from an economic perspective, either theoretically or empirically. There are popular success stories cited regarding the importance of the management of Customer Information (information about market relationships) in firms and business units, but no research to date has explored whether Customer Information can indeed produce a competitive advantage or the process by which this advantage might occur. This thesis uses the term Customer Information System (CIS) to encompass a process for managing market information that incorporates data, information and knowledge concepts and explores the strategic implications of that process within the business unit.

The process of collection and dissemination of Customer Information has been fueled by a move from mass marketing and mass communication with the customer to what is known as one-to-one marketing or mass customization (Peppers and Rogers 1997, Deighton 1996, Pickholz 1994, Pine 1993). One-to-one marketing requires generating, storing, moving and using details about the customer's preferences and history, commonly called 'profiling,' that in another era would have been considered too difficult to collect and manage (Hagel and Singer 1999, Siebel and House 1999, Seybold and Marshak 1998). However, this approach to marketing is in a sense returning to marketing's person-to-person selling roots, with database technology providing the means



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

for even a large firm with many customers to understand individual customers as well as the sole proprietor focusing on just a few.

The increasing perceived importance of the management of Customer Information in the firm and business unit has lead to a proliferation of terminology and suggested management solutions. Among the terms for approaches which include the ability to generate, store, move and use Customer Information within the firm are database marketing (Jackson and Wang 1995, Hughes 1994), direct marketing (Stone 1995, Kobs 1993), interactive marketing (Deighton 1996, Blattberg and Deighton 1991), aftermarketing (Vavra 1995) and, most recently, knowledge management (Boisot 1998, Winter 1987). The growth of web technology has allowed these concepts to be implemented quite rapidly and has encouraged the storage of large amounts of data on customers, which are integrated with real-time Internet feeds and enterprise-wide information systems (Hagel and Singer 1998, Siebel and House 1999).

Unfortunately, this growing business trend toward acquiring and storing more and more information about the customer, moving the information through the organization and using it to understand the customer occurs in an environment in which successes are only documented anecdotally and on a case-by-case basis. Most marketing academicians are familiar with examples of companies that have distinguished themselves in the marketplace through managing Customer Information within their firms. There have been a few, well-published successes, such as American Airlines SABRE (Hopper 1990), USAA (Venkatraman, Henderson and Oldach 1993) and Ritz Carlton (Zeithaml and Bitner 1996). These firms were not only able to build databases, but to use them to increase sales and profitability. American Airlines SABRE became its own viable



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

business entity. USAA is a leader in its field in the insurance industry and Ritz Carlton became one of the few service companies to receive a Malcolm Baldrige Quality Award.

However, not all companies are able to develop and implement a strategy to effectively manage Customer Information with profitable results. Quaker Oats and Citicorp, among other large firms, can claim a failed database marketing project in their corporate closets (Hughes 1994). Such failures can take time and prove quite costly. The few empirical studies performed to date have focused on predicting whether firms would adopt database marketing (Merilles and Miller 1997, Fletcher, Wright and Desai 1996) and not on the ultimate result of such adoption. A recent working paper from the Institute for the Study of Business Markets found a positive relationship between customer information and performance but did not look at the relationship between customer information and competitive advantage in a strategic context (Srinivasar and Lilien 1999).

Finally, sources that do claim to align strategy and the management of Customer Information focus primarily on tactical issues rather than strategic concerns (Jackson and Wang 1995, Hughes 1994). The implication is that more and more Customer Information must be acquired and processed in every business unit, regardless of how the business unit's products are positioned in the marketplace. This wholesale approach provides little guidance to the business manager in making costly decisions about the management of Customer Information. To date there are over 400 software packages claiming to focus on Customer Relationship Management, little empirical evidence to support the selection of one approach over another, and little understanding of the benefits of these business applications.



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

There are signs of "trouble in paradise" as firms evaluate what they are getting out of these investments in customer information management. A practitioner book, The Information Paradox (Thorp 1998) highlights what the research in the Information Technology (IT) area has shown, that it is not just the IT resources, but how they are used, that provides competitive advantage (Powell and Dent-Micallef 1997). Recently, the editors of Knowledge Management magazine urged companies to focus on creating tangible value for customers from investments in knowledge management in the firm (Silverstone and Karlenzig 1999).

The picture painted above is inconclusive, showing a lack of empirical studies in this area, a rush towards increasing use of database technology in marketing, and huge potential costs in terms of time and money. In light of the cost, difficulty and time frame to implement these software solutions, there is a real opportunity for research in the area of whether and how the management of Customer Information in a particular strategic marketing context can provide a sustainable competitive advantage. This problem is not only interesting, but also a challenging one to address. A particular challenge comes in understanding where and how to begin to approach these questions. A cogent framework for analysis requires integrating several literatures, including, in addition to marketing, information technology, strategic management, organizational learning and communications. Building on what prior authors have contributed and integrating their thinking results in looking at the management of Customer Information in an organized way that has the potential to yield significant empirical results.



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

## RESEARCH SUMMARY

In light of the above discussion, the purpose of this research is to develop and test, within business-to-business marketing firms, a model of the process by which strategic choices and the management of Customer Information (information about market relationships) are aligned to produce a business unit's competitive advantage. The overarching hypothesis of this research is that business units with a greater coherence and consistency between their Customer Information management and their chosen positioning and segmentation strategies will be more likely to achieve competitive advantage through that particular strategy. As firms seek to improve profitability over the long term, they look for a source of competitive advantage. One view suggests that such advantage originates in valuable and difficult-to-imitate resources and capabilities (e.g., Barney 1991, Wernerfelt 1984, Penrose, 1959). A competitive advantage is achieved when a combination of resources and capabilities in a particular product market provide a competitive position that leads to superior performance over others (DeCastro and Chrisman 1995, Ansoff 1965). Competitive advantage, which ultimately results in the creation of value for the customer (Porter 1985), is analyzed here within the business unit. The business unit, adapted from the PIMS definition, is defined as a unit within a firm responsible for marketing activities related to a set of products, including the management of Customer Information, to an identifiable set or sets of customers.

As an "intangible" resource (Itami and Roehl 1987), Customer Information and its management can provide a powerful source of competitive advantage within the business unit by providing a source of new ideas for products, services and marketing operations (Sampler 1998, Blattberg and Deighton 1991). As noted above, this approach is



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

consistent with the Information Technology (IT) literature, which suggests that it is not the IT itself that provides a competitive advantage to the firm, but the utilization of IT with complementary human and business resources (Powell and Dent-Micaleff 1997).

To utilize resources effectively, firm capabilities should be coherent and consistent with the strategy selected (Andrews 1987). Therefore, rewards from investments by business marketers in database and interactive web technologies will be greatest if strategy and technology management can be aligned. At the business unit level, Customer Information management (and thus investments in such management) must be coherent with and support the firm's overall business unit strategies for positioning and segmentation. For example, a division of a firm that manages a commodity and chooses to compete on price may find that holding less information about its customers in a smaller and less sophisticated database is more profitable for them than the more extensive and sophisticated system used by a sister division that markets highly differentiated products.

In general, the management of these unique investments in Customer Information should lead to competitive advantage. Better knowledge of customers should allow the firm the superior capability to create value for these customers, and this value-creation process should result in superior performance. In addition, this research proposes that rewards from these expenses will be greatest if business unit strategy and technology management capability can be aligned. That is, the level of investment may need to be linked to the sophistication and breadth of information needed to execute the business strategy.



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

The empirical data to test this model (206 survey responses) were collected in the field through telephone interviews with Marketing Vice Presidents and Managers in two business-to-business services industries that are expected to vary in basic strategy and thus, Customer Information management. As a result of this research, marketing practitioners and academics alike will have a method to analyze strategic choices. Practitioners in particular will have the option to carefully consider strategic direction, organizational capabilities and optimal performance in their design and adoption of Customer Information files, customer profiling and database marketing systems.

**RESEARCH QUESTIONS**

The purpose of this thesis is to examine, within business-to-business services marketing firms, the following: 1) What model represents the theory behind how customer information as a system should be managed for measurable competitive advantage in the business unit? 2) What is the role of strategy in this path to measurable competitive advantage? 3) What does an empirical test of this model show? The concept of a Customer Information System, referred to as the business unit's CIS, (Figure I) is developed and operationalized to understand the management and measurement of customer information for competitive advantage.



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

# CHAPTER TWO: LITERATURE REVIEW AND MODEL DEVELOPMENT

The overall objective of this research, to understand how the management of Customer Information in firms is associated with competitive advantage, requires an understanding of concepts from several research streams and relates to the general topic of marketing implementation, or how broad marketing policies such as strategic decisions, are translated though marketing systems into particular marketing programs (Bonoma and Crittendon 1988). Customer Information is defined as information about the firm's customer relationships, such as who the customer is, what the customer is purchasing, with what frequency, and responses to marketing communications. Business units typically collect information about other publics as well, such as distribution channels, strategic partners and competitors. However, this research is confined to information collected about the direct customer, as defined by the business units themselves. The literatures of strategic management, information technology, communications, organizational learning and relationship and interactive marketing are synthesized to understand how a business unit can manage Customer Information, learn from this process and create advantage in the marketplace.

## CUSTOMER INFORMATION AND COMPETITIVE ADVANTAGE

The dependent variable in this research is competitive advantage. This variable is operationalized as superior performance in a particular product market. Competitive advantage is achieved through a combination of resources and capabilities (DeCastro and Chrisman 1995, Ansoff 1965) and ultimately results in the creation of value for the customer and profits for the firm (Porter 1985). The sources of competitive advantage are the heterogeneous and specific resources and capabilities the firm creates and uses



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

(Mahoney 1995, Mahoney and Pandian 1992, Barney 1991, Prahalad and Hamel 1990, Penrose 1959) which can be measured at different levels. Resources include all firm assets, including difficult-to-imitate "intangible assets" (Itami and Roehl 1987, Porter and Millar 1985) such as information. In this view, Customer Information, as a subset of all information available to the firm, can provide a source of competitive advantage. This approach is consistent with the findings in the Information Technology (IT) literature, which suggest that it is not the IT itself that provides a competitive advantage to the firm, but the utilization of IT with complementary human and business resources (Powell and Dent-Micaleff 1997, Ross, Beath and Goodhue 1996).

Competitive advantage, which ultimately results in the creation of value for the customer (Porter 1985), is analyzed here within the business unit. The business unit, adapted from the PIMS definition (Jacobson 1988), is defined as a unit within a firm responsible for marketing activities related to a set of products, including the management of Customer Information, to an identifiable set or sets of customers.

This variable is operationalized as superior financial performance and can be measured at the firm, SBU or sub-SBU level. Competitive advantage is defined as the ability to function in a competitive position that leads to superior performance over others in a particular product market.

Business unit is a meaningful unit of analysis given the definition of competitive advantage as superiority in specific products and markets because business units typically focus on activities related to specific product/market combinations. Indeed, as much as forty to fifty percent of the variance in business unit performance may be due to business unit effects as opposed to industry effects (Rumelt 1991).



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

## FROM CUSTOMER INFORMATION TO CUSTOMER INFORMATION SYSTEM

Business units maximize profits over the long term by leveraging their resources and capabilities to achieve and maintain competitive advantage. One of those capabilities, the ability to collect, store, move and use the intangible asset of Customer Information in the business unit, is defined as the Customer Information System (CIS). Broader in conception than the popular notion of customer profiling (Seybold and Marshak 1998), it encompasses the ability to not only generate and remember information about the customer, but also to disseminate and develop a shared interpretation of that information in the businesses unit. Thus the depth, the amount of information, and the sophistication, the application of the information in the business, are considered here. The conceptual development of the Customer Information System is rooted theoretically in the development of organizational learning research and operationalizes the link between organizational learning and the ultimate goal of this research, superior performance.

An organization's ability to learn can provide a source of long-term competitive advantage and, because of difficulties in replication, rapid learning may be the only source of competitive advantage that can be sustained long term (Sinkula, Baker and Noordewier 1997, Slater and Narver 1995). One way to think about Customer Information and the Customer Information System is that the CIS enables rapid learning about customers in the firm. Institutional learning theory provides a framework for understanding the specific types of competencies and resources that might allow Customer Information to provide a source of competitive advantage.



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Organizational learning is "the development of new knowledge or insights that have the potential to influence behavior" (Slater and Narver 1995). There is some disagreement as to the processes by which organizations learn (See Table 1).

**Table 1: Marketing Information Processing Behaviors**

| DAY (1994) | SINKULA 1994 | SLATER AND NARVER (1995) | SINKULA, BAKER AND NOORDEWIER (1997) |
|---|---|---|---|
| Acquire | Acquisition, includes memory | Acquire | Generation |
| Store | | | Memory |
| Disseminate | Dissemination | Disseminate | Dissemination |
| Interpret | Shared Interpretation | Shared interpretation (consensus and conflict resolution) | Interpretation |

In general, organizational learning theory suggests that the learning process is facilitated by the following three core behavioral mechanisms: organizational values (which provide a context for the learning experience), organizational action (the manifestation of the organization's learning through changes made as a result of learning) and information-processing behaviors (generation, memory, dissemination and interpretation) (Sinkula, Baker and Noordewier 1997). The final learning mechanism is the approach that applies in this research, as managing information, and Customer Information in particular, is investigated.

The organization's ability to generate, store, disseminate and interpret Customer Information could form a solid information-processing behavior from which to develop a sustainable competitive advantage because it facilitates difficult-to-replicate organizational learning. Marketing information processing behaviors can be mapped as a



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

hierarchy to the Customer Information System, as shown in Figure I. Information must be generated (acquired) and then stored (remembered) before it can be disseminated and interpreted (or used) within the organization. The Customer Information System is a way to learn about the customer to achieve superior performance. Being able to measure how much and how effectively Customer Information is generated, stored, disseminated and used through the CIS is the first step in this research (Day 1994).

The learning organization approach toward understanding how managing Customer Information can lead to competitive advantage is closely tied to the information-based definition of marketing orientation (Kohli and Jaworski 1990). This view of marketing orientation also suggests that generation and dissemination of what is referred to as "intelligence" is important in achieving competitive advantage. Kohli and Jaworski (1990) define market orientation as the organization-wide generation of market intelligence that pertains to current and future customer needs, dissemination of intelligence across departments, and organization-wide responsiveness to that intelligence. These stated behaviors are similar to market information processing behaviors of the learning organization (generation, storage, dissemination and interpretation). Kohli and Jaworski's definition and Kohli, Jaworksi and Kumar's (1993) measure, MARKOR, treat market orientation as sets of learned organization-wide behaviors and processes that can be measured.

Although there have been studies indicating that market orientation can be linked to firm performance (Narver and Slater 1990), the results have been mixed and have led to a reconceptualization of the marketing orientation construct. Recently, the link between market orientation and the learning organization has been more explicitly



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

recognized. Slater and Narver (1995) suggested that a market orientation is not enough, but must be coupled with an entrepreneurial drive to produce a "learning organization" climate. It is these learning activities which lead to the development of firm capabilities and advantage (Day 1994). Thus, the linking of the learning organization and the CIS as suggested here has precedence in the literature.

The market information processing behaviors relevant to the CIS include information generation (acquisition), memory (storage), dissemination and interpretation. These behaviors, defined below (Sinkula, Baker and Noordewier 1997, Day 1994) and refocused to apply to this research topic, are the learning processes by which customer data and information are turned into market knowledge.

- *Customer Information generation (acquire)*: the processes and systems by which information is collected
- *Customer Information memory (store):* the processes and systems by which information is stored for future use
- *Customer Information dissemination (move):* the processes and systems by which information is diffused horizontally and vertically throughout the organization
- *Customer Information interpretation (use):* the processes by which information is given one or more commonly understood (shared) meanings that are used in that organization

Prior empirical research has measured information generation and dissemination but shied away from memory and interpretation as difficult constructs to measure in an organizational setting (Sinkula, Baker and Noordewier 1997, Hurley and Hult 1998). However, another research stream in the new product development area specifically looks at the impact of organizational memory on new product performance (Moorman and Miner 1997). This research develops a definition of organizational memory which is consistent with the first two learning mechanisms (values and actions) and encompasses more than storage capability. Collective beliefs, behavioral routines and physical



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

artifacts are all part of organizational memory in this definition, which varies in content, level, dispersion and accessibility. Although these learning mechanisms are important, a more narrow and specific operationalization of the memory function is used in this thesis that specifically relates to the learning mechanism of information processing.

Although this thesis builds upon prior work in the learning organization, marketing orientation, and organizational memory, the activities involved are narrowed specifically to the use of Customer Information in the firm. This thesis develops measurements of generation as the acquisition of customer information, memory as the ability to locate the customer in time and space, dissemination as the spreading of customer information in the organization and interpretation as the ability to share specific customer information within the unit. This narrowing of focus is an effort to develop specific guidelines for one potential source of competitive advantage, identify the link between strategy and Customer Information, and test the specific process whereby Customer Information and its management might lead to competitive advantage.

In summary, the specific components of the CIS are derived from the customer information processing behaviors of organizational learning theory and correspond to the following questions for the business unit: *1) What Customer Information is generated and how is it generated? 2) How much information is stored in organizational memory and 3) how is the information disseminated and 4) interpreted?* (Figure I). As shown, the CIS is hierarchical in nature, that is, the information cannot be stored until it is generated. The CIS construct captures the difficult-to-imitate learning process by which the successful management of Customer Information can be turned into a competitive advantage.



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

**Information generation (acquisition, specificity and quality)**

Since without critical Customer Information, the business unit cannot make the decisions that form the basis of competitive advantage, the business unit needs first to be able to define what information it has, as well as how it was acquired. In the CIS structure, the process of information generation is measured according to the specificity (Sampler 1998) and the quality (Wang, Reddly and Gupta 1993) of the information gathered, as well as what information is collected and by whom. Thus, the first consideration in evaluating the extent to which Customer Information provides advantage can be measured through consideration of the specificity and quality of the information collected.

The reason for focusing on specificity and quality is that these two constructs evaluate the outcome of the information acquisition process, one of the market information processing behaviors suggested by organizational learning theory. In designing the process of acquiring Customer Information, the business unit must decide how specific to be and what type of quality checks are necessary. Looking at the specific information a business unit has as well as its quality provides an indication of the capabilities of the acquisition.

*Information specificity* is the extent to which the value of the information can be extracted through acquisition and use in certain circumstances (Sampler 1998, Choudhury and Sampler 1997). More simply, information specificity is concerned with who can acquire or can use the information once it has been acquired. Drawing on transaction cost economics (Coase 1937, Williamson, 1975, 1985, 1996), in which transaction specific assets serve to bind parties together, Sampler suggests that



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

information can vary in its transaction specificity. Mass communication and mass production strategies can be developed with very little specific information, but individualized communications and production strategies require specific information that pertains only to that customer or one particular place in time. More specific information may be more costly to acquire but may also provide a higher economic advantage in terms of ensuring a higher probability of repeat purchase due to a better understanding of what to offer a customer during the next interaction.

Customer Information that is specific in its *acquisition* can only be obtained through an interaction with a particular customer. Information that is not specific in its acquisition can be obtained from public or commercially available secondary sources. It is common to develop a customer database using both sources (Jackson and Wang 1995). A company might purchase a future customer's name, address and phone number but supplement the purchased data with information about specific needs through interaction with that customer. Customer Information that is not specific in its acquisition can be acquired by anyone, such as a customer's main telephone number or address.

Sampler further suggests that information can be time or knowledge specific in acquisition or in use. Information can be knowledge specific, "acquired only by someone with the required specific knowledge," or time specific, "information that must be acquired immediately, or very shortly after, it first originates or becomes available" (Sampler 1998, p. 347). The concern here is simply who acquires the information and when it is acquired. Therefore, Sampler's terms will be renamed for simplicity and understanding as *person specific and time specific.* Can anybody get the information (Person Specific Information)? Can it be used at any time (Time Specific Information)?



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Examples in the context of Customer Information are provided in Table 2.

**Table 2: Examples of Customer Information Specific to Time and Person**

| | TIME SPECIFIC | PERSON SPECIFIC |
|---|---|---|
| High | Customer is having a service problem that needs to be solved today. Value to the user or acquirer is time dependent. | Sales representative uses knowledge of customer's operation to acquire information. Value is in ability to use or acquire information. |
| Low | Customer has put out an RFP due many months from now. Value to the user or acquirer is not time dependent. | Public data such as firm name, address, phone number. Information can be used or acquired and used by many. |

*High time specific* information must be acted upon today; someone from the company must contact the customer that day. In the *low time specific* example, the date of the decision is well known in a public RFP with a long lead-time and does not necessarily require specific action now.

In the knowledge specificity example above, *low person specific* information is company name, main address, phone number, information that is publicly available and can be purchased from commercially available sources. *High person specific* information would be information more likely to be obtained by someone directly involved in the sales process for a specific product, such as the name of all those involved in making the purchasing decision.

*Information quality* determines how well the information system maps to the real world. The goal is a true one-to-one mapping of data in the information system to the real world. However, the active management of Customer Information is not costless (Arrow 1974) and decisions must be made as to how aggressively to monitor data quality. Information quality concerns differ from situation to situation.



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

The selection of these dimensions is based on work of researchers in the Total Data Quality Management (TDQM) Research Program at MIT's Sloan School of Management (Wand and Wang 1996). This work identifying the dimensions of data quality has resulted the identification of over twenty different dimensions of quality. The most used dimensions are accuracy, timeliness, completeness, reliability, and relevance.

In an article on data mining and data quality, Chopoorian, Khalil and Ahmed (1998) suggest using accuracy, timeliness, completeness and consistency (Wang, Reddly and Gupta 1993) as the most important dimensions for data mining applications. These recommended dimensions relate to the activities of data mining in the marketing setting, which involve the analysis of data by marketing managers that is collected elsewhere in the organization. These dimensions, except for consistency, are among the most used dimensions of data quality as found by Wand and Wang (1996). Since consistency and reliability are closely related ideas, the dimensions selected for this data mining quality construct are essentially among the most used dimensions of quality.

For this research, information quality means the accuracy, timeliness completeness, and consistency with which underlying data is collected (Chopoorian, Khalil, Ahmed 1998, Strong, Lee and Wang 1997, Wand and Wang 1996, Wang, Koh and Henry 1992, Wang, Storey and Firth 1994, Wang, Reddly and Gupta 1993), as well as the relevance to the particular situation. These dimensions can be defined as follows:



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

- *Accuracy:* Degree to which recorded value (information) is in conformity with actual value (information)
- *Completeness:* Degree to which all values for a certain variable (information) are recorded
- *Consistency:* Degree to which all representations of all data values (information) are consistent
- *Timeliness:* Degree to which recorded value (information) is not out of date
- *Relevance:* Degree to which the recorded value (information) relates to the job to be performed (Wang, Reddly and Gupta 1993)

Market information quality is important in the marketing management context because information quality determines the extent to which a receiver can act on a particular piece of information (Menon and Varadarajan 1992). Additional support for adding relevance in particular as a dimension of the quality of Customer Information comes from a study on the dissemination of market intelligence across functional boundaries (Maltz and Kohli 1996). In this study, the authors measured the perceived quality of market intelligence as passed through organizational boundaries based on the attributes of accuracy, relevance, timeliness and clarity (Deshpande and Zaltman 1982, Gupta and Wilemon 1988, Montgomery and Weinberg 1979). Clarity was not included as a dimension of quality in the construct development for this thesis because the concept in prior work refers to the quality of interpersonal communication and this work focuses on the Customer Information System itself. However, relevance was included to associate information quality with the marketing management decision-making processes inherent in this research.

Once the business unit has acquired Customer Information, issues of its management become important. The specific concepts of addressability, Customer Information Intensiveness and shareability answer questions about the management of these learning processes in the business unit.



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

**Customer Information Organizational Memory (addressability)**

The organizational learning literature suggests that one of the necessary concepts in managing Customer Information processing behavior in the firm is the ability to store the information in organizational memory (Sinkula, Baker and Noordewier 1997, Day 1994). In the marketing literature relating to the management of Customer Information, the concept of *addressability* directly captures this memory process. Addressability is defined as "Locating the customer uniquely in time and space in a database." The purpose of locating the customer is "so that response, marketing actions and respondents can be matched" (Blattberg and Deighton 1991). This concept is similar to that of accessibility, or the extent to which information can be retrieved for use (Day 1994, 1999, Moorman and Miner 1997). Addressability is a concept more specifically suited to the management of Customer Information than the more generalized accessibility concept as used by Moorman and Miner (1997), because it refers to the ability to locate a unique customer in a database to match marketing actions with respondents, but is related and consistent with the literature in organizational memory.

Customer Information may be distributed throughout the firm, in the memory of salespersons and customer representatives and their individual files. More recently, a centralized customer database, or Customer Information File, or 'profile' (Seybold and Marshak 1998), has been used to collect and manage this information about the customer and responses to marketing actions (Glazer 1997, Thomas and Wang 1996, Jackson and Wang 1995). The use of the centralized database, accessible throughout the organization, allows for the codification of organizational memory. In this research, the term addressability is narrowed to mean the ability to locate the customer in time and space



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

through stored information because other constructs are concerned with matching customer and response.

**Customer Information Dissemination**

Another aspect of the management of the Customer Information-Processing behaviors within the firm is the dissemination of Customer Information throughout the business unit. In the marketing literature relating to the management of Customer Information, Glazer (1993, 1991) posits that firms should view "information" itself as an asset to gain competitive advantage and suggests that a firm can be evaluated on the extent to which products and operations are based on information "collected and processed as part of the exchanges along the value-added chain" along a continuum.

There has been recognition that the concept of passing information across the value chain relates directly to the process of information dissemination in the unit (Slater and Narver 1995). Porter suggests that the ability to manage these linkages between functional areas then results in a sustainable competitive advantage (Day 1999, Porter 1985). In the research on market intelligence, the ability to use market intelligence and not just acquire and access this intelligence is the heart of competitive advantage (Maltz and Kohli 1996, Menon and Varadarajan 1992, Moorman, Zaltman, and Despande 1992, Porter and Millar 1985). Cross-functional relationships are also important in the new product development process that can lead to firm competitive advantage (Griffin and Hauser 1992). Therefore, Customer Information dissemination is expected to play a key role in competitive advantage creation.



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

**Customer Information Interpretation (shareability)**

Prior work in the area of organizational learning has been limited in examining both the storage and especially the interpretation of information because of perceived difficulties in measurement. Narrowing the scope of study to the management of customer information allows for the use of the addressability construct to measure storage. Similarly, the interpretation of Customer Information can be measured by a shareability construct. Both Sinkula (1994) and Slater and Narver (1995) focus on the importance of the *shared interpretation* of information as a final stage in the organizational learning process (See Table 1). The ability to share Customer Information across groups in the organization means that there is an opportunity to develop commonly understood ideas about the customer that are used in that unit. Since knowledge about product usage, customer service history and the like can be shared easily in an electronic format, employees from different areas will be less likely to have a view of the customer that is specific to their own experience (Day 1999). Therefore, the shareability of Customer Information will be used to measure the extent to which there exists a shared interpretation of the information throughout the business unit and the organization. As with addressability, narrowing the scope to the management of Customer Information allows for a unique opportunity to fully incorporate organizational learning concepts into this model of competitive advantage.

**Summary of CIS construct**

The CIS is thus comprised of market information processing capabilities that can lead to competitive advantage based on organizational learning theory. The sub-constructs are operationalized in a specific context that should facilitate the measurement



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

of some of the more intangible constructs, such as addressability and shareability. Thus, this research should provide a complete picture of these capabilities in the context of the management of Customer Information.

## CUSTOMIZATION, MARKETING INTERACTIVITY AND CUSTOMER INFORMATION

### Customization

The ability to disseminate Customer Information throughout the organization and share it to acquire a complete picture of that particular customer implies a profound understanding of that customer and the ability to provide customized products, services and communications to that customer. Customization has emerged as a strategy in its own right and a choice that a firm can make in developing competitive advantage and is closely related to customer information (Day 1999, Peppers and Rogers 1997, Deighton 1996, Pickholz 1994, Pine 1993). The implication is that products will be customized based on transaction information but also that the customer's own information can be bundled with the product offering to add value for that customer. An example would be the Federal Express package tracking system which allows the customer access to its own information. The customer's own information, traditionally held by the company, is now provided to the customer as part of the service offering of package delivery. Eventually, customer information itself can become a source of revenue as enough knowledge is gained on particular customers to become of value to the marketplace (Glazer 1991). This general ability to customize is not embodied in the Customer Information System itself but is related to the ability to access and use a multi-leveled and highly sophisticated Customer Information System. This ability to create a product for an



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

individual customer should develop from having enough information about that customer to create such an offering.

**Interactivity and Interactive Marketing**

Another activity related to a highly developed Customer Information System is the ability of the business unit and particularly the marketing department, to respond to individual customer communications, preferences and purchase patterns. The interchange between the firm and its customers is a primary source of Customer Information. Although small-firm commercial relationships have always been highly interactive, most large firms have viewed interactivity as producing stronger relationships but costing more. Over the last hundred years, primary methods of marketing communications have evolved from mass marketing advertising (one-way) to direct marketing (one-way or two way) to interactive and even network forms of communication (Deighton 1996, Hoffman and Novak 1996, Iacobucci 1998), as illustrated below:

***Mass Marketing*** → ***Direct Marketing*** → ***Interactive Marketing***

Interaction allows for the exchange of information between the business unit and its customers. This interaction then leads to the development of new products and capabilities to serve the needs of customers, suggesting that the marketing activity itself can be defined as the process of interaction with customers. (It is important to note that in the marketing field it is difficult to distinguish channels of distribution from forms of promotion. A direct company sales force is often referred to as both a channel of



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

distribution and form of promotion (Kotler 1994). Therefore, the term interaction or interaction mechanism is used as opposed to channel or form of promotion). Interaction can be categorized along a continuum as one-way, two-way or truly interactive. Broadly speaking, interactive marketing concerns a special flow of two-way communications between parties (Alba, et. al. 1997, Hoffman and Novak 1996). Specifically, Deighton has suggested that "interactive marketing is 1) the ability to address an individual 2) the ability to gather and remember a response of an individual and 3) the ability to address that individual once more in a way that takes into account his or her unique response" (Deighton 1996, 1997).

This definition of the construct of Interactive Marketing relates to the model of interpersonal communication that has been used in marketing communications since the 1950s. The standard model (Schramm and Roberts 1971) contains both sources and senders of messages as well as a feedback mechanism. This feedback mechanism has not been emphasized in research in marketing communications but is important to the emerging concept of interactive marketing in terms of the ability to remember and respond to customer feedback. George Day refers to interactive marketing as "the use of information from the customer rather than about the customer" (Day 1999).

Interaction is then the important mechanism by which competitive advantage through the management of Customer Information occurs, particularly for those strategies which require more detailed Customer Information. How interaction results from the capabilities of the Customer Information System, which then aligns with strategy to create competitive advantage will be discussed in more detail later.



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

## RELATIONSHIPS AND RELATIONSHIP PERFORMANCE

It is this Communication-based view of interactive marketing that also provides a bridge between interactivity and competitive advantage. Interaction over time builds relationships between a firm and its customers (Duncan and Moriarty 1998). It is necessary to understand interaction processes in the relationship to understand buyer-seller relations (Moriarty and Moran 1990, Wrenn and Simpson 1996). Relationships develop over time (Dwyer, Schurr and Oh 1987). It is the individualized buyer-seller relationship that leads to competitive advantage.

Along the same lines, the ability to customize for particular customers represents a capability of the seller that facilitates relationship development (Wrenn and Simpson 1996). Dwyer, Schurr and Oh (1987) characterize the phases of true relational exchanges using five phases of relationship development of 1) awareness 2) exploration 3) expansion 4) commitment and 5) dissolution, based on the work of Scanzoni (1979). Customization represents a substantial commitment by a firm to its customers and as such can be seen to strengthen relationships. Commitment is one of the characteristics of a long-term business relationship, as distinguished from a discrete transaction (Morgan and Hunt 1994). Long-term business relationships are frequently sought because marketing to current customers is seen as less expensive than continually replenishing the sales pipeline with new ones. These long-term customer relationships provide a foundation for business unit performance. (Reichheld 1996, Reichheld and Sasser 1990).

Customization and interaction then can lead to the relationship-building process which could, at least for business units following strategies which involve deep and sophisticated Customer Information Systems, lead to competitive advantage. The more



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

that is learned through interaction the more likely will that business unit will be able to provide products, services and communications which will demonstrate understanding of and a commitment likely to foster an ongoing relationship. Note that the opening sentence of the previous paragraph implies that not all strategies might benefit from a sophisticated CIS that supports high levels of interactive marketing, customization and relationship development. The next section explores the role(s) corporate strategy might play in managing Customer Information and developing a CIS.

## STRATEGIC COHERENCE

The resources and competencies for managing Customer Information define the particular set of capabilities known as the Customer Information System (CIS) of the business unit. From the point of view of the management of the business unit, what strategic choices are available and what do these choices imply about how and how much data should be collected, stored and moved throughout the organization in order to implement a chosen strategy? This thesis suggests that generic competitive strategies for positioning and segmentation should be taken into account in making decisions about the business unit's Customer Information System. Taken in this broader strategic context, a business unit's Customer Information System should be consistent with the business unit strategy. This consistency is important particularly because the management of the CIS has both cost and operational flexibility implications which can affect the ability to align strategic choices with Customer Information management.

The idea of consistency and coherence between a business unit's strategy and its internal capabilities has long been a theme throughout the literature of strategic management. Penrose (1959) considers that there must be an alignment between the



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

strategy a firm pursues and the resources and capabilities it possesses to create a competitive advantage. Among other reasons, coherence between the direction of growth and capabilities possessed is important because firms cannot diversify or expand into new product areas without the specific capabilities that allows them to do so. Andrews (1987) more clearly states the ideas of coherence and consistency in suggesting criteria for evaluating proposed business unit strategies. He asks, "Is the strategy consistent with corporate competence and resources, both present and projected?" (Andrews 1987, p. 28). Andrews believes that this consistency consideration might be the most difficult criterion for evaluating a new strategy. This coherence and consistency consideration is difficult because it is not always easy to understand exactly what resources and competencies are needed to implement a particular strategy. Andrews (1987) suggests that coherence and consistency between capabilities and strategies can be difficult to achieve because of problems in identifying key resources and capabilities needed for a particular strategic choice. The decision within the business unit that Customer Information and its management must be aligned with positioning and segmentation strategies in order for a business unit to achieve competitive advantage then requires another set of decisions to implement this alignment.

Neither is it easy to understand which comes first, the capability or the strategy. The need for flexible strategy suggests an interaction between the two that continuously selects strategies and implements technologies (Saint-Onge 1996, Chan and Huff 1993, Venkatraman, Henderson and Oldach 1993), but the process more frequently discussed in the literature and the one that is likely to dominate is the creation of technology from strategic choices (Rumelt 1986, Chandler 1990). For the purpose of this empirical study,



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

generic strategies are considered likely to be generated from available resources and capabilities (Booth and Philip 1998).

**Strategy and Technology Management**

Research specifically in the area of management strategy and technology management has suggested that coherence between strategy and technology is important. There have been many theoretical articles (Bruce 1998, Itami and Numagami 1992, Venkatraman, Henderson and Scott 1993, Chorn 1991, Henderson 1991) which suggest that information technology and strategy are continually aligned and that strategy allows for the exploitation of technological capabilities. Porter (1980) also suggests that strategy results from capabilities of the firm. There have been a few subsequent studies, primarily case studies of a few firms, examining this relationship between the strategic choices a firm or business unit makes and its specific investment in information technology (Sethi and King 1994, Harker 1991, Lander 1991). There have been no large-scale empirical studies in the area of investment in marketing technology and strategic alignment, such as Customer Information management, in spite of the importance of marketing implementation in the success of the marketing efforts of the business unit (Bonoma, 1984, Walker and Ruekert 1987).

To examine the link between marketing technology decisions and strategic choice, it is important to see where marketing itself fits in the broader strategy dialogue. There are many typologies of strategic choices. Understanding the marketing technology/strategy link requires first determining which strategy typology best fits with marketing's strategic impacts.



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

**Strategic Choice**

One of marketing's key contributions to strategy is in the area of integrating customer needs to the activities of the firm (Day 1990, Biggadike 1981). Ansoff (1965) suggests a growth vector grid where companies decide to market current or new products to current or new customer sets, with different Customer Information requirements for each cell of the grid. Miles and Snow (1983) suggest general innovation strategies for the firm in entering new markets such as prospector, defender and analyzer.

Recently, marketing has shifted its focus from transactions to relationships, and from temporal exchanges to the longer-term process of value creation for customers (Woodruff 1997, Slater 1997). Customer value creation has been suggested as a new way of analyzing firm behavior and performance differences among firms (Parasurman 1997, Slater 1997). Learning is essential to the process of customer value creation as it allows firms to understand their customers' changing needs and create innovations to meet those needs (Slater 1997). The concept of customer value relates to Porter's (1985) well-known (1985) ideas, based on industrial organization theory, that the ultimate source of competitive advantage is the value a firm creates for its customers. Value for customers in business markets is created as information is passed through the various departments in the organization through what is known as the "value chain." The firm then seeks to create value for its customers (and profits for itself) through minimizing its costs and thereby offering low prices (Low-Cost) or increasing its revenue by offering a product or service for which the customer is willing to pay a price premium (Differentiation).

Deciding which competitive strategy typology to choose for this study is based on analyzing empirical research in this area. Porter's focus on positioning and segmentation



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

seems to be a good fit with the activities carried out on the business unit level within the scope of responsibilities of marketing professionals (Day 1992), is a mechanism for value creation and has been used in a number of empirical studies. Most studies have focused on Porter's (1980, 1985) generic positioning strategies of Low-Cost vs. Differentiation and his segmentation strategies with a broad or narrow focus. Using primarily survey data and self-reports of performance, these studies support the usage and effectiveness of this categorization in looking at marketing issues (Dess and Davis 1984, Kim and Lim 1988). In addition, there has been support from a mathematical modeling approach (Karnani 1984) for Low-Cost and High Differentiation as two ways of gaining competitive advantage. Porter's framework continues to be used in strategy research to the present day (Homburg, Krohmer and Workman 1999). Therefore, the Porter framework is adopted in this thesis.

**Competitive Advantage**

In Porter's typology (1985) there are three different generic strategies for creating competitive advantage, Low-Cost or Differentiation positioning and Broad/Focused segmentation. Competitive advantage is achieved through generic competitive positioning strategy by either lowering costs (Low-Cost) or increasing revenues (Differentation). The first choice a business unit must make is to whether to follow a Low-Cost positioning strategy, which delivers customer value by being the Low-Cost producer in the industry, versus a Differentiation positioning strategy, which delivers value to the customer along some particular valued dimension (Figure II). Although firms can pursue both goals (Hill 1988, Day 1990), one generic strategy usually dominates (Porter 1985). A second decision is then made regarding competitive scope, or



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

segmentation, which is the decision to use a Broad (many products, many customers) versus Focused (few products, few customers) segmentation strategy.

The empirical and theoretical work that followed the initial presentation of Porter's ideas (Hill 1988, Karnani 1984, Day 1990) suggest that there are two other distinct groups of firms in addition to the pure Low-Cost (LC) and Differentiation (DF) positioning strategies. One group is companies that are "Stuck-in-the-Middle" (SIM) and do not have a coherent strategy that they are pursuing.

There are also firms who deliberately try to create value for customers by pursuing low costs as a goal while simultaneously providing a differentiating uniqueness along a dimension valued by their customers. This "Both" strategy, finding the right combination of Low-Cost vs. Differentiation to provide the most value to succeed in a particular product market, was later characterized as a combination of "operational excellence, which is " providing reliable products or services with minimal cost and high efficiency and "customer intimacy," which means using "detailed customer knowledge to match offerings to customers' needs," in the manufacturing context (Treacy and Wiersema 1993). However, in the services framework these two "value disciplines" combined might be more properly cast as "Strategic Excellence" (SE) and will be referred to as such in this work.

Within the Low-Cost vs. Differentiation framework, the business unit must then decide whether to pursue broad or narrow sets of customers, which is known as selecting a Broad (BD) versus Focused (FD) segmentation strategy. It is important to understand that taken together, these choices among the **three** generic strategies actually produce



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

**four** distinct theoretical strategic choices. These strategic choices are described below as follows and are outlined in Figure III:

1. Cost Leadership: Be the Low-Cost producer in an industry serving all segments
2. Differentiation: Find a uniqueness along some valued dimension
3. Cost-Focus: Seek cost advantage in a particular target segment
4. Differentiation Focus: Serve special needs of buyers in certain target segments.

This research investigates these theoretical choices as outlined in Figures II and III and discussed above in relationship to the management of Customer Information in the firm, Marketing and Business Unit Performance and Customization and Interactive Marketing capabilities.

## SUMMARY OF LITERATURE

The research questions of how Customer Information may be managed and aligned with strategic choices for competitive advantage in the business unit requires an understanding that information is an intangible resource which can lead to competitive advantage in the business when a unique and difficult-to-imitate way in the organization. Perhaps the most difficult to imitate capability of any firm is its ability to learn. It is those capabilities, cast in an Customer Information management framework, that allow an understanding of how firms can develop capabilities for competitive advantage to create superior performance.

However, the ability to learn is not enough to create competitive advantage as measured by traditional financial measures. The Customer Information System allows for the ability to become interactive with the customer and create customized product offerings. Learning from these interactions allows customer relationships over time that translate into performance at the marketing level and, ultimately, superior performance as measured by competitive advantage.



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

# CHAPTER THREE: MODEL AND HYPOTHESES DEVELOPMENT

## MODEL DEVELOPMENT

Given the literature review above, the general research questions of this thesis can be addressed and Hypotheses developed.

Question 1: What model represents the theory behind how customer information as a system should be managed for measurable competitive advantage in the business unit?

The ability to learn which is perhaps the least easily imitated capability an organization can leverage for competitive advantage and is thus used as the basis for developing the CIS construct. As has already been suggested by the literature review above, the Customer Information System (CIS) construct will be developed using the broad outline from the learning organization as outlined in Figure I. Table 3 outlines the relevant literature used to develop these constructs and the related hypotheses developed in this chapter. There are theorized to be four basic components to Customer Information System acquisition and management which comprise the Customer Information System. These four elements, acquisition, addressability, dissemination and shareability, comprise the Customer Information System construct. These elements measure the depth (generation, addressability) and sophistication (dissemination, shareability) of the CIS, but the CIS is conceptualized here as a single latent variable capturing the underlying capability of the management of Customer Information in the business unit.



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

**Table 3: CIS and Strategic Constructs, Sources and Related Hypotheses**

| CONSTRUCT | BRIEF DESCRIPTION | LITERATURE SOURCE(S) | HYPOTHESES |
|---|---|---|---|
| **Customer Information System:** Generate | | | |
| Acquisition | Sources of customer information | Direct and interactive marketing literature | H1, H2. |
| Specificity | Person or time specific | Sampler (1998) | H3 a,b,c, H5 a,b,c |
| Quality | Accuracy, Timeliness, Consistency, Relevance | Wand and Wang (1996) | H 6a,b,c,d |
| Remember (Addressability) | Locating customer uniquely in time & space | Blattberg and Deighton (1991) | |
| Disseminate (Dissemination Capability) | Collect and process information as part of value-added chain | Kohli, Jaworski and Kumar (1993) | |
| Interpret (Shareability) | Ability to share an interpretation or "picture" about a customer | Slater and Narver (1995) | |
| Positioning | Cost-Based vs. Differentiation | Porter (1985, 1980) | H1, H2, H3b, H5b |
| Product Market Focus | Broad or Focused group of products/customers | Porter (1985, 1980) | H1, H2, H3c, H5c |
| Customization | Use information from value-added chain to create product for individual customers | Glazer (1991), Pine (1993), Milne and Boza (1998) | H5, H6, H7 |
| Interactive Marketing | Respond to customer by taking into account customer's individual response to prior communication | Blattberg and Deighton (1991), Deighton (1996) | H5 a,b,c H6 a,b,c,d H7, H8, H9 |

Question 2) What is the role of strategy in this path to measurable competitive advantage?

Each business unit is different not only in the way it manages Customer Information but in its selection of generic positioning strategy, and product and customer segmentation. The ability to align strategy and Customer Information should provide a source of competitive advantage. This thesis outlines a process by which this advantage occurs under different strategic choices. The goal of the research can now be rephrased to understand how well the models in Figures IV and V, as outlined below, capture the



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

process by which the management Customer Information can lead to competitive advantage and superior performance. This model may be understood by reference to a taxonomy of marketing implementation activities developed by Bonoma and Crittendon (1988). In this hierarchical taxonomy marketing implementation decisions are classified, according to their relationship to a specific customer, as follows:

> *Marketing policies:* Broad rules of conduct regarding the customer **(Positioning and Segmentation)**
> *Marketing systems:* Control and decision-aid devices regarding the customer, **(Customer Information System)**
> *Marketing programs:* Decisions to integrate sub functions to serve a special segment or manage a product line **(Customization/Interactivity)**
> *Marketing actions:* Execution, such as selling, new product development, trade promotion and distributor management (not included in this study)

This research is concerned with all levels of marketing implementation decisions except the most specific, marketing actions. The process of strategic alignment and the use of unique resources and capabilities are necessarily decisions which have broader policy, system and program implications.

These models in Figures IV and V suggest that the first decisions that must occur are in the area of marketing policy (strategy) in terms of how value will be created for customers by the organization. The decision to follow Low-Cost versus Differentiated positioning strategy or a Broad versus Focused segmentation strategy with the customer then results in decisions regarding the marketing systems necessary to support those policies, in this case, the Customer Information System. The system decision, then should lead to decisions on the program level, which can include Interactive Marketing and Customization issues. Decisions regarding specific marketing actions, such as the link between Customer Information Management and New Product Development, will be left to a further stage in this evolving research program.



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

All these marketing implementation decisions have a purpose in the context of the business unit. These decisions and their implementation should lead to the specific performance benefits studied here. These benefits include better relationships with the top customers in the firm (Relationship Performance), improved retention, share of wallet and lifetime customer value for all customers as a whole (Marketing Performance) and improved sales and net income (Business Unit Performance).Competitive strategies for positioning and segmentation imply a different level in terms of depth and sophistication in collecting and managing Customer Information. The business unit seeking to achieve competitive advantage by pursuing a particular strategy must consider as part of its evaluation process whether it has the corporate competencies and resources available to make the strategy a success. Among these resources and competencies are Customer Information and its management. Therefore, a particular strategy selection has two implications, as follows: 1) Some basic decisions about the acquisition and management of Customer Information will result in capabilities which can be used to implement a particular strategy 2) Business units with a greater coherence and consistency between their Customer Information management and their chosen positioning and segmentation strategy will be more likely to achieve competitive advantage through that particular strategy.

Success in the management of customer information should be linked to strategy selection. Successful business units using the Differentiation positioning strategy and Broad or Focused segmentation strategies (DIFFBRD and DIFFFOC on Figure IV) would be expected to have to have deep and sophisticated ways of managing customer information to be able to execute their chosen strategies through the path suggested.



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Depth of managing customer information refers to the type of information acquired and its quality. Sophistication refers to the ability to store, move and use the information in the organization (Figure I). Following a Low Cost positioning strategy and Broad segmentation strategy (LCBRD) or a Low-Cost/Focused strategy (LCFOC) might be less likely to need to develop a deep and sophisticated Customer Information System on their way to superior performance and would follow a more direct path to competitive advantage as measured by that performance (Figure V) (Porter 1980, 1985). The Low Cost/Broad (LCBRD) and Low Cost/Focused (LCFOC) strategy creates value for the customer by providing the least expensive product or service in the marketplace, not through understanding the customer well enough to provide features and functionality designed for each individual customer.

A Differentiation strategy implies a deeper and more sophisticated CIS than one required for a Low-Cost strategy. By depth and sophistication are meant the amount of data collected and how it is stored, and the extent to which it can be moved and used in the organization. Differentiation creates value through an impact on the buyer's value chain or through creating a signal of value through a higher price. The business unit will have a competitive advantage if the value perceived by the buyer is greater than the cost of Differentiation. A Differentiation strategy implies a more sophisticated CIS than one required for a Low-Cost strategy because it is more likely that Customer Information can be acquired and managed to develop a Differentiation strategy that will appeal to each of the business unit's customers.

On the other hand, Low-Cost creates a competitive advantage by allowing the firm to offer its product at a price lower than its competitors while maintaining



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

profitability. The sources of Low-Cost advantage are the drivers of lower cost within the firm, such as value chain linkages. The cumulative cost of performing value creating activities are less than competitors' costs. Coherence between the Low-Cost strategy and the CIS implies less depth, i.e., fewer pieces of information per customer, and less sophistication, i.e., less emphasis on higher level information processing activities in the Customer Information System of those business units following the Low-Cost Strategy than might be required for those following the Differentiation Strategy. Although the CIS can operate to provide valuable information about the customer that can contribute to the drivers of lower cost within the firm, it is likely that a business unit pursuing a Low-Cost position would not pursue detailed Customer Information that may not directly relate to value chain efficiencies.

It is likely that a business unit pursuing both Differentiation and Low-Cost ("Strategically Excellent") will have the greatest need for customer information to create value for its customers and therefore will have the most deep and sophisticated CIS of any category considered. Along the same lines, the business unit which is "Stuck-in-the-Middle" and does not have a particular strategy will probably not have developed a strong Customer Information System. Since knowledge of customers allows for the creation of a particular strategy, business units without a deep and sophisticated CIS will not be able to implement Strategically Excellent, Low-Cost or Diffferentiated strategy.

A similar line of thought applies to narrow versus broad product and market segmentation strategies. The product market profile also must be aligned with resources and capabilities (Mahoney and Pandian 1992, Wernerfelt 1984) for the firm to achieve competitive advantage. Within the Differentiation and overall Low-Cost generic



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

competitive strategies, a firm may decide to specialize, to focus on a particular group of customers and segment of the product line. Segmentation strategies may be targeted toward a broad base of heterogeneous customers (broad segmentation focus), or a focused group of homogeneous customers (narrow segmentation focus). Again, within each of these generic competitive strategies, the unit can choose to develop segmentation strategies targeted for a large number of heterogeneous products (broad product focus) or for a small group of homogeneous products (narrow product focus).

Broad versus Focused segmentation is the result of differences between a target segment and other segments in the industry. The target segment served by a Low-Cost focused strategy relies on the difference in cost behavior in the segment. A Differentiation strategy for positioning relies on the special needs of buyers in certain segments, which implies that Broad or Focused segmentation in itself is not sufficient for above-average performance (Porter 1985). What really matters is the ability to target the needs of specific buyers. A deep and sophisticated CIS will be more likely to result in a higher competitive advantage for the Focused segmentation strategy, where understanding that particular segment is critical to developing products for that segment. Broad segmentation does not rely on the management of detailed customer information to provide competitive advantage (Figures IV and V).

Competitive advantage can be measured by superior performance in terms of increase in market share, revenue and, most importantly, profitability. In conjunction with an emphasis on customer databases and their role in building relationships has come an acknowledgment that we need different types of measures to determine the success of these marketing relationships. The types of measures of marketing relationships



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

associated with a deep and sophisticated CIS would be, among others, lifetime customer value, share of wallet and retention rate (Reichheld 1996, Blattburg and Deighton 1991). Although marketing unit performance is expected to lead to Business Unit Performance, the CIS is expected to have the greatest impact on marketing unit performance measures rather than traditional measures of revenue and profitability.

Tables 3 and 4 summarize this background information and the relationships between the constructs and the hypotheses listed in Table 5. The specific rationales and theories relating to each of the 9 hypotheses investigated are provided in the remainder of this chapter.

**Table 4: Performance Constructs and Control Variables, Sources and Related Hypotheses**

| CONSTRUCT | BRIEF DESCRIPTION | LITERATURE SOURCE(S) | HYPOTHESES |
|---|---|---|---|
| Business Unit Performance | Sales revenue and net income growth over past two years | Porter (1985), Ansoff (1965) | H1, H4 |
| Marketing Performance | Extent to which unit has performance advantage over others in industry (customer retention, share of wallet and lifetime value, return on investments) | Blattberg and Deighton (1991), Deighton (1996) | H1, H4, H7 |
| Relationship Performance | Success of business unit relationships with top twenty percent of customers (Margins, profitability, customer retention, lifetime value and share of customer) | Fontenot, Vlosky, Wilson and Wilson (1998) | H8, H9 |
| Control Variables | Porter's Five Forces, Unit, Transaction, Customer Size, Geography, Segments, Info. Need, Product | Porter (1985), Marketing orientation and IT literature | |



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

**Table 5: List of Hypotheses**

| HYPOTHESIS | METHOD |
|---|---|
| **Hypothesis 1 (Overarching Hypothesis):** Business units with greater coherence and consistency between their Customer Information management and their chosen positioning and segmentation strategies will be more likely to achieve competitive advantage through those particular strategies. | SEM*, Subset regression, Correlations, T-Tests, $\chi^2$ tests |
| **Hypothesis 2a:** Strategy selection is associated with Customer Information System (CIS) development.<br>**Hypothesis 2b:** Differentiation will have a higher CIS than Low-Cost strategies, Focused will have a higher CIS than Broad and Low-Cost/Focused will be higher than Differentiation/Broad. | SEM, Subset regression, T-Tests |
| **Hypothesis 3a:** As the CIS increases, the benefits in terms of Marketing Performance increase, up to an optimal point, past which costs increase and performance decreases, independent of strategy.<br>**Hypothesis 3b:** As the CIS increases, the benefits in terms of Marketing Performance are more pronounced for business units following Differentiation versus Low-Cost strategies.<br>**Hypothesis 3c:** As the CIS increases, Marketing Performance increases, but there are optimal points of investment. The benefits are more pronounced for business units following Focused versus Broad Segmentation. | Quadratic Regression |
| **Hypothesis 4:** As Marketing Performance increases, Business Unit Performance increases. | Regression |
| **Hypothesis 5a:** As the CIS increases, business unit Customization and Interactive Marketing increase, then level off.<br>**Hypothesis 5b:** Customization and Interactive Marketing increases are more pronounced for Differentiation versus Low-Cost Strategies.<br>**Hypothesis 5c:** Customization and Interactive Marketing increases are more pronounced for Focused versus Broad Strategies. | Logarithmic Regression |
| **Hypothesis 6a:** As the information Generation constructs of Acquisition, Specificity and Quality in the CIS increase, business unit Customization and Interactive Marketing increase.<br>**Hypothesis 6b:** As Addressability increases, business unit Customization and Interactive Marketing increase then level off.<br>**Hypothesis 6c:** As Dissemination increases, business unit Customization and Interactive Marketing increase to an optimal point.<br>**Hypothesis 6d:** As Shareability increases, business unit Customization and Interactive Marketing increase to an optimal point. | Regression, Logarithmic, Quadratic |
| **Hypothesis 7:** As Customization and Interactive Marketing increase, Marketing Performance increases. | Regression |
| **Hypothesis 8:** As Customization and Interactive Marketing increase Relationship Performance Increases. | Regression |
| **Hypothesis 9:** As Relationship Performance increases, Marketing Performance increases, but with diminishing returns. | Quadratic Regression |

*Structural Equation Model



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

## HYPOTHESIS DEVELOPMENT

The theoretical discussion above, summarized in Figures IV and V, suggests the following hypothesis which overarches this research:

*Hypothesis 1 (Overarching Hypothesis): Business units with greater coherence and consistency between their Customer Information management and their chosen positioning and segmentation strategies will be more likely to achieve competitive advantage through those particular strategies.*

This hypothesis will be tested by determining the fit of the models in Figures IV and V as well as using t-tests of equality of means for the alignment of strategy and information, correlation analysis and $X^2$ tests. It is expected that the path to achieving Marketing Performance and Business Unit Performance will not be possible if strategy and information practices are not aligned.

The overarching hypothesis leads to several other specific hypotheses outlining how Customer Information interacts with strategic choice. The underlying theory suggests that Strategy plays a role in the development of the Customer Information System as structure follows strategy (Chandler 1990, Rumelt 1986) and also in creating differential paths to competitive advantage. Therefore, the following hypothesis 2a is suggested. This hypothesis will be tested through subset regression, t-tests of equality of means and inspecting the paths of the suggested path model in Figures IV and V. In this hypothesis, as in all subsequent hypotheses involving the Customer Information System (CIS), the references to increases in the CIS means increases in the capabilities measured by the underlying sub-constructs and as operationalized and measured by the composite variable CIS. (This exact operationalization will be described in detail in Chapter Four). The increases referred to are increases in depth (acquisition, addressability) and sophistication (dissemination, shareability) in the management of Customer Information.



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

*Hypothesis 2a: Strategy selection is associated with Customer Information System (CIS) development.*

It is expected that business units following Low Cost positioning and Broad segmentation would be less likely to select and to develop Customer Information Systems featuring depth of data and sophistication in data management (Figure V). Units following these strategies will encounter costs of information depth and management sophistication that they may not be able to pass on to their customers because of the strategies selected. However, it is expected that business units following Differentiation as a positioning strategy and Focused as a segmentation strategy will pursue a Customer Information System featuring a depth of data and sophistication in data management (Figure IV). Units following these strategies will encounter costs of information depth and management sophistication that they will be able to pass on to their customers as perceived value because of the strategies selected. In terms of the hierarchy of CIS depth and sophistication, it is expected that the following would occur:

Low-Cost/Broad < Low-Cost/Focused <Differentiation/Broad < Differentiation/Focused. In addition, coherence and consistency would suggest that business units not embark upon strategies that they cannot support through their competencies and resources. Hypothesis 2b below indicates this relationship. This hypothesis will be tested by independent t-tests, subset regression and the paths of the path model suggested in Figures IV and V.

*Hypothesis 2b: Differentiation will have a higher CIS than Low-Cost strategies, Focused will have a higher CIS than Broad and Low-Cost/Focused will be higher than Differentiation/Broad.*



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

The following hypotheses (H3a-H9) are associated with specific paths in the posited model in Figures IV and V. These hypotheses (H3a-H9) will be tested through comparing linear, logarithmic and quadratic regressions of the form of the relationship in the data.

The activities associated with the CIS cost money in terms of databases, people and processes within the firm. Therefore, there will be an optimal point beyond which it will not make economic sense to collect specific information, maintain quality, store in volume, disseminate and share throughout the organization, regardless of strategy (Figure VI). Therefore, the following hypothesis 3a is suggested.

*Hypothesis 3a: As the CIS increases, the benefits in terms of Marketing Performance increase, up to an optimal point, past which costs increase and performance decreases, independent of strategy.*

Coherence and consistency suggest that business units following strategies more closely aligned with competencies and resources will be more likely to achieve competitive advantage. For the Low-Cost strategy, the benefits of CIS will be lower and the optimization point reached earlier than for the Differentiation strategy. The Low-Cost strategy requires less of a need to know specific information about a particular customer and than it requires a cost advantage. Again, the cost of information collection for many customers will make it difficult to achieve superior Business Unit Performance through cost reduction under the Low-Cost strategy while at the same time collecting large amounts of information. Therefore, the following hypothesis 3b is suggested.

*Hypothesis 3b: As the CIS increases, the benefits in terms of Marketing Performance are more pronounced for business units following Differentiation versus Low-Cost strategies.*

For the focused market segmentation strategy or focused product strategy, the same effect occurs as in H3b. above. The cost of information collection for many



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

segments of the market will make it difficult to achieve superior Business Unit Performance through cost reduction. CIS will not help the unit increase the value to these customers, allowing the firm to charge a price premium that it can then recoup. CIS will be less likely to add value in the case of a non-focused segmentation strategy. The CIS will aid in value creation for the focused segmentation strategy by supporting the activities necessary to create a price premium, the source of superior Business Unit Performance. CIS will help the unit the most if focused segmentation strategies are selected. Coherence and consistency suggest that business units following strategies more closely aligned with competencies and resources will be more likely to achieve competitive advantage. Therefore, the following hypothesis 3c will be tested.

*Hypothesis 3c: As the CIS increases, Marketing Performance increases, but there are optimal points of investment. The benefits are more pronounced for business units following Focused versus Broad Segmentation.*

The relationship between CIS and Business Unit Performance is not expected to be direct but to be mediated through the Marketing Performance measures of Customer Retention, Share of Wallet and Lifetime Customer Value (Reichheld 1996). There are many other sources of superior performance in the business unit, including other proprietary technologies and strategic choice, but the relationship between customer information management and Business Unit Performance is expected to take a path through Marketing Performance. Knowledge of the customer leads to the ability to retain them as customers for longer periods of time and sell more to each individual customer of applicable product lines. It is by increasing the value of these measures directly relating to customer relationship management that Marketing Performance specifically



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

contributes to Business Unit Performance. The following hypothesis suggests this relationship. Hypothesis 4 will be tested through linear regression.

*Hypothesis 4: As Marketing Performance increases, Business Unit Performance increases.*

The Customer Information System by virtue of the data collected, stored, disseminated and shared allows for an in-depth understanding of customers that leads to the development of Customization capabilities and Interactive Marketing capabilities with individual customers within the business unit. However, there is a point after which the cost of investing in the Customer Information System will not result in greater Customization and Interactive Marketing for the business unit (see Figure VII). Limits will be reached in terms of the ability of the organization to absorb the information as well as provide meaningful interactions with customers. This hypothesis 5a and 5b and c in this section will be tested with Linear, Logarithmic and Quadratic regression.

*Hypothesis 5a: As the CIS increases, business unit Customization and Interactive Marketing increase, then level off.*

As stated above the Customer Information System, by virtue of the data collected, stored, disseminated and shared, allows for an in-depth understanding of customers that leads to the development of Customization capabilities and Interactive Marketing behaviors with individual customers within the business unit. However, benefits of Customization and Interactive Marketing will be more likely to be utilized by those following the Differentiation versus Low-Cost strategy since these activities are most likely to result in products, services and communications for which a price premium can be charged. Coherence and consistency suggests that business units following strategies



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

more closely aligned with competencies and resources will be more likely to be successful. This reasoning suggests the following hypothesis 5b.

*Hypothesis 5b: Customization and Interactive Marketing increases are more pronounced for Differentiation versus Low-Cost strategies.*

Again, the benefits of Customization and interactive marketing will be more likely to be utilized by those following the Focused versus Broad strategy since these activities are most likely to result in products, services and communications which will be perceived as valuable by the targeted customer. Also, coherence and consistency suggests that business units following strategies more closely aligned with competencies and resources will be more likely to be successful. Hypothesis 5c will test these relationships.

*Hypothesis 5c: Customization and Interactive Marketing increases are more pronounced for business units following Focused versus Broad strategies.*

Acquiring more information will likely lead to an increased level of Customization and Interactive Marketing with the customer. The presence of detailed Customer Information within the unit will increase the likelihood of a response to the customer that takes into account individual preferences. However, It is likely that this impact will be the lowest impact on Interactive Marketing of the components of CIS. Merely having the information is less important than being able to use it. The following hypothesis 6a is suggested by this relationship.

*Hypothesis 6a: As the information Generation constructs of Acquisition, Specificity and Quality in the CIS increase, business unit Customization and Interactive Marketing increase.*

The ability to locate the customer in time and space requires a considerable investment in terms of databases and computer processing. It is possible to



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

collect as much information as could reasonably be processed by the business unit, after which the benefits in terms of Customization and Interactive Marketing would be negligible (similar to Figure VII). The hypothesis 6b below suggests this relationship.

*Hypothesis 6b: As Addressability increases, business unit Customization and Interactive Marketing increase then level off.*

Dissemination refers to the dissemination of Customer Information in the unit. This activity directly relates to Customization and Interactive Marketing, since the likelihood of Customization capability and individualized responses increases as Customer Information is spread around the organization. For example, the information can now get to customer service, marketing and new product development (Similar to Figure VI). However, since spreading information is not costless, there will be a point after which such information cannot be used to create profitable interaction with the customer. The related hypothesis 6c is listed below.

*Hypothesis 6c: As Dissemination increases, business unit Customization and Interactive Marketing increase to an optimal point.*

Shareability involves being able to interpret information based on having a complete picture of the customer drawn from many areas of the unit. Shareability has costs in terms of information systems and personnel and will have a diminishing effect as investment increases. There is likely to be a point after which sharing data will not lead to incremental knowledge that can be used to interact with the customer. (Similar to Figure VI). This relationship is outlined in Hypothesis 6d.

*Hypothesis 6d: As the Shareability increases, business unit Customization and Interactive Marketing increase to an optimal point.*

For the Differentiation Strategy, Customization and Interactive Marketing will mean a greater opportunity to learn about the customer and improve the basis for



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Differentiation that leads to charging a price premium. For the Low-Cost Strategy, Interactive Marketing can result in efficiencies such a shorter sales cycle. These efficiencies can be passed on to the customer as a cost advantage. This relationship is summarized in Hypothesis 7. Hypotheses 7-9 will be tested by linear regression and inspection of the paths of the posited path model.

*Hypothesis 7: As Customization and Interactive Marketing increase, Marketing Performance increases.*

Long-term relationships develop over time through the mechanism of interaction (Dwyer, Schurr and Oh 1987). As the unit and the customer interact more, the unit is able to provide Customization capability and customized responses to a particular customer's needs. The information obtained through these interactions is critical in developing a deeper relationship with that particular customer. The customer will see an escalation of commitment on the part of the seller to the buyer, put more of its business with that seller and be more likely to remain a customer for a longer period of time. Hypothesis 8 illustrates this relationship.

*Hypothesis 8: As Customization and Interactive Marketing increase, business unit Relationship Performance increases.*

Relationship performance measures such as are used here, decreased sales cycle, higher margins and larger percentage of an individual customer's business, should translate into being able to charge a higher price premium for customers through differentiation or achieve cost efficiencies which can be passed on to the customer to improve its operation. These benefits should result in overall higher retention rates, lifetime values and share of wallet for all customers. These are precisely the anticipated benefits of relationship marketing in the business-to-business setting. These benefits



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

should accrue regardless of generic strategy, Low-Cost versus Differentiation.

Hypothesis 9 indicates this posited relationship (Similar to Figure VI).

*Hypothesis 9: As Relationship Performance increases, Marketing Performance increases, but with diminishing returns.*

## CONSTRUCTS AND THEIR OPERATIONALIZATIONS

Please refer to Appendix A for a further explanation of the items. Short item descriptions which are used later are included after each item in the Appendix. Items are referred to by number in the sections below.

### Positioning

Conceptual definition: Generic differentiation strategies as defined by Porter. Cost-Based (Value created for customer by offering at a price lower than competitors), Differentiated (Value created for customer by impact on value chain for which a higher price can be obtained) (Porter 1980, 1985).

Operational definition: Existing scales from prior studies, as adapted to this study of services industries (Zahra and Covin 1993, Kohli and Jaworski 1990, Porter 1980, 1985), items 3 a-e, 4 a-e, l.

### Product Market Focus (Segmentation)

Conceptual definition: Broad (heterogeneous group of customers or products) or Focused (homogeneous subgroup of customers or products).
(Porter 1980, 1985).

Operational definition: Existing scales from prior studies, as adapted to this study of services industries (Narver and Slater 1990, Zahra and Covin 1993), items 4 e, i-k.

### Customer Information System (CIS)

***Generate: Capabilities Relating to Acquisition, Specificity, Quality***

#### 1. Acquisition

Conceptual definition: Sources of Customer Information in the business unit.

Operational definition: A list of acquisition capabilities was developed from a comprehensive review of the direct and interactive marketing literature (See Table 6), the practitioner press, a Direct Marketing Institute publication, and Kotler's 1994 Marketing



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Management text. These activities were translated into questions regarding the acquisition of various types of customer information, items 5 a-s.

**Table 6: Direct Marketing Review of Acquisition Sources**

| | KOTLER 1994 | *DMI SURVEY 1994* | OTHER | REFERENCE |
|---|---|---|---|---|
| Catalogues to consumers | | x | | Hess and Mayhew 1997, Gehrt Yale, and Lawson, 1996, Davis 1996 |
| Catalogues to businesses | x | x | | |
| Direct response TV | x | x | x | Danaher 1997 |
| Direct response print ads | x | x | | |
| Inbound 800# from businesses | x | x | | |
| Inbound 800# from consumers | x | x | | |
| Bingo cards in magazines | | x | x | Carlson 1996 |
| Internet, on-line ads | | x | x | Mehta, Gewal and Sivadas 1996 |
| Web Page | | | x | Billington 1997, Mehta, Gewal and Sivadas 1996, Schlaphoff 1996 |
| Electronic shopping-PC | x | | x | *Jaffee 1995* |
| Electronic shopping-TV | x | | | |
| Kiosk shopping | x | | x | *Mainardi 1997* |
| CD ROMS | | | x | *Mainardi 1997* |
| Home shopping channels | x | | | |
| Interactive TV | | x | | |
| Infomercials with 800# | x | x | x | Elliot and Lockard 1996 |
| Membership or club programs | | x | | |
| Non-personally addressed mail to business | x | x | | |
| Personally addressed mail to business | x | x | | |
| Email messages | | | x | Bradley 1996 |
| Personally addressed mail to consumers | x | x | x | Schibrosky and Peltier 1995, Jain 1995 |
| Outbound telemarketing to businesses | x | x | x | Cain 1995, Schlaphoff 1996 |
| Outbound telemarketing to consumers | x | x | x | Cain 1995 |
| Outbound/inbound fax | | x | | |
| Customer database | | x | x | *Throckmorton 1986* |
| Database for lead management | | x | x | Gorski 1997 |
| Salesperson support/integration | | | x | Fournier 1996 |
| Network | | | x | Iacobucci 1998 |

*Italics indicate practitioner support from non-academic publications*

### 2. Specificity

Conceptual definition: Knowledge and time specific information, as defined above by Sampler (1998) as been simplified and adapted to the situation of Customer Information. Knowledge specific items are specific in acquisition to certain individuals.



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Anyone can get a company name and phone number; not everyone can get the favorite ice cream of the company President. Time specific information is limited in acquisition by specific time periods. Anyone can find out the company has an RFP out for bid; not everyone can find out that a special order is being placed today outside that RFP.

Operational definition: Questions relating to the acquisition of specific customer data items categorized by time or person specificity. Students in practitioner-level M.B.A. class provided feedback on the categorization of the items that resulted in several adjustments, including the descriptions of time and person specificity in the thesis. This method was similar to one used in determining distribution channel selection in another study (Rangan, Menezes and Maier 1992). Final data items were selected from this group of questions. Person Specificity was measured through items 6 a-r, Time Specificity through items 6 s-z.

### 3. Quality

Conceptual definition: Accuracy, Timeliness, Completeness, Consistency and and Relevance (Wand and Wang 1996, Wang, Reddly and Gupta 1993).

Operational definition: A six-point scale was developed to measure the quality of Customer Information in the organization, items 8a-f.

***Remember: Addressability***

Conceptual definition: "Locating the customer uniquely in time and space in a database, so that response, marketing actions and respondents can be matched." (Blattberg and Deighton 1991).

Operational definition: This scale measured the ability to locate customer information quickly, or the storage capability of the organization. The scale was developed drawing on work in database marketing (Thomas and Wang 1996), items 9a-g, 10 a-d.

***Disseminate: Dissemination Capability***

Conceptual definition: Dissemination of Customer Information involves the extent to which information is "collected and processed as part of exchanges along the value-added chain along a continuum." (Glazer 1991, Slater and Narver 1995).

Operational definition: Customer related items from Kohli, Jaworksi and Kumar's (1993) measure, MARKOR, relating to dissemination capabilities, items 11a-e, as well items related to value chain linkages through departments were developed and included in the survey (Porter 1980, 1985), item s11f-h.



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

*Interpret: Shareability*

Conceptual definition: The ability to share information about the customer throughout the organization easily. This is a new activity in the information systems literature.

Operational definition: Sharing information across the organization, or shareability, was used to measure how information is processed within the business unit. A new scale was developed which measured the extent to which information can be shared across the organization. Respondents were asked for specific parts of the organization, such as sales, customer service, marketing and R&D, what percentage of employees in these departments who routinely interface with customers can easily modify, add to or clarify stored customer information, items12 a-f, 13 a-f. Respondents were also be asked for what percentage of customers can employees in their business unit easily determine all products purchased, all products purchased by location, customer penetration (percent of customer/wallet), items 14 a-c, 15 a-c.

**Customization**

Conceptual definition: Dissemination of Customer Information involves the extent to which information is "collected and processed as part of exchanges along the value-added chain along a continuum." (Glazer 1991, Slater and Narver 1995). The result of this dissemination is then the ability to incorporate customer information into products and operations to customize them and eventually to understand enough about individual customers that there is a value to selling customer transaction information in the open marketplace. This concept is the general ability of the firm to customize products and communications.

Operational definition: Adaptation of scale based on Glazer's (1991) work (Milne and Boza 1998), which represents a continuum of Customization activities as follows:

- Products and services are not based on customer transaction information.
- Marketing effort of products depends on customer transaction information.
- Products are customized based on customer transaction information.
- Information or knowledge based on customer transactions is bundled with product offerings.
- Customer transaction information is a source of revenues.

One other item measuring the ability to customize products and marketing communications in general in the business unit was included in this scale, items 11 i-n.



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

**Interactive Marketing**

Conceptual definition: Drawing from Blattberg and Deighton (1991) and using Deighton's (1996) definition of interactive marketing, interactivity in this context is limited to the marketing function and defined as follows:

- The ability to gather and remember a response of an individual
- The ability to address an individual customer
- The ability to address that individual customer once more in a way that takes into account the customer's unique response.

As opposed to Customization (see 4. above), which describes a general capability to customize products and communications, this concept focuses on the ability to interact with particular customers and groups of customers, providing different offers to different groups.

Operational definition: The most important element of this definition is the final point, which indicates the ability to create a dialogue that is interactive by taking into account the prior response of customers in responding to them. A set of questions that measured the speed and extent of this responsiveness were developed for a new scale to measure the interactivity of marketing efforts.

**Relationship Performance**

Conceptual definition: How successful are the business unit's relationships with the top twenty percent of its customers? Although it is recognized that marketing's role is moving toward management of relationships (Webster 1992), this construct has been difficult to operationalize in a way that can be used across studies. Several efforts have been made in direct marketing (Schijins and Schroder 1996) using frequency, recency and monetary value and in network analysis (Stump) using tie strength.

Operational definition: For this study, an outcome and performance-based measurement scale used by Fontenot, Volsky, Wilson and Wilson (1998) was adapted and used to measure traditional success metrics such as margins and profitability as well as new measures which should be the direct result of an effective CIS, such as the length of time a particular customer has been with the company and that share of a customer's business (Deighton 1997, Jackson and Wang 1995, Reichheld 1996, Wang and Spiegel 1994), items 16 a-g.

**Marketing Performance (Marketing Competitive Advantage)**

Conceptual definition: Extent to which a company (here, the business unit) has a performance advantage over others in its industry, relating to specific items under the control of the marketing unit and commonly associated with success in Customer Information Management (Deighton 1996, Reichheld 1996). The idea is that more customer knowledge will allow for the measurement of certain specific metrics such as retention rate and lifetime value, which can then be managed for competitive advantage.



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Operational definition: Self-reports of items such as customer retention, customer penetration (share of wallet), and lifetime value, ROI and profitability were be collected, items 17 c-g. ROI and profitability were included here and not in Business Unit Performance because they are more specifically related to the success at the marketing level. (As will be seen the inclusion of ROI in these items was supported, but not the inclusion of profitability). Self-reports were necessary because items such as lifetime value are not publicly available. (See also the discussion of managerial self-reports below).

**Business Unit Performance (Business Competitive Advantage)**

Conceptual definition: Extent to which a company (here, the business unit) has a performance advantage over others in its industry (Porter 1985), achieved through a combination of resources and capabilities in a particular product market which leads to superior performance over others (Ansoff 1965, DeCastro and Chrisman 1995).

Operational definition: It is common in strategic research to use performance measures such as growth rate of sales, net income and return on assets as surrogates for competitive advantage. The primary measurements for success of particular generic strategies have been these measures and studies linking IT to competitive advantage continue to use these surrogates (Powell and Dent-Micaleff 1997). This study, based in the business unit, will use self-reports of performance, versus the industry group, or manager perceptions in the absence of public sources at the business unit level.

Prior work indicates that subjective performance measures provided by the top management team in privately held firms were strongly correlated with objective measures of the absolute changes in return on assets and sales over a five year time period (Dess and Robinson 1984, Robinson and Pearce 1988). Another study also measured the responses of senior executives versus secondary data sources for sales growth, net income growth and ROI and broadly satisfied the requirements of convergent and discriminant validity (Vekatramann 1987). Since the survey participants are key decision-makers at a high enough level they were knowledgeable about performance metrics. For this reason, metrics on age, education level and years of experience were collected for each manger interviewed in items 21 e, i and j.

Two specific survey items were included to measure self-reports of growth of sales revenues and net income. Measurement of sales growth is in particular consistent with the point of view of Resource-Based theory (Penrose 1959), the stated purpose of which is to measure why firms grow in the direction that they do. These two items included in this scale are 17 a and b.

**Control Variables**

In addition, the following variables are expected to affect Marketing Performance and will be included in the survey. These variables are included in items 4 f-h, 18 a-j, 19 a-d.



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

- The size of the transaction: Expected not to affect Marketing Performance positively, regardless of the CIS.
- The size of the customer: Expected to affect Marketing Performance positively; the larger the customer the more likely there will be interaction and a deep and sophisticated CIS.
- The geographical dispersion of the customer: Expected to affect Marketing Performance negatively unless CIS is high.
- Segmentation: Expected to affect Marketing Performance negatively. A large number of segments will make Marketing Performance difficult because interaction will be difficult.
- Customer need for information/interaction: Expected to affect Marketing Performance positively.
- Type of product: Industries chosen have the same intangible value proposition and are high outlay, infrequently purchased goods. Product is likely to have little effect (Peterson et al. 1997).
- Porter's five forces: Results from the EFA (Exploratory Factor Analysis) allowed for elimination of certain items from the survey and for the inclusion of the following forces: these forces are Threat of New Entrants, Threat of Substitute Products or Services, Bargaining Power of Suppliers, Bargaining Power of Buyers, Rivalry Among Existing Firms.

**Other Background Variables**

One variable was collected for screening criteria, which was item 21k, percent of total annual sales from business-to-business in your unit. Contact information was collected from respondents to mail the survey results in items 21 a-h. Other variables (1 a, 2 a-d, which asked for background on direct vs. indirect channels, and whether or not certain database or web capabilities were in place were also collected as control variables and examined before data analysis began.

**Non-Response Bias**

Several additional items were purchased from Dun & Bradstreet to calculate non-response bias such as sales, number of employees and year started.



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

# CHAPTER FOUR: SURVEY METHOD AND SAMPLING, CONSTRUCT DEVELOPMENT AND TESTING

## SURVEY PRETEST

Question 3: What does an empirical test of this model show?

The survey was pre-tested in two phases. The survey was first administered during three depth interviews, one in insurance and two in the software industry, with informants from a prior qualitative study of thirty respondents (Zahay and Griffin 1998). These interviews were either taped or extensive notes taken. Review of these notes and tapes resulted in several changes being made to the survey for clarification during the final survey preparation, but reaction by these executives was generally very positive and the few changes that were made were primarily to increase the comprehension of the survey by executives in the insurance industry.

Responses from these depth interviews were included in the final pretest sample, which was a paper and pencil administration of the survey to forty-seven business-to-business sales and marketing managers. These forty-seven responses were collected from a variety of sources and not limited to one industry, including a business-to-business executive level M.B.A. class at an urban institution and several associations whose members were primarily in business-to-business sales and marketing. The exploratory factor analysis of these forty-seven surveys (Principle Components Method, Varimax rotation) conducted as a result of this pretest supported the validity (factor loading) and reliability of measures for strategic category, CIS sub parts, Customization and Interactive Marketing (Cronbach's $\alpha$, greater than .50 or .60 for Exploratory Factor Analysis, Nunnelley 1967). Because the scales contained multiple parts, they were analyzed separately. As the pretest used heterogeneous industries where measures would vary, performance scales were not tested. The Human Subjects Committee of the



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Department of Business Administration at the University of Illinois approved the research as posing no risk to or deception of its human subjects.

The final changes were made to the survey during the course of the administration of the first ten surveys. The final question order was determined by making the survey as easy to understand and answer as possible. The exact order of the questions was not determined until there had been a chance to administer the survey several times to get an idea of an effective "flow." The flow of the survey was such that the first few questions were relatively easy to answer. The most detailed questions about data acquisition were asked next and still early in the survey, so the respondent would not be too fatigued to answer them. Performance-related questions were placed closer to the end of the survey after trust had been built between with the interviewer and respondent. The last two pages were easy to answer questions about the environment and background questions on the company and the respondent. Slight changes were made to a few questions before beginning data collection in the software industry to remove the descriptions that had been added for clarification with insurance executives and replace them with those more generally comprehensible to the software industry sample.

## SURVEY ADMINISTRATION

The survey was administered over the phone to executives in the two industries studied, property and casualty insurance and software. Telephone interviews were used to increase the number of complete surveys, increase response rate, to clarify questions immediately and to capture rich qualitative data on several open-ended questions. The interviews were set up in advance with a copy of the survey emailed or faxed to the interviewee prior to the appointment. Sending the survey in advance facilitated scale and item understanding and kept the survey administration time to a minimum. A pretest of



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

the survey in depth interviews with key informants indicated that because of the length of the survey and the changing description of the item response scales, data collection could be facilitated by the informant following along with the interviewer during the survey. Data were collected by industry, with insurance first and software second. During the second phase of data collection, the survey was placed on the web, again to facilitate data collection. When respondents indicated they did not have the survey in front of them, web access allowed the respondent to check the web site and get immediate access to the survey. Most surveys were completed within a half hour over the telephone. The researcher was the sole interviewer on the project. This step insured consistency of response and care was taken to answer respondents' questions in a consistent manner.

## DATA COLLECTION METHODOLOGY

The process of collecting data in the field from informants that are managers presents several challenges. The first challenge is to identify the proper informants within a given firm. The job titles most relevant to this survey, Vice President of Marketing, Marketing Manager, Product Manager are not generally collected in commercially available multi-purposes databases such as Dun & Bradstreet and must be identified through prior "contact identity" calls. Once the contact has been identified, a further challenge rests in soliciting participation in the study from busy managers.

The process of building the database and soliciting participation for the research was based on principles of collecting survey data results that are established in the survey research literature (Sudman 1976, Dillman 1978). The first step was to sample a list of insurance and software companies as described in the sampling section below. The next step was to build a database based on the results of "contact identity" calls was used to ensure that the right individual was solicited for the survey. The screening criteria for



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

these calls for insurance was that the firm sold businesses property and casualty insurance and the Vice President of Marketing, Underwriting or whoever was responsible for marketing was requested. Because of difficulties in identifying business-to-business property and casualty insurers, which are described below, a further criteria was added of business-to-business being at least thirty percent of the firms' business. The screening criteria for software was that the firm marketed primarily to businesses. Since most software applications are business-to-business, this screening criteria was sufficient and the name of Vice President of Marketing or the President of the company was requested. The President was requested for software firms because of the structure of these firms was less complex than insurance firms and the President's office was often able to refer the person requesting the interview to the right person in the company to answer the survey.

A letter from the Doctoral candidate and Dissertation Advisor was sent to this pre-qualified list of contacts. The letter stated that the person interviewed needed to be knowledgeable about customer relationships and how they were managed and measured. Respondents were offered a summarized copy of the research results in exchange for their participation and were told someone would be calling to schedule an interview. Letters were sent in groups of approximately 60 to 130, depending on the schedule. The goal was to allow no more than a week between receipt of the letter and the initial telephone solicitation, so letters were sent out in groups depending on how many individuals were available to make initial contact calls. It should be noted that of the hundreds of letters sent out with the web address, only one person downloaded the survey and returned it without a telephone solicitation call.



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

A business-to-business telemarketing firm was hired to do the bulk of contact identity and interview solicitation calls and to schedule appointments. Individuals on this targeted list then received anywhere from two to three telephone calls requesting their participation in the survey. Where phone messages were left, all contacts were directed to the interviewer, who was the doctoral candidate, who did follow up calls and scheduled interviews. The sole interviewer conducted approximately 30 percent of interview solicitation calls and personally scheduled over 50 percent of the appointments for the survey. Once the targeted contact had scheduled an interview, contacted the interviewer to ask questions or scheduled an appointment or received the maximum number of telephone solicitations, the contact was removed from the list. A second mailing, with two telephone solicitations, was necessary to achieve the desired number of responses.

## SAMPLING AND RESPONSE RATE

### Combined response

Response rate was calculated both on a company and a contact basis. Company means company location as reported by the data sources, which were Dun & Bradstreet electronic data files, customized for this project and purchased from Dun & Bradstreet, and hard-copy data from a published data source (Ward's Business Directory of U. S. Private and Public Companies 1999) Contact means an individual within that company that received a mailing requesting an interview. The combined response rate for the survey on a company basis was 48 percent and percent on a contact basis.

Stratified samples were collected from two industries, insurance (property and casualty insurers) and software. Several stratified samples were combined in order to develop a complete picture of these industries. In general, the Dun & Bradstreet listings



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

should not be considered complete listings of all companies in their industries and are more properly considered a random sample. All companies in an industry are not listed and, in fact, many major companies, including the large software vendor Microsoft, are de-listed (removed from the list) upon the company's request.

**Insurance**

The task of identifying business-to-business property and casualty insurers through standard industry classification methods proved difficult. Therefore, several different data sources were used. Standard Industrial Classification (SIC code) was used to identify the largest insurance companies, those who were more likely to have property and casualty coverage for businesses.

A list of the top 400 companies in terms of sales (cutoff sales greater than $42,400,000) from the Dun & Bradstreet listing of SIC code 6331 (Fire, Marine and Casualty Insurance) and the top 100 companies from (North American Industry Classification System) NAICS code 524126 (Direct Property and Casualty Insurance Carriers) from the 1999 Ward's Business Directory of U.S. Private and Public Companies (Wards 1999a, 1999b), yielded 470 contact names of which 397 received mailings (The desired goal of 100 was reached before the final 73 contacts were solicited). Of the Ward's data, the top 100 were used with a cutoff of greater than $1,300,000,000 in terms of operating revenue. The contact name list was also supplemented from the directory from the Society of Insurance Research 1998 Member Directory (Society for Insurance Research 1998).

Approximately ten percent of these insurance companies were not in the property/ casualty business when further calls were made, or did not meet the threshold of at least 30-40 percent commercial business. This failure in screening was in part due to the



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

learning curve of the telephone screening personnel and in part due to the complicated nature of the insurance business. This screening problem was corrected in the second phase of screening calls in the software industry, where only one percent of the contact database was not in the targeted industry. Accounting for the fact that at least ten percent of the insurance database was not primarily property casualty insurers and the 5 percent mail returns on company location basis and 6 percent mail returns on contact basis, the total eligible contacts was 337 and total eligible firms was 230. Of these, 100 surveys were completed, for a response rate of 44 percent on a company location basis and 30 percent on a contact basis.

**Software**

Two data sources were also used to build the contact database for the software industry, although the motivation for doing so was different. The SIC code 7372 (Prepackaged Software) from Dun & Bradstreet database yielded a total of 296 firms. Based on the prior success rate in the insurance industry in getting contact names (not all companies participated) and getting responses from solicited contacts, more names were needed to yield 100 responses. Contact identity calls to the Dun & Bradstreet Database of 296 software companies yielded a total of 254 contacts. Because of the desire to have equal sample sizes in both industries, this entire list from Dun & Bradstreet was used to build the contact identity database. Still, the Dun & Bradstreet list was not comprehensive and was missing larger companies that would need to be included in the survey to properly capture information collection and dissemination activities. Key names as Microsoft, Sybase, Intuit, Sun Microsystems were not on the Dun & Bradstreet database. This electronic database was then supplemented by a stratified sample with an additional list of 154 companies from the NAICS code 51121 (Software Publishers)



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

which was obtained from the Ward's Business Directory of U.S. Private and Public Companies. A cutoff of greater than $80,000,000 in sales was used to capture the largest companies which, again, would be able to answer questions about information flow throughout their organization. This list, for which the researcher both solicited the interview and conducted the interview yielded, after contact identity calls, a list of 118 identified contacts from 93 separate companies.

Overall response rate in software was slightly greater than the insurance industry, increasing to 54 percent on a company basis (203 contact total companies) and 31 percent on an individual contact basis (347 mailed contacts), resulting in 109 interviews conducted in this industry, of which 5 percent on a company basis or 6 percent on a contact basis were returned or not applicable and one percent were identified as not in the software business.

**RESPONDENT PROFILE**

Of these interviews there was an approximate nine percent (19 out of 209) "no show" rate, interviews that were scheduled but not held. There were also over two hundred and fifty additional professionals in these companies who were used to network through the organization to get to the individuals most knowledgeable about these issues, resulting in a database of over a thousand contact names in the both industries. A number of key referral source individuals will be receiving a copy of the results to thank them for their time with the survey.

Respondents were in general very helpful in getting the interviewer to the right person in the organization who could answer all the questions. Because of the data collection technique used, the database grew rather than shrank over the period. In many cases, "snowballing" resulted in the actual interview being conducted with someone other



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

than the initial contact. For this reason, the company response rate of close to 50 percent and not the contact response rate is the most accurate indicator of participation. One technique which raised participation was that, in larger firms, the interviewer requested additional names of those in charge of other business units.

Participation rates were high also because interviews, while conducted primarily in business hours, were also held on weekends and early morning or late evening to accommodate the schedules of the respondents. Once the interview was scheduled, often two or three reschedules were necessary to conduct the interviews. Hence, data collection ranged over a period of six months, with the insurance industry ranging from June to October and software from August to December, 1999 with a few stragglers returning surveys after the holidays in early 2000.

The overall average age of the respondents was 42 with about 16 years of business experience. The average age of the respondents in insurance was 45 and average number of years of business experience is 20 with the results slightly lower for software (39 and 13 respectively). Software industry respondents, although slightly younger and with less experience, were more generally able to respond for their entire firm rather than a business unit. The following Table 7 provides a profile of respondents as well as differences by industry.



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

**Table 7: Profile of respondents**

| | Mean | Standard Deviation | Variance | Range (Min.-Max.) |
|---|---|---|---|---|
| **AGE**** | | | | |
| All (n=199) | 42 | 9.0164 | 81.2957 | 47 (23-70) |
| Insurance (n=95) | 45 | 8.5572 | 73.2251 | 44 (26-70) |
| Software (n=104) | 39 | 8.4385 | 71.2084 | 37 (23-60) |
| **YEARSWK**** (Years worked) | | | | |
| All (n=201) | 16 | 8.1974 | 67.1969 | 41 (2-43) |
| Insurance (n=97) | 20 | 7.9956 | 63.9304 | 40 (3-43) |
| Software (n=104) | 13 | 6.9498 | 48.2995 | 28 (2-30) |
| **EDLEVEL**** (Educational Level) (1= high school, 2=college, 3=grad school) | | | | |
| All (n=200) | 2.4600 | .5567 | .3099 | 2 (1-3) |
| Insurance (n=96) | 2.3125 | .5489 | .3013 | 2 (1-3) |
| Software (n=104) | 2.5962 | .5310 | .2819 | 2 (1-3) |

**(**Differences between industries in means significant at p <.01)**

Company responses differed slightly by industry in terms of business-to-business sales, although they were similar in the number of customers (Table 8).

**Table 8: Profile of Respondent Companies**

| | Mean | Standard Deviation | Variance | Range (Min.-Max.) |
|---|---|---|---|---|
| **BTBSALES** (Percent business in Business to Business sales)** | | | | |
| All (n=201) | 88 | 23.4858 | 551.584 | 90 (10-100) |
| Insurance (n=98) | 78 | 28.6334 | 819.870 | 90 (10-100) |
| Software (n=103) | 98 | 10.4670 | 109.99 | 65 (35-100) |
| Number of Customers | | | | |
| All (n=173) | 6,701 | 12,473 | 155,587,828 | 64,999 (1-65000) |
| Insurance (n=70) | 6,657 | 12,740 | 160,000,000 | 56,783 (1-56784) |
| Software (n=103) | 6,731 | 12,351 | 150,000,000 | 64,990 (1-65000) |

**(**Differences in means significant at p <.01)**



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

## NON-RESPONSE BIAS

Non-response bias was not expected to be a serious issue because of the high response rate in terms of both company and contacts. The most conservative test of non-response bias was to take the number of companies that responded and compare them to the total number of companies in the Dun & Bradstreet files from which most of the stratified random samples were taken (this is the number prior to screening and contact identity calls and to use this group is conservative test). The comparisons were made for items purchased from Dun & Bradstreet, Sales, Employees Total and Year Started. There were no other items compared that were relevant from the Dun & Bradstreet data. The results in Table 9 indicate that there is no difference in mean responses between those that responded to the survey and those that did not by industry. The profile of the companies that did not respond in terms of size and number of employees and year started did not differ significantly ($p < .05$) from the profile of the companies that did respond. An analysis of the same responses for the pooled data (not reported) indicated the same results. No further analyses were conducted because this stringent test was met. Since after screening one would expect the respondents to be similar in profile to the non-respondents, the fact that the two groups are similar before screening is critically important. Because of the strength of these results, the same comparison was not made for the Ward's data files, which contain less up-to-date information than the Dun & Bradstreet data purchased for the study.



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

**Table 9A: T-Tests for Differences in Means Between Respondents and Non-Respondents, Insurance Industry**

| | MEAN | STD. DEV. | SIG. LEVEL, LEVENE'S TEST EQUAL VARIANCES | T-TEST FOR EQUAL MEANS | DF | 2-TAILED SIG. LEVEL |
|---|---|---|---|---|---|---|
| SALES<br>Combined (N=399)<br>Respondents<br>Insurance (N=85)<br>Non-Respondents<br>Insurance (N=314) | 486<br>million<br>501<br>million<br>482<br>million | 1.532<br>million<br>976<br>million<br>1.652<br>million | F=.098<br>(.754) | .104 | 397 | .918 |
| EMPLOYEES<br>Combined (N=399)<br>Respondents<br>Insurance (N=85)<br>Non-Respondents<br>Insurance (N=314) | 1,269<br><br>1,381<br><br>1,238 | 3,470<br><br>3,037<br><br>3,583 | F=003<br>(.953) | .336 | 397 | .737 |
| YEAR STARTED<br>Combined (N=399)<br>Respondents<br>Insurance (N=85)<br>Non-Respondents<br>Insurance (N=314) | 1963<br><br>1961<br><br>1963 | 38<br><br>38<br><br>38 | F=489<br>(.485) | -.930 | 397 | .353 |

**Table 9B: T-Tests for Differences in Means Between Respondents and Non-Respondents, Software Industry**

| | MEAN | STD. DEV. | SIG. LEVEL, LEVENE'S TEST EQUAL VARIANCES | T-TEST FOR EQUAL MEANS | DF | 2-TAILED SIG. LEVEL |
|---|---|---|---|---|---|---|
| SALES (in millions)<br>Combined (N=281)<br>Respondents<br>Software (N=69)<br>Non-Respondents<br>Software (N=212) | 96<br><br>97<br><br>100 | 457<br><br>223<br><br>511 | F=.028<br>(.866) | -.018 | 279 | .986 |
| EMPLOYEES<br>Combined (N=281)<br>Respondents<br>Software (N=69)<br>Non-Respondents<br>Software (N=212) | 545<br><br>542<br><br>546 | 2368<br><br>1072<br><br>2660 | F=.038<br>(.846) | -.012 | 279 | .991 |
| YEAR STARTED<br>Combined (N=279)<br>Respondents<br>Software (N=69)<br>Non-Respondents<br>Software (N=210) | 1989<br><br>1989<br><br>1989 | 7<br><br>7<br><br>7 | F=.594<br>(.441) | -.597 | 277 | .551 |



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

## CONSTRUCT TESTING AND DEVELOPMENT

After data collection, the data were analyzed and specific operationalizations were developed based upon the items included after the initial pre-test described above. The initial test data of forty-seven respondents was analyzed with EFA (Exploratory Factor Analysis), Principal Components Method, and was useful in eliminating a number of items which resulted in the final survey in Appendix A. Appendix B provides final wording for each item in the final analysis and the shorthand item name referred to in the tables that follow. These test results are not explained in detail, but are similar to the EFA approach used in the final data analysis. EFA was used in the pretest phase to eliminate items that did not correlate with specific factors or did not add new information to the model in terms of explaining variance in responses.

All final model constructs were developed with the aid of correlation analysis and both Exploratory (EFA) and Confirmatory Factor (CFA) analysis. Factor analytic methods were appropriate because the survey items were theorized to measure a set of several latent variables which cannot be measured. For example, the Customer Information System (CIS) construct was theorized to consist of a set of several latent variables (Figure VIII). For all the CIS constructs, which measure underlying firm capabilities, measures were developed to capture these capabilities. For example, the GENERATE construct consisted of items to measure the acquisition (ACQUIRE) of customer information as well as its specificity (SPECTIME, SPECPERS) and quality (QUALITY). The task of developing the CIS construct involved winnowing down a field of 89 items into a set of 30 items that explain the differences in business unit responses.

Initial Exploratory Factor analysis was performed in SPSS 9.0 on the complete sample of 209 (100 insurance, 109 software), with those items with missing data



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

eliminated dynamically during each run. Exploratory factor analysis (EFA) is useful in substantive areas where little is known to determine underlying patterns in the data (Bollen 1989). As in the pretest phase EFA was used to eliminate items. EFA was also used to verify that the items developed were grouped together in factors as expected, to test both convergent and discriminant validity of survey items. The method used for EFA was Principal Components Analysis on with a Varimax rotation. EFA was conducted on subsets of the factors as appropriate. For example, the factors in the construct GENERATE were explored as a group, as were the performance variables.

A cutoff of .5 was generally used for factor loadings. Associated eigenvalues for each factor were generally greater than 1. The factor loadings represent the correlation between the item and its underlying factor, and are used in scale development to determine which items to retain and which to discard. Although some guidelines suggest that a loading as low as .3 can be significant (Hair 1979, Nunnally 1978) and as low as .14 or .18 when the sample size is 200, as is the case here (Hair 1979), there was in general no difficulty in adhering to the stricter standard in these data.

The Confirmatory Factor Analysis was guided from input from the Exploratory Factor Analysis. Descriptive statistics were used to eliminate those data items which did not have enough information to be included in the analysis. The cutoff for inclusion in the sample was items with less than ten percent information missing. The remaining items with missing data generally had no more than five percent missing data. In the recoding, blank responses were essentially treated as non-responses and involved substituting a "1" for never or "0" for zero percent of the time in the survey instead of blank. This method did not have the threat of biasing the correlation matrix upward as might occur with replacement of with the mean and yet allowed for the retention of all



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

survey responses. Because of the difficulties of data collection in the field setting, retaining survey responses was a top priority. Data were filled in so that CFA and SEM (structural Equation Model) could be performed with nearly all 209 responses and then in subsets of responses by industry. The path analysis programs used (AMOS 4.1 and SAS PROC CALIS) either did not handle missing data items or did not provide information necessary for meaningful data interpretation if they did. Filling in data in these cases meant that a new correlation matrix could be recalculated for the full sample, avoiding the estimation problems inherent in using a correlation matrix calculated for only part of the sample to estimate for the full sample.

After eliminating items for which information was incomplete, Confirmatory Factor Analysis was performed on the data. The purpose of factor analysis is to observe the covariance relationships, commonly scaled to be correlations, among many variables which cannot be observed. The objective of this procedure is to identify these covariance relationships in terms of underlying, observable quantities which can then be grouped into what are known as factors. Grouping variables by how they correlate, or move together, can identify which group represents a single underlying construct or factor, which is itself not observable. Fit statistics were examined and used to develop constructs to be used in the final structural equation model. Confirmatory Factor Analysis was a useful tool in determining convergent validity of items.

**CIS Construct Development**

The CIS (Customer Information System) construct will be discussed first in the order of the ascending conceptual pyramid in Figure I, with the GENERATE construct considered first. While the CIS was initially operationalized as shown in Figure VIII, Figure IX indicates the results from the Exploratory Factor Analysis. Figure IX and



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Tables 10-22 indicate EFA results for the GENERATE construct as well as ACQUISITION, SPECIFICITY and QUALITY. Table 23 provides the results of the Confirmatory factor analyses as well as Cronbach's alpha for all models tested. The full sample was used and as in most cases with missing cases deleted listwise. The EFA results indicated the underlying factors that are more complex than was initially hypothesized, but the final structure is consistent with both the underlying theory and practical considerations (see Figure IX).

***CIS - Exploratory Factor Analysis***

The GENERATE factor (Figure IX and Table 10), which consists of the information that is acquired, how time and person specific it is and the quality involved, yielded interesting results. The QUALITY items all loaded on one factor as expected and interestingly explained the largest percentage of variance in the GENERATE construct (23.026 percent).

Also as anticipated, time specificity (TIMESPEC) incorporates items such as the first purchase date, contract renewal date, last purchase date, and purchase history. Similarly, person specificity was divided into two factors which reflected who was involved in collecting the information. Person specificity was broken into two identifiable factors, those items specific to sales and those items specific to marketing. This distinction is not unexpected because person specificity as a concept was meant to identify who is collecting the information. The items that are associated with sales (PSPECSLS) are items such as the contact name in the organization, the type of contact, the response to the contact, the primary decision market name, names of others involved in the purchase and marketing offers made. The items normally associated with marketing that loaded on the PSPECMKTG factor were marketing offers made,



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

marketing offers responded to, method of contact, type of person contacted, next planned purchase date and timing of response to various marketing offers. Of these items, the last one was expected to load with the time specificity factor. However, given marketing's more forward looking orientation than that of sales, it is not surprising that this information was grouped with what was then called the PSPECMKTG factor.

In terms of the acquisition of information, commonly obtained items such as name, address and phone number did nothing to explain variance in the data. In other words, information about the customer that most people have and is easy to get did not explain differences in responses. The items in acquisition that were important were the collection of response to direct mail offers, web hits, emails, marketing research surveys and customer initiated phone calls. This factor was named ACQMKTG to indicate that it reflects information most commonly held by the marketing department and explained 9.293 percent of the variance in the GENERATE construct. The ability to track purchasing history, credit history and payment history were grouped into another factor named ACQFIN to indicate items that are generally held by the finance and accounting group in an organization and explained 6.985 percent of the variance in the GENERATE construct. That there are two separate factors important in the explanation of variance is not unexpected and makes sense from the functional point of view of the organization. (Each of these factors explain less than 10 percent of the variance in the GENERATE construct and, not surprisingly, did not survive to the final CIS model construct).



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

**Table 10: EFA Factor Loadings Generate**

| | QUALITY α=.8983 | PSPECSLS α=.8322 PERSON SPECIFIC SALES | PSPECMKT α=.8612 PERSONAL SPECIFIC MARKET-ING | TIMESPEC α=.8277 TIME SPECIFIC | ACQMKTG α=.7736 MKTG. GETS | ACQFIN α=.7784 FINCE. GETS |
|---|---|---|---|---|---|---|
| QUALACC | **.772** | .100 | .105 | .106 | .009 | -.019 |
| QAULCOMP | **.802** | .093 | .121 | .140 | -.005 | -.010 |
| QAULCONS | **.825** | .138 | .060 | .023 | -.047 | .005 |
| QUALTIME | **.787** | .113 | .042 | .112 | -.038 | -.038 |
| QAULRELV | **.660** | .131 | .142 | .023 | .033 | .061 |
| QUALALL | **.839** | .131 | .085 | .137 | .001 | .024 |
| AQKWEB | -.017 | -.014 | -.002 | -.051 | **.858** | -.077 |
| AQIEMAIL | .001 | .065 | .089 | .030 | **.860** | .046 |
| AQMMRS | -.036 | -.166 | .204 | .006 | **.597** | .060 |
| AQNCIPC | .045 | .151 | -.029 | -.022 | **.666** | .198 |
| AQOPURCH | -.112 | .126 | .060 | .094 | .366 | **.487** |
| AQPCREDI | -.000 | .007 | .070 | .043 | .052 | **.918** |
| AQQPAYMT | .089 | .018 | -.013 | .140 | .032 | **.899** |
| SPECPNAM | .081 | **.744** | .000 | .110 | .108 | .041 |
| SPECCTYP | .134 | **.768** | .102 | .002 | .028 | .007 |
| SPECPRES | .231 | **.711** | .234 | -.025 | .091 | .017 |
| SPECPDMN | .219 | **.756** | .164 | .118 | -.154 | .070 |
| SPECPOTH | .086 | **.693** | .244 | .175 | -.058 | .030 |
| SPECPOFF | .163 | .299 | **.764** | .116 | .023 | .048 |
| SPECPMOR | .076 | .149 | **.830** | .070 | .061 | .096 |
| SPECPMET | .097 | .325 | **.642** | .079 | .074 | -.138 |
| SPECPPER | .016 | .512 | **.641** | .113 | .118 | -.041 |
| SPECTTIM | .284 | -.114 | **.708** | .137 | .101 | .126 |
| SPECTFPD | .231 | .096 | .039 | **.745** | .017 | .126 |
| SPECTCRD | -.006 | .014 | .090 | **.751** | -.027 | .061 |
| SPECTLPD | .071 | .050 | .151 | **.846** | .028 | -.013 |
| SPECTHST | .239 | .225 | .093 | **.681** | -.034 | .100 |
| **Eigenvalue** | **6.217** | **2.851** | **2.253** | **1.716** | **2.509** | **1.886** |
| **Percent of variance explained** | **23.026** | **10.560** | **8.346** | **6.355** | **9.293** | **6.985** |
| **Cumulative** | **23.026** | **33.587** | **41.933** | **48.287** | **57.581** | **64.566** |

It was also expected that addressability (ADDRESS) would each have two factors (Figure IX). However, the EFA supported three factors (Table 11). The EFA suggested that ADDRESS consists of ADDNOW, the basic ability to address the customer currently, ADDFUTR, the ability to have information about what the customer will do in the future, and the organizational ability to understand database marketing and interactive



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

marketing concepts as evidenced by the percentage of people in the organization who had received training in this area (ADDHR).

**Table 11: EFA Factor Loadings Addressability**

| | **ADDNOW α=.8523** CURRENT INFO | **ADDHR α=.7925** DATABASE COURSES | **ADDFUTR α=.7969** FUTURE INFO |
|---|---|---|---|
| ADDBASIC - Basic contact information available | **.656** | -.081 | .191 |
| ADDEXTEND - Extended contact information available | **.789** | .071 | .152 |
| ADDNOTB - Basic contact information for those who have not purchased in last year | **.847** | -.054 | .213 |
| ADDNOTEX - Extended contact information for those who have not purchased in last year | **.900** | -.038 | .173 |
| ADDTHREE - Basic contact information for those who will be contacted in three months | .323 | .073 | **.881** |
| ADDSIX - Basic contact information for those who will be contacted in six months | .300 | .068 | **.892** |
| ADDHRDM - Direct Marketing course | -.033 | **.794** | .212 |
| ADDHRDBS - Database Marketing course | .003 | **.770** | .057 |
| ADDHRWBM - Web based Marketing course | -.023 | **.800** | -.048 |
| ADDHRIM - Interactive Marketing course | -.037 | **.775** | -.037 |
| **Eigenvalue** | **2.779** | **2.490** | **1.758** |
| **Percent of variance explained** | **27.791** | **24.904** | **17.584** |
| **Cumulative** | **27.791** | **52.695** | **70.279** |

The EFA also suggested that DISSEMINATE consist of two factors (Figure IX and Table 12). The first factor was named DISUNIT, which incorporates the items adapted from Kohli, Jaworski and Kumar (1993). The second factor was named DISCOMR, the items added for this research which refer to interdepartmental communication between specific departments. These factors are almost equal in their explanation of variance in the sample (28.317 percent and 28.294 percent respectively).



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

**Table 12: EFA Factor Loadings Dissemination**

| | DISCOMR α=.8089 INFO BETWEEN DEPTS | DISUNIT α=.7247 INFO WITHIN UNIT |
|---|---|---|
| DISDATA - Dissemination of Customer satisfaction data | -.037 | **.738** |
| DISDOCS - Circulation of documents providing information on customers | -.075 | **.740** |
| DISKNOW - Spread of knowledge of something important about our major customers | -.282 | **.512** |
| DISPATNS - Data on customer purchase patterns | -.130 | **.743** |
| DISEXCH - Exchange of customer information between marketing and other departments | -.394 | **.505** |
| DISMINP - Communication between marketing and product development concerning market developments | **.760** | -.132 |
| DISMINCS - Communication between marketing and operations departments concerning market developments | **.837** | -.218 |
| DISMINOP - Communication between marketing and operations departments concerning customer developments | **.853** | -.076 |
| **Eigenvalue** | **2.265** | **2.264** |
| **Percent of variance explained** | **28.317** | **28.294** |
| **Cumulative** | **28.317** | **56.611** |

Shareabilty (SHARE) proved to be the most complex construct (Figure IX and Table 13). The initial concept was that one group of items would measure a construct SHAREFCN which is the ability to share data across functions and that another group of items would measure the ability to access and modify information about a particular customer as a separate construct (SHARCUS). The EFA yielded five separate factors for shareability, as indicated in Table 13 and in Figure IX. These factors are SHARCUST (20.803 percent of variance explained), the ability to share information about how what products each customer has, SHARDOP (15.746), the extent to which information is access and modified by R&D and operations, SHARMODF (12.978), the ability of other departments to modify information, SHARWALL (11.546), share of wallet (or customer penetration) and SHARMKMG (10.888), the extent to which Marketing and Management can access customer information, which shows the final results of the Exploratory Factor Analysis. That shareability is a complex construct is



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

not unanticipated. This particular construct relates in the organizational learning literature to a shared interpretation of information and has rarely been operationalized because of its complexity.



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

**Table 13: EFA Factor Loadings Shareability**

| | **SHARCUST** α=.8135 ALL PRODUCTS BY UNIT AND CO. | **SHARRDOP** α=.8135 SHARED BY R&D AND OPNS | **SHARMODF** α=.6802 ABILITY TO MODIFY | **SHARWALL** α=.6219 SHARE OF WALLET | **SHARMKMG** α=.7586 ACCESS BY MKTG AND MGMT |
|---|---|---|---|---|---|
| SHARCSSV Access by Customer Service | .388 | .288 | .195 | -.083 | .115 |
| SHARMKTG Access by Marketing | .284 | .189 | .153 | -.025 | **.652** |
| SHARMANG Access by Management | .086 | .133 | .089 | .146 | **.821** |
| SHARRND Access by R&D | .157 | **.752** | -.031 | -.064 | .354 |
| SHAROPNS Access by Operations | .187 | **.841** | -.010 | .079 | .177 |
| SHAMRND Modify by R&D | -.035 | **.597** | .530 | .033 | .127 |
| SHAMOPNS Modify by Operations | .003 | **.828** | .290 | .168 | -.112 |
| SHAMCSSV Modify by Customer Service | .218 | .076 | **.728** | -.097 | -.233 |
| SHAMMKTG Modify by Marketing | .049 | .091 | **.783** | -.069 | .362 |
| SHAMMANG Modify by Management | -.143 | .148 | **.702** | .188 | .457 |
| SHARUPRO All products purchased from your unit | **.801** | .030 | .054 | .143 | .169 |
| SHARULOC All products purchased from your unit by customer location | **.835** | .102 | .005 | .155 | .030 |
| SHARCPRO Share of wallet of your unit | **.841** | .034 | .014 | .191 | .092 |
| SHARCLOC All products purchased from your company | **.859** | .098 | .014 | .242 | .042 |
| SHARUPEN All products purchased from your company by customer location | .247 | .059 | -.028 | **.898** | .077 |
| SHARCPEN Share of wallet of your company | .337 | .079 | -.014 | **.885** | .070 |
| **Eigenvalue** | **3.328** | **2.519** | **2.077** | **1.847** | **1.742** |
| **Percent of variance explained** | **20.803** | **15.746** | **12.978** | **11.546** | **10.888** |
| **Cumulative** | **20.803** | **36.549** | **49.527** | **61.073** | **71.961** |



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

*CIS - Confirmatory Factor Analysis*

Since there is also underlying theory to support the EFA factor groupings, an additional analysis, Confirmatory Factor Analysis (CFA) was performed (Bollen 1989). Although EFA is an excellent tool for winnowing down large numbers of items, the CFA allowed for the elimination of more items while still creating meaningful scales. Again, the object of CFA in this case is to analyze the items on the survey which related to latent variables, which are more abstract attributes than the survey items. Confirmatory Factor Analysis provided tests of convergent and discriminant validity on the item level. It is easy to see through examination of the residual matrices which items may not be contributing to overall fit.

Thurstone single factor models were fit to each of the CIS constructs, where applicable. The error variance of the latent variables were set to one for all the CFA analyses for ease of interpretation of the path coefficients. Because CFA cannot be used on less than four sub-items due to a lack of degrees of freedom, some constructs could not be subjected to the additional rigor of the CFA. In this case, inter-item correlations were inspected to make sure they were reasonably high (.6 or greater). Cronbach's alpha were computed to test the reliability of all the measures and are reported in the tables below. Appropriate goodness of fit indices (RMR, RMSEA and GFI), standard errors of the parameter loadings and associated errors were examined to determine if they were appropriately small and residuals were examined to determine if the discrepancies between the sample covariance matrix and that of the population were also appropriately small. RMR measures the Root Mean Square discrepancy residual and is the square root of the average squared amount by which the sample variances and covariances differ



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

from their estimates. The Steiger-Lind root mean square error of approximation RMSEA (Brown & Cudek, 1993) measures the square root of an estimate of the population discrepancy divided by the number of degrees of freedom for testing the model.

The typical scenario in testing was to place all of the variables indicated by the EFA in one single-factor model and examine goodness-of-fit statistics, applying the general rule than GFI should be greater than .95, RMR less than .05 and RMSEA as close to zero as possible, paying particular attention to RMR. Initial runs of the model sub constructs were conducted in AMOS 4.1, with the final CIS model and final models checked in PROC CALIS in SAS. If the fit from the AMOS model looked good, the significance level of each path was checked to make sure the path was significant at greater than p=.05 and standard errors of each path coefficient were examined to make sure they were sufficiently small. Residuals were also examined to ensure the cutoff was sufficiently small. When the fit statistics were not good, residuals were examined to determine which items might be the source of the problem.

In AMOS, the standardized residual covariances were examined for any that seemed particularly large, greater than two or much larger than the rest (the sub-groups that were examined did not vary in scale, so this did not prove as difficult as imagined). In PROC CALIS, the residual correlation matrix was examined for discrepancies no greater than .1. P-value is also reported for all of these models, although it is a less important statistic in determining model fit. It is possible to have a model with a p-value greater than .05 and still have a poor fit in terms of RMR. Except in specific cases as noted below, the single-factor models selected as a result of the Confirmatory Factor Analysis performed met the criteria for fit small fit statistics, small standard errors and small residuals. Where no acceptable model fit could be obtained, usually there were too



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

few items available for analysis, as the EFA results were relied upon to construct other measures that were then tested in the final CIS model, cross-checked with an analysis of inter-item correlations.

***Single Factor CIS Model***

The Confirmatory Factor Analysis resulted in the elimination of some additional items, those relating to acquisition activities, resulting in a thirty-seven item scale. Tables 14-22 present the summary results, by CIS construct, for which items loaded into the EFA and CFA factors. The fit statistics by CIS construct are reported (Table 23) and a summary how the initial 89 CIS items in the survey were reduced to the final 30 (Table 24). The final 30 items were selected based on their overall contribution to model fit in the single-factor CIS model which is used in this research.

**Table 14: Quality Summary**

| | EFA | CFA |
|---|---|---|
| QUALACC - Accuracy | √ | √ |
| QUALCOMP - Completeness | √ | |
| QUALCONS - Consistency | √ | √ |
| QUALTIME - Timelines | √ | √ |
| QUALRELV - Relevance | √ | |
| QUALALL - Overall data quality | √ | √ |
| Total Number of Items | 6 | 4 |



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

**Table 15: Acquisition Summary**

| | EFA-ACQMKT (MARKETING ACQUIRES) | EFA-ACQFIN (FINANCE AQUIRES) | CFA |
|---|---|---|---|
| AQAMAG - Magazine subscriber lists | | | |
| AQBASSN - Association memberships | | | |
| AQCCDB - Commercial databases or other lists | | | |
| AQDNEWS - News Sources | | | |
| AQEFACE - Face-to-face sales calls | | | |
| AQFSVCE - Service Calls | | | |
| AQGCOMP - Service Complaints | | | |
| AQHCATLG - Response to catalogs | | | |
| AQIDMOFF - Response to direct mail offers | Missing data | | |
| AQJTLESL - Response to telesales offers | | | |
| AQKWEB - Response to web hits/inquiries | √ | | |
| AQIEMAIL - Response to emails | √ | | |
| AQMMRS - Marketing research surveys | √ | | |
| AQNCIPC - Customer initiated phone calls | √ | | |
| AQOPURCH - Purchasing history | | √ | NA |
| AQPCREDI - Credit history | | √ | NA |
| AQQPAYMT - Payment history | | √ | NA |
| AQRLOYAL - Loyalty/retention programs | | | |
| AQSATIS - Customer satisfaction studies | | | |
| **Total Number of Items** | **4** | **3** | **0** |



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

**Table 16: Person and Time Specificity Summary**

| | EFA - PSPECSLS (PERSON SPECIFIC SALES) | EFA - PSPECMKT (PERSON SPECIFIC MARKETING) | EFA- TIMESPEC (TIME SPECIFICITY) | CFA |
|---|---|---|---|---|
| SPECPCOM - Company Name | | | | |
| SPECPADD - Address | | | | |
| SPECPPHO - Phone | | | | |
| SPECPFAX - Fax | | | | |
| SPECPEML - Email | | | | |
| SPECPWEB - Web address/URL | | | | |
| SPECPSIZ - Business size | | | | |
| SPECPSIC - SIC or industry classification | | | | |
| SPECPNAM - Contact name | √ | | | √ |
| SPECPTYP - Type of contact | √ | | | √ |
| SPECPRESP - Response to contact | √ | | | √ |
| SPECPDMN - Primary decision maker name | √ | | | |
| SPECPOTH - Names of others involved in purchase | √ | | | √ |
| SPECPOFF - Marketing offers made | | √ | | √ |
| SPECPMOR - Response to marketing offers | | √ | | √ |
| SPECPMET - Method of contact | | √ | | √ |
| SPECPPER - Type of person contacted | | √ | | |
| SPECPLTV - Lifetime value | | | | |
| SPECTFPD - First purchase date | | | √ | √ |
| SPECTNRD - Next planned purchase date | | Missing data | | |
| SPECTLPD - Last purchase date | | | √ | √ |
| SPECTHST - Purchase history | | | √ | √ |
| SPECTLCD - Last Contact date | | | √ | √ |
| SPECTTIM - Timing of response to various marketing offers | | √ | | √ |
| **Total Number of Items** | **5** | **5** | **4** | 12 |



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

**Table 17: Dissemination Summary**

| | EFA DISUNIT | EFA DISCOMR | CFA DISUNIT2 |
|---|---|---|---|
| DISDATA - Dissemination of Customer satisfaction data | √ | | |
| DISDOCS - Circulation of documents providing information on customers | √ | | √ |
| DISKNOW - Spread of knowledge of something important about our major customers | √ | | √ |
| DISPATNS - Data on customer purchase patterns | √ | | √ |
| DISEXCH - Exchange of customer information between marketing and other departments | √ | | √ |
| DISMINP - Communication between marketing and product development concerning market developments | | √ | NA |
| DISMINCS - Communication between marketing and operations departments concerning market developments | | √ | NA |
| DISMINOP - Communication between marketing and operations departments concerning customer developments | | √ | NA |
| **Total Number of Items** | **5** | **3** | **4** |



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

**Table 18: Addressability Summary**

| | EFA-ADDNOW (CURRENT INFO) | EFA-ADDFUTR (FUTURE INFO) | CFA-ADDDBCAP (DATABASE COURSES) |
|---|---|---|---|
| ADDBASIC - Basic contact information available | √ | | √ |
| ADDEXTEND - Extended contact information available | √ | | √ |
| ADDTHREE - Basic contact information for those who will be contacted in three months | | √ | √ |
| ADDSIX - Basic contact information for those who will be contacted in six months | | √ | √ |
| ADDNOTB - Basic contact information for those who have not purchased in last year | √ | | √ |
| ADDNOTEX - Extended contact information for those who have not purchased in last year | √ | | √ |
| ADDOTHER - Basic contact information for other channels | | | |
| ADDHRDM - Direct Marketing course | | | |
| ADDHRDBS - Database Marketing course | | | |
| ADDHRWBM - Web based Marketing course | | | |
| ADDHRIM - Interactive Marketing course | | | |
| **Total Number of Items** | **4** | **2** | **6** |

**Table 19: Addressabilty Human Resources Summary**

| | EFA-ADDHR (RELEVANT STAFF TRAINING) | CFA-ADDHR |
|---|---|---|
| ADDDM - Direct Marketing course | √ | √ |
| ADDDBS - Database Marketing course | √ | √ |
| ADDWBM - Web based Marketing course | √ | √ |
| ADDIM - Interactive Marketing course | √ | √ |
| **Total Number of Items** | **4** | **4** |



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

**Table 20: Shareability Access Summary**

| TABLE 20: SHAREABILITY ACCESS SUMMARY | EFA SHARMKMG | EFA SHARRDOP | CFA |
|---|---|---|---|
| SHARSALE - Sales | | | |
| SHARCUST - Customer Service | | | |
| SHARMKTG - Marketing | √ | | NA |
| SHARMANG - Management | √ | | NA |
| SHARRND - R&D (NPD) | | √ | √ |
| SHAROPNS - Operations/Production | | √ | √ |
| SHAMRND - R&D (NPD) | | √ | √ |
| SHAMOPNS - Operations/Production | | √ | √ |
| **Total Number of Items** | **2** | **4** | **4** |

**Table 21: Shareability Modify Summary**

| | EFA SHARMODF | CFA |
|---|---|---|
| SHAMSALE - Sales | | |
| SHAMCSSV - Customer Service | √ | NA |
| SHAMMKTG - Marketing | √ | NA |
| SHAMMANG - Management | √ | NA |
| **Total Number of Items** | **3** | |

**Table 22: Shareability of Customer Summary**

| | EFA - SHARCUST | EFA- SHARWALL | CFA |
|---|---|---|---|
| SHARUPRO - All products purchased from your unit | √ | | |
| SHARULOC - All products purchased from your unit by customer location | √ | | |
| SHARUPEN - Customer penetration of your unit (percent of customer/wallet) | | | NA |
| SHARCPRO - All products purchased from your unit | √ | | |
| SHARCLOC All products purchased from your unit by customer location | √ | | |
| SHARCPEN - Customer penetration of your unit (percent of customer/wallet) | | | NA |
| Total Number of Items | 4 | 2 | |



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

**Table 23: CIS Items CFA Results**

| | RMR | RMSEA | GFI | CHISQUARE (DF) | P-VALUE |
|---|---|---|---|---|---|
| QUALITY5 α=.8731 (QUALACC, QUALCONS, QUALTIME, QUALALL, QUALRELV) | .018 | .061 | .983 | 8.919 (5) | .112 |
| **QUALITY4* α = .8673 (QUALACC, QUALCONS, QUALTIME, QUALALL)** | **.007** | **.000** | **.998** | **.907 (2)** | **.635** |
| QUALITY α=.8983 (QUALACC, QUALCONS, QUALCOMP, QUALTIME, QUALALL, QUALRELV) | .024 | .104 | .953 | 29.372 (9) | .001 |
| **PSPECSL2* α=.8000 (SPECPNAM,SPECPTYP, SPECPRES, SPECPTOH)** | **.037** | **.118** | **.981** | **7.779 (2)** | **.082** |
| PSPECSLS α=.8463 (SPECPNAM,SPECPTYP, SPECPRES, SPECPTOH, SPECMDMN) | .065 | .175 | .982 | 36.805(5) | .000 |
| **PSPECMK2* α=.7978 (SPECPOFF, SPECPMOR, SPECPMET, SPECTTIM)** | **.025** | **.000** | **.997** | **1.105 (2)** | **.575** |
| PSPECMKT α=.8382 (SPECPOFF, SPECPMOR, SPECPMET, SPECTTIM, SPECPPER) | .087 | .157 | .930 | 30.596 (5) | .000 |
| **TIMESPEC* α=.7907 (SPECTFPD, SPECTCRD, SPECTHST, SPECTLPD)** | **.037** | **.056** | **.992** | **3.319 (2)** | **.190** |
| **ADDBCAP* α=.7994 (ADDBASIC, ADDNOTEX, ADDNOTB, ADDTHREE)** | **27.042** | **.097** | **.986** | **5.895 (2)** | **.052** |
| ADDNOW α=.8458 (ADDBASIC, ADDEXTEND, ADDNOTEX, ADDNOTB) | 65.339 | .436 | .873 | 81.083 (2) | .000 |
| ADDFUTR α=.8853 (ADDSIX, ADDTHREE) | N/A | N/A | N/A | N/A | N/A |
| ADDHR α=.7930 (ADDHRDM, ADDHRDBS, ADDHRWBM, ADDHRIM) | 52.642 | .212 | .950 | 20.613 (2) | .000 |
| **DISUNIT2* α=.6749 (DISDOCS, DISKNOW, DISPATNS, DISEXCH)** | **.014** | **.000** | **.999** | **.610 (2)** | **.737** |
| DISCOMR α=.7867 DISMINP, DISMINCS, DISMINOP) | N/A | N/A | N/A | N/A | N/A |
| **SHARDOP * α=.8119 (SHARRND, SHAROPNS, SHAMRND, SHAMOPNS)** | **105.668** | **.352** | **.909** | **53.644 (2)** | **.000** |
| **SHARWALL* α=.9224 (SHARUPEN, SHARCPEN) CFA NA but inter-item correlation .856 significant at p < .05 level)** | N/A | N/A | N/A | N/A | N/A |
| SHARCUST α=.8996 (SHARUPRO, SHARULOC, SHARCPRO SHARCLOC) | 82.197 | 6.42 | .816 | 173.608 (2) | .000 |
| SHARMODF α=.7684 (SHAMCUST, SHAMMKTG, SHAMANG) | N/A | N/A | N/A | N/A | N/A |

**(*=INCLUDED IN FINAL MODEL)**



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

**Table 24: CIS item Number Reduction**

| | NO. OF ITEMS IN SURVEY | EFA | CFA | FINAL CIS MODEL |
|---|---|---|---|---|
| QUALITY | 6 | 6 | 4 | 4 |
| ACQUISITION | 19 | 7 | 7 | 0 |
| SPECIFICITY | 26 | 14 | 12 | 12 |
| ADDRESSABILITY | 11 | 10 | 4 | 4 |
| DISSEMINATION | 9 | 9 | 4 | 4 |
| SHAREABILITY | 18 | 15 | 6 | 6 |
| **TOTAL** | **89** | **61** | **37** | **30** |

The next step was to develop a single factor model of the CIS constructs. The single factor model would facilitate hypothesis testing and is usually developed before comparing the fit of more complex models. The results of the CFA on the CIS model resulted in 30 items retained in the final model. The final model is shown in Figure X and its elements are displayed in Table 25 as Model A1. Again, the final selection of model constructs was based upon model fit and it was on this basis, in addition to a poor showing in the CFA phase of analysis, that none of the items measuring acquisition activities were included in the final model. Therefore, the addressability construct ADDBCAP was included in the model and that both shareability constructs, SHARDOP and SHARWALL were included, in spite of their relatively poor showing in the Confirmatory Factor Analysis, because they did contribute to fit of the overall CIS model. (It should be noted that from the outset the CFA at the sub-construct level was looked to as a guide to construct inclusion in the CIS model, but not a reason to exclude constructs *per se*. The analysis was planned to include consideration of the results of the CFA at both the sub-construct and construct level).



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

**Table 25: CIS One-Factor Models**

| | ALPHA | RMR | RMSEA | GFI | CHI SQUARE (DF) | P-VALUE |
|---|---|---|---|---|---|---|
| **A1. SHARDOP, SHARWALL, DISUNIT2, ADDBCAP, PSPECMK2, PSPECSLS2, TIMESPEC, QUALITY4** | **.7052** | **.043** | **.044** | **.967** | **27.987 (20)** | **.110** |
| A2. SHARDOP, SHARWALL, DISCOMR, ADDBCAP, PSPECMK2, PSPECSLS2, TIMESPEC, QUALITY4 | .6724 | .049 | .011 | .975 | 20.509 (20) | .426 |
| A3. SHARDOP, SHARWALL, DISCOMR, DISUNIT2, ADDBCAP, PSPECMK2, PSPECSLS2, TIMESPEC, QUALITY4 | .7074 | .052 | .067 | .945 | 52.132 (27) | .003 |
| A4. SHARDOP, SHARWALL, DISCOMR, ADDNOW, ADDFUTR, PSPECMK2, PSPECSLS2, TIMESPEC, QUALITY4 | .7056 | 17.640 | .064 | .947 | 50.303 (27) | .004 |
| A5. SHARDOP, SHARWALL, DISCOMR, ADDNOW, PSPECMK2, PSPECSLS2, TIMESPEC, QUALITY4 | .6864 | .305 | .022 | .974 | 21.945 (20) | .305 |

The CFA, EFA and analysis of inter-item correlations were relied upon in including these specific items in the final model. For Addressability, since none of the available constructs had good fit statistics and ADDFUTR could not be tested due to having less than four items in the sample, all four of the constructs were tested in the final model and the one that produced the best model fit overall, ADDBCAP, database capabilities) was retained. That ADDBCAP produced the best fit is not surprising, since it had the best fit statistics overall, but it had a very poor RMR when compared to other model sub constructs. Constructs were only included in the model if their CFA factor loading was significant at $p > .05$ and greater than $|.3|$, so there was a statistical basis for including constructs which did not fare well in the CFA phase. Several other constructs,



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

such as those relating to Acquisition activities, were also fit in the model and did not meet this threshold for inclusion in the final model.

A decision had to be made between models A1 and A2, one of which contains DISCOMR, items which reflect dissemination between departments, the other of which contains DISUNIT2, based on the Kohli, Jaworski and Kumar (1993) Marketing Orientation MARKOR scale. Model A3, which contains both items, did not fit as well as either model A1 or A2, which each contains only one of these items. Model A1 was selected, which includes the marketing orientation constructs model item on both theoretical and empirical grounds. Although Model A2, fits slightly better overall, the factor loading on DISCOMR is .24 while the factor loading in the model of DISUNIT2 is .49. Theoretically, these activities associated with DISCOMR are less associated with dissemination throughout the organization as the communication of specific information between departments. Therefore DISUNIT2 was selected as the final dissemination variable in the model. The model fits well, all the factor loadings are significant at less than the .05 level, standard errors are low and the residual corrrelation matrix has no correlation less than .1. The fit statistics indicate that RMR is less than .05 (.043), RMSEA close to 0 (.044) and the GFI greater than .95 (.967). In addition, all factor loadings except one are greater than |.4|. Descriptive statistics for final CIS constructs are included in Table 26.



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

**Table 26: CIS Constructs Descriptive Statistics, N=209**

| | MEAN | STD. DEV. | VARIANCE | RANGE | MIN. | MAX. |
|---|---|---|---|---|---|---|
| QUALITY4 (Quality) (1-5) | 3.5885 | .7250 | .526 | 3.2 | 1.80 | 5.00 |
| PSPECSL2 (Person Specificity Sales, 1-5) | 3.8600 | .8392 | .704 | 4.00 | 1.00 | 5.00 |
| PSPECMK2 (Person Specificity Marketing, 1-5) | 3.1423 | 1.4014 | 1.085 | 4.00 | 1.00 | 5.00 |
| TIMESPEC (Time Specificity, 1-5) | 4.1017 | 1.0361 | 1.073 | 4.00 | 1.00 | 5.00 |
| ADDBCAP (Addressability Database Capabilities, percentages converted to 1-5) | 3.6998 | .9661 | .933 | 4.00 | 1.00 | 5.00 |
| DISUNIT2 (Dissemination, 1-5) | 3.4270 | .8092 | .655 | 4.00 | 1.00 | 5.00 |
| SHARDOP (Shareability, R&D and Operations, percentages converted to 1-5) | 2.9047 | 1.2433 | 1.546 | 4.00 | 1.00 | 5.00 |
| SHARWALL (Shareability, Share of Wallet, percentages converted to 1-5) | 2.6657 | .9667 | .933 | 4.00 | 1.00 | 5.00 |



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

*Alternate CIS Models*

After fitting the Spearman single factor model as described above, several alternate forms of the model using multiple factors that were theoretically suggested by the learning organization literature were tested as shown in Table 27. No models which specified multiple common factors had a better fit than the common factor model, so the common factor model to represent the underlying factor, Customer Information System, was retained. That a single factor model is the best fit was not surprising in the fact that the underlying CIS model indicates that all these constructs should contribute to a latent variable called CIS. The reliability coefficient alpha of the model is .70, which indicates that there is room for improvement in measurement which might result in a more sophisticated model, but overall, the solution of a single factor model was a good one.

**Table 27: Comparison of CIS Factor Models**

| | RMR | RMSEA | GFI | CHI SQUARE (DF) | P-VALUE |
|---|---|---|---|---|---|
| **B1. 4 FACTOR MODEL (GENERATE, ADDRESS, DISSEMINATE, SHARE)** | .045 | .023 | .970 | 32.057 (29) | .317 |
| **B2. 3 FACTOR MODEL (GENERATE, DISSEMINATE, SHARE)** | .046 | .030 | .971 | 28.625 (24) | .235 |
| B3. 2 FACTOR MODEL (DEPTH, SOPHISTICATION) | .069 | .055 | .955 | 42.074 (26) | .024 |

A single factor model with eight underlying constructs meant that there was less of a need to fit a latent variable model to the data. The eight items can be treated as an observed variable through a mean summed score as was planned for the rest of the structural equation model and the model can be fit as if all measures were observed variables. This model fitting procedure is described in a later section. These several models were compared with multiple factor models and indicated that the multiple factor



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

models did not fit better than the single factor model, so the single factor model was retained. For purposes of testing the hypotheses in Chapter Three, a composite continuous variable called CIS, which a single summed mean of the eight sub-constructs will be used to measure capabilities in Customer Information Management (McDonald 1996). Increases in total CIS summed mean "score" correspond to increases in the underlying sub-constructs which relate to the depth (Generation, Addressabilty) and sophistication (Dissemination, Shareability) of the capabilities of Customer Information management in the business unit.

Several points should be noted about the final CIS model. First the highest factor loading was associated with the Quality construct. As indicated in the EFA phase, and the high percentage of variance explained in the GENERATE construct, Quality is an important consideration in the development of the Customer Information System. In addition, the "lower order" CIS variables seemed to be the easiest to quantify and measure and somewhat "overweight" the model. Five constructs from the bottom half of the pyramid and three from the top half of the pyramid are included in the final model and this weighting should be taken into consideration when considering the results. Finally, Table 28 includes the CIS sub-construct correlations. Although most of the items correlate with each other, none of the inter-construct correlations are high, greater than .6 (only 2 are greater than .4 and none are greater than .45), serving as a further support for discriminant validity between the constructs. Most of the inter-construct correlations are low, close to or less than .2. The highest inter-construct correlation between SPECSL2 (Person Specificity Sales) and PSPECMK2 (Person Specificity Marketing) is not surprising since both of these constructs relate to the general concept of information specificity by type of person collecting the information.



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

**Table 28: CIS Constructs Correlations**

| *.05 LEVEL<br>**.01 LEVEL | QUALITY | PSPECSLS | PSPECMKT | TIMESPEC | ADDBCAP | DISUNIT2 | SHARDOP | SHARWALL |
|---|---|---|---|---|---|---|---|---|
| QUALITY4 (Quality) | 1.000 | .313**<br>.000 | .318**<br>.000 | .279**<br>.000 | .363**<br>.000 | .405**<br>.000 | .212**<br>.002 | .322**<br>.000 |
| PSPECSL2 (Person Specificity Sales) | .313**<br>.000 | 1.000 | .426**<br>.000 | .242**<br>.000 | .346**<br>.000 | .246**<br>.080 | .121<br>.080 | .196**<br>.004 |
| PSPECMK2(Person Specificity Marketing) | .318**<br>.000 | .426**<br>.000 | 1.000 | .295**<br>.000 | .279**<br>.000 | .291**<br>.297 | .189**<br>.006 | .195**<br>.005 |
| TIMESPEC (Time Specificity) | .279**<br>.000 | .242**<br>.000 | .295**<br>.000 | 1.000 | .255**<br>.000 | .149*<br>.032 | .200**<br>.004 | .266**<br>.000 |
| ADDBCAP (Addressability, Database Capabilities) | .363**<br>.000 | .346**<br>.000 | .279**<br>.000 | .255**<br>.000 | 1.000 | .162*<br>.019 | .143*<br>.039 | .224*<br>.001 |
| DISUNIT2 (Dissemination) | .405**<br>.000 | .246**<br>.000 | .291**<br>.000 | .149*<br>.032 | .162*<br>.019 | 1.000 | .233**<br>.001 | .245**<br>.000 |
| SHARDOP (Shareability, R&D and Operations) | .212**<br>.001 | .121<br>.080 | .189**<br>.006 | .200**<br>.004 | .143*<br>.039 | .233**<br>.063 | 1.000 | .170*<br>.014 |
| SHARWALL (Shareability, Share of Wallet) | .322**<br>.000 | .196**<br>.004 | .195**<br>.005 | .266**<br>.000 | .224**<br>.001 | .245**<br>.000 | .170*<br>.014 | 1.000 |

**2-Tailed significance, N=209, *.05 level, **.01 level**

### Customization and Interactive Marketing Construct

Other model constructs were developed using a similar methodology. The results of the EFA for the Customization and Interactive Marketing constructs are developed in Tables 29-33. As can be seen from these tables both a three-item and four-item customization scale were suggested and a three-and four-item Interactive Marketing scale were also suggested by the EFA. Table 29 shows that in an EFA of Interactive Marketing items by themselves, a four item scale was suggested which emphasizes the tracking of the response rate of offers but includes an item, IMSEGMENT, geared to measuring the capability to send different offers/information to different customers.

Table 30 shows that the Customization items, which had been adapted from another study, suggested one set of items CUST, which focuses on customer transaction



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

information and another set , CUSTTRN, which focuses on bundling information with products and using customer information as a source of revenues. An EFA with both sets of items, as shown in Table 31, helps establish discriminant validity between the two sets of items, but the EFA with both Customization and Interactive Marketing suggests a four item scale for Customization (CUST4) and a three item scale for Interactive Marketing (INTMKTG3).

**Table 29: EFA Factor Loadings Interactive Marketing**

| | **INTMKTG α=.7766** |
|---|---|
| IMSEGMENT - Send different offers/information to different market segments | .376 |
| IMCUST - Send different offers/information to specific customers | **.514** |
| IMPROGRM - Track response rate of offers by program | **.830** |
| IMRRSEG - Track response rate of offers by segment | **.878** |
| IMRRCUST -Track response rate of offers by customer | **.826** |
| **Eigenvalue** | **2.550** |
| **Percent of variance explained** | **51.002** |
| **Cumulative** | **51.002** |



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

**Table 30: EFA Factor Loadings Customization**

| | EFA CUST α=.6798 | EFA CUSTTRAN α=.5539 |
|---|---|---|
| CUSTTRN - Products depend on customer transaction information | .739 | -.049 |
| CUSTMKTG - Marketing efforts depend on customer transaction information | .812 | .149 |
| CUSTPRTR - Products customized based on customer transaction information | .719 | .295 |
| CUSTBUND - Information from customer transactions is bundled with product offerings | .330 | .720 |
| CUSTREV - Customer transaction revenue is a source of revenues | .001 | .896 |
| CUSTCOMM - Easy for customers to communicate particular needs to us | .208 | .068 |
| **Eigenvalue** | 1.876 | 1.438 |
| **Percent of variance explained** | 31.259 | 23.972 |
| **Cumulative** | 31.259 | 55.231 |

**Table 31: EFA Factor Loadings Interactive Marketing and Customization**

| | INTMKTG3 α=.8253 | CUST4 α=.6578 |
|---|---|---|
| IMPROGRM (Track response rate of offers by program) | .889 | .026 |
| IMRRSEG (Track response rate of offers by segment) | .902 | .080 |
| IMRRCUST (Track response rate of offers by customer) | .758 | .290 |
| CUSTMKTG - Marketing efforts depend on customer transaction information | .175 | .554 |
| CUSTPRTR - Products customized based on customer transaction information | -.036 | .706 |
| CUSTBUND - Information from customer transactions is bundled with product offerings | .079 | .794 |
| CUSTREV - Customer transaction revenue is a source of revenues | .188 | .682 |
| **Eigenvalue** | 2.252 | 1.991 |
| **Percent of variance explained** | 32.175 | 28.436 |
| **Cumulative** | 32.175 | 60.611 |



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Confirmatory Factor Analysis could not be conducted for the three-item scale because of lack of degrees of freedom. The fit statistics for the four-item scale (CUST4) were adequate, but, the fourth item, which involved bundling information from customer transactions with product offerings, seemed different enough from the other three to warrant removing it entirely from the scale. Inter-item correlations on the remaining three items suggested that they were sufficiently high to retain the three-item scale, but not a four-item scale for Customization. The three-item scale CUST as suggested in Table 30 was adopted because these three items relate most closely to the idea of customization, whereas bundling is arguably a separate activity. Although this scale was developed by Milne and Boza in a prior study (1998), this research did not replicate the use of the scale exactly as specified in that work. Since none of the analyses supported the prior five-item scale, the three-item scale was adopted as suggested in the EFA in Table 30 and the summary Table 32.

The four-item Interactive Marketing scale suggested in Table 29, INTMKTG, was adopted with a modification due to the Confirmatory Factor Analysis as reported in Table 33, which involved including the item IMSEGMNT instead of IMCUST as a result of the excellent fit statistics and strong theoretical basis for using those items.



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

**Table 32: Customization Summary**

| | EFA CUST3 | EFA CUSTTRAN | CFA |
|---|---|---|---|
| CUSTTRN - Products depend on customer transaction information | √ | | √ |
| CUSTMKTG - Marketing efforts depend on customer transaction information | √ | | √ |
| CUSTPRTR - Products customized based on customer transaction information | √ | | √ |
| CUSTBUND - Information from customer transactions is bundled with product offerings | | √ | √ |
| CUSTREV - Customer transaction revenue is a source of revenues | | √ | |
| CUSTCOMM - Easy for customers to communicate particular needs to us | | | |
| **Total Number of Items** | **3** | **2** | **4** |

**Table 33: Interactive Marketing Summary**

| | EFA | CFA |
|---|---|---|
| IMSEGMNT - Different offers/info. to different segments | | √ |
| IMCUST - Different offers/info. to specific customers | √ | |
| IMPROGM - Track response rate by program | √ | √ |
| IMRRSEG - Track response rate by segment | √ | √ |
| IMRRCUST - Track response rate by specific customers | √ | √ |
| Total Number of Items | 4 | 4 |

**Relationship Performance Construct**

The Relationship Performance scale, as shown in Table 34, was not, even after transformations and rescaling of the data, supported by the EFA. Only one item, RPERTOR, percent of total business by business unit has loaded on one factor at a factor loading of greater than .5, the reliability coefficient of the scale was .3482, well below acceptable levels even for exploratory research. These results indicate a Heywood case (Bollen 1989), an improper solution, probably caused by the low correlations among the items used that do not define this factor uniquely. This variable was discarded in the research and associated Hypotheses 8 and 9 not tested. Measurements of relationship performance that are robust across industries remain elusive.



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

**Table 34: EFA Factor Loadings Relationship Performance**

| | **RELATIONSHIP PERFORMANCE α=.3482** |
|---|---|
| RPERFNUR-Number of products and services sold to these customers | .078 |
| RPERFTIR-Average length of time they have been customers in years | -.161 |
| RPERFCYR-Length of Sales Cycle in months for these customers | .193 |
| **RPERFTOR-Percent of Customers total business my business unit has** | **1.000** |
| **Eigenvalue** | **1.069** |
| **Percent of variance explained** | **26.719** |
| **Cumulative** | **26.719** |

**Marketing and Business Unit Performance Constructs**

The performance constructs were developed using Exploratory and Confirmatory factor analysis indicated in Tables 35-37. The natural log of the Business Unit Performance item was used and Business Unit and Marketing Performance constructs in the EFA loaded on different factors to establish discriminant validity between the two constructs . Correlation analysis indicated that both items in the Business Unit Performance construct were highly correlated, greater than .6, and CFA was used to support convergent validity for the Marketing Performance construct.



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

**Table 35: EFA Factor Loadings Performance**

| | **BUPERF α=.7950** (BUSINESS UNIT PERFORMANCE) | **MUPERF α=.7882** (MARKETING PERFORMANCE) |
|---|---|---|
| BUPSLLG-Log of business unit sales growth, self-report | **.885** | -.016 |
| BUPNINLG-Log of business unit net income, self-report | **.887** | -.028 |
| MPPROF-Profitability over last two years compared to competition | .661 | **.454** |
| MPPRETN-Customer retention over last two years compared to competition | .193 | **.716** |
| MPPSHOW-Customer penetration (share of wallet) over last two years compared to competition | . 040 | **.680** |
| MPPLTV-Customer lifetime value compared to competition | .036 | **.807** |
| MPROI-ROI compared to competition | .502 | **.564** |
| **Eigenvalue** | **2.214** | **2.150** |
| **Percent of variance explained** | **31.631** | **30.719** |
| **Cumulative** | **31.631** | **62.349** |

**Table 36: Marketing Performance Summary**

| | **EFA** | **CFA** |
|---|---|---|
| MPPROF-Profitability over last two years compared to competition | √ | |
| MPPRETN-Customer retention over last two years compared to competition | √ | √ |
| MPPSHOW-Customer penetration (share of wallet) over last two years compared to competition | √ | √ |
| MPPLTV-Customer lifetime value compared to competition | √ | √ |
| MPROI-ROI compared to competition | √ | √ |
| **Number of items** | **5** | **4** |



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

**Table 37: Business Unit Performance Summary**

| | EFA | CFA |
|---|---|---|
| BUPSLS - Sales revenue growth last two years | √ | NA |
| BUPENINC - Net income growth last two years | √ | NA |
| **Total Number of Items** | **2** | **2** |

### Strategy Constructs

The EFA for the strategy constructs indicates that these items do measure different aspects of business unit strategy and loaded on separate factors as expected (Table 38). Although several items from the original survey were discarded, the results were not surprising.

**Table 38: EFA Factor Loadings LOWCOST, DIFFERN, BFOCUSED**

| | LOW COST α=.6155 (LOW COST STRATEGY) | DIFFERN α=.6270 (DIFFERENTIATION STRATEGY) | BFOCUSED α=.7682 (BROAD VS. FOCUSED STRATEGY) |
|---|---|---|---|
| LOWCAP - Capacity utilization | -.030 | .193 | **.704** |
| LOWOPEFF - Operating efficiency | -.001 | .100 | **.790** |
| LOWOHEAD - Low overhead cost | -.037 | -.157 | **.731** |
| LOWPRODC - Reduce cost of production | .137 | .127 | **.423** |
| DIFFUNIQA - Uniqueness of your products | .085 | **.625** | .205 |
| DIFFSEGS - Targeting clearly identified segment or segments | -.151 | **.587** | .087 |
| DIFFHIGH - High price segments | .098 | **.632** | .070 |
| DIFFSPEC - Specialty products | .201 | **.777** | -.072 |
| BFBROAD - Offering a broad line of products | **.878** | -.018 | -.005 |
| BFBOTH - Both products and services | **.572** | .401 | .001 |
| BFMULT - Multiple product lines | **.818** | .186 | -.008 |
| BFSEGS - Serving many market segments | **.731** | -.096 | .111 |
| **Eigenvalue** | **2.402** | **2.033** | **1.904** |
| **Percent of variance explained** | **20.018** | **16.939** | **15.866** |
| **Cumulative** | **20.018** | **36.957** | **52.822** |



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Six items were included for the Low-Cost scale intentionally, anticipating the deletion of some items because this strategy is a difficult one to capture. Merely asking about low prices is not enough. In fact, the item LOWPRICE, offering competitive prices was not supported by the EFA. In addition, LOWSERV, emphasis on finding ways to reduce the cost of customer service was also supported by EFA or the CFA, Table 39. Providing low prices in and of itself would not necessarily indicate an overall organizational commitment to the efficiencies accorded by the Low-Cost strategy. Reducing the cost of customer service similarly does not indicate a commitment to those efficiencies and may detract from the ability to offer value to the customer.

**Table 39: LOWCOST Summary**

| | EFA | CFA |
|---|---|---|
| LOWCAP - Level of capacity utilization | √ | √ |
| LOWOPEFF - Level of operating efficiency | √ | √ |
| LOWOHEAD - Low overhead cost | √ | √ |
| LOWPRICE - Offering competitive prices | | |
| LOWPRODC - Emphasis on finding ways to reduce cost of production | | √ |
| LOWSERV - Emphasis on finding ways to reduce cost of customer service | | |
| **Total number of items** | **3** | **4** |

Of the five original Differentiation items, only one did not survive the EFA. DIFFHILO, high margin versus low margin product line, did seem to relate to a set of constructs designed to measure a Differentiation strategy specifically (Table 38 and 40). Although one would expect a firm to be able to extract higher margins based on differentiated products, it is not necessary that a high margin product line be differentiated. An additional item that should be added to improve validity and reliability should be a question regarding the use of the sales force. It is common to add



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

an item in this type of scale related to advertising expenditure. However, this item was dropped because advertising is usually less important in business-to-business markets in terms of developing differentiation between products and services. The direct sales force often provides that function and this information should have been added.

**Table 40: DIFFERN Summary (Differentiation)**

| | EFA | CFA |
|---|---|---|
| DIFFUNIQA - Uniqueness of your products | √ | √ |
| DIFFSEGS - Targeting clearly identified segment or segments | √ | √ |
| DIFFHIGH - Offering products suitable for high price segments | √ | √ |
| DIFFSPEC - Offering specialty products | √ | √ |
| DIFFHILO - High margin versus low margin product line | | |
| **Total number of items** | **4** | **4** |

The Broad versus Focused scale had four items and loaded as expected in the EFA in Table 38 and was confirmed by the CFA as shown in Table 41. Thus, each of the strategy variables was measured with a four-item scale.

**Table 41: BFOCUSED Summary (Broad vs. Focused)**

| **TABLE 41: BFOCUSED SUMMARY (BROAD VS. FOCUSED)** | **EFA** | **CFA** |
|---|---|---|
| BFSEGS - Serving many market segments | √ | √ |
| BFBROAD - Offering a broad line of products across categories | √ | √ |
| BFBOTH - Offering both products and services | √ | √ |
| BFMULT - Offering multiple product lines across categories | √ | √ |
| **Total number of items** | **4** | **4** |

## SUMMARY OF CONSTRUCTS

The results of the confirmatory factor analysis and the coefficient alphas of each of the final model constructs are shown in Table 42. As can be seen the CFA indicates that the single-factor models fit well. With the exception of the Low-Cost scale, which has an alpha of .59, all the items meet the criteria of alpha at least .6 for exploratory research and most items are well above .70 (Nunnally 1967, Hair 1979). The strategy



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

scales were adapted from an industrial to a services setting and improvements could no doubt be made to them in future studies to improve reliability, but overall results are satisfactory for this type of exploratory work.

**Table 42: Non-CIS items CFA Summary**

| | RMR | RMSEA | GFI | CHI SQUARE (DF) | P-VALUE |
|---|---|---|---|---|---|
| LOWCOST* α=.5944 (Low-Cost Strategy) (LOWCAP, LOWOPEFF, LOWOHEAD, LOWPRODC) | .036 | .000 | .996 | 1.784 (2) | .410 |
| DIFFERN* α=.627 (DIFFUNQA, DIFFSEGS, DIFFHIGH, DIFFSPEC) | .027 | .000 | .997 | 1.105 (2) | .576 |
| BFOCUSED α=.7682 (Broad vs. Focused Strategy) (BFSEGS, BFBROAD, BFBOTH, BFMULT) | .031 | .000 | .997 | 1.408 (2) | .495 |
| MUPERF* α=.7434 (Marketing Unit Performance) (MPPRETN, MPPSHOW, MPPLTV, MPROI) | .009 | .000 | 1.000 | .148 (2) | .929 |
| BULOG* α=.7892 (Log of BUPERF, BUPSLS, BUPNINC) CFA not applicable, inter-item correlation .652 significant at p < .01) | NA | NA | NA | NA | NA |
| CUST* α=.6798 (Customization, 3 items) (CUSTTRN, CUTMKTG, CUSTPRTR) (Inter-item correlations significant at p < .01) | NA | NA | NA | NA | NA |
| CUST4 α=.6620 (Customization, 4-items) (CUSTTRN, CUTMKTG, CUSTPRTR, CUSTBUND) | .073 | .121 | .980 | 8.118 (2) | .017 |
| INTMKTG* α=.7503 (Interactive Marketing) (IMSEGMENT, IMPROGRM, IMRRSEG, IMRRCUST) | .031 | .000 | .996 | 1.1480 (2) | .477 |

*** = USED IN FINAL MODEL**

Tables 43A and 43B indicate descriptive statistics for the model constructs in the full sample of 209 as well as the 206 observations (3 observations were eliminated as outliers) that were used to fit the final model. Tables 44A and 44B indicate inter-item correlations for both groups of 209 and 206 observations respectively. None of the inter-item correlations of the non-CIS items as independent variables and the Strategy variables used in the models tested is greater than .45 and only three are higher than .4 (the correlations between Marketing Performance and the strategy variables), where



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

correlations higher than .6 are considered high. As expected, there are high correlation among various strategy variables, but these were not fit into models simultaneously. Note the low, non-significant correlation between LOWCOST and DIFFERN, further supporting the claim of discriminant validity in those strategy variables. Broad vs. Focused was eliminated from the final model and descriptive statistics are not reported here, but later in the hypothesis testing section.

**Table 43A: Descriptive Statistics for Model Constructs, N=209**

| | MEAN | STD. DEV. | VARIANCE | RANGE | MIN. | MAX. |
|---|---|---|---|---|---|---|
| CIS (Customer Information System, Scale 1-5) | 3.4145 | .5951 | .354 | 2.90 | 1.73 | 4.63 |
| BUPERF (Business Unit Performance, Percentages) | 18.5969 | 42.6212 | 1816.5636 | 590 | -40 | 550 |
| BULOG (Log of BUPERF, Scale 0-6.38) | 3.9808 | .4754 | .2260 | 6.38 | .00 | 6.38 |
| MUPERF (Marketing Unit Performance, Scale 1-7) | 4.9671 | .9984 | .9969 | 6.00 | 1.00 | 7.00 |
| INTMKTG (Interactive Marketing, 1-5) | 3.2057 | 1.0218 | 1.0440 | 4.00 | 1.00 | 5.00 |
| CUST (Customization, Scale 1-5) | 3.5167 | .8616 | .7424 | 4.00 | 1.00 | 5.00 |
| LOWCOST (Low-cost, Scale 1-7) | 4.6340 | .9110 | .8299 | 5.25 | 1.75 | 7.00 |
| DIFFERN (Differentiation, Scale 1-7) | 5.0000 | .9153 | .8377 | 5.00 | 2.00 | 7.00 |
| BFOCUSED (Broad vs. Focused, Scale 1-7) | 4.6029 | 1.1740 | 1.378 | 6.00 | 1.00 | 7.00 |
| STRATEXC (Mean of DIFFERN and LOWCOST, Scale 1-7) | 4.8170 | .6890 | .4748 | 3.38 | 3.00 | 6.38 |
| STRATPER (Weighted mean of DIFFERN and LOWCOST, Scale 1-7) | 2.4451 | .3653 | .1334 | 1.90 | 1.41 | 3.31 |



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

**Table 43B: Descriptive Statistics for Model Constructs, N=206**

| TABLE 43B: DESCRIPTIVE STATISTICS FOR MODEL CONSTRUCTS, N=206 | MEAN | STD. DEV. | VARIANCE | RANGE | MIN. | MAX. |
|---|---|---|---|---|---|---|
| CIS (Customer Information System) (1-5) | 3.4165 | .5972 | .357 | 2.90 | 1.73 | 4.63 |
| BULOG (Log of BUPERF) (0-6.38) | 3.9845 | .4779 | .228 | 6.38 | .00 | 6.38 |
| MUPERF (Marketing Unit Performance, 1-7) | 5.0225 | .8923 | .796 | 4.75 | 2.25 | 7.00 |
| INTMKTG (Interactive Marketing, 1-5) | 3.1990 | 1.0258 | 1.052 | 4.00 | 1.00 | 5.00 |
| CUST (Customization, 1-5) | 3.5016 | .8552 | .731 | 4.00 | 1.00 | 5.00 |
| LOWCOST (Low-cost, 1-7) | 4.6408 | .9118 | .831 | 5.25 | 1.75 | 7.00 |
| DIFFERN (Differentiation, 1-7) | 5.0133 | .9077 | .824 | 5.00 | 2.00 | 7.00 |
| STRATEXC (Mean of DIFFERN and LOWCOST, 1-7) | 4.8271 | .6815 | .464 | 3.25 | 3.13 | 6.38 |
| STRATPER (Weighted mean of DIFFERN and LOWCOST, 1-7) | 2.4508 | .3609 | .130 | 1.90 | 1.41 | 3.31 |



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

**Table 44A: Model Construct Correlations, N= 209**

| | CIS | BULOG | MUPERF | INTMKTG | CUST | LOWCOST | DIFFERN | BFOCUSED | STRATEXC | STRATPER |
|---|---|---|---|---|---|---|---|---|---|---|
| CIS (Customer Information System) | 1.000 | .050<br>.474 | .225**<br>.001 | .363**<br>.000 | .268**<br>.000 | .270**<br>.000 | .155*<br>.025 | .027<br>.695 | .281**<br>.000 | .237**<br>.001 |
| BULOG (Log of BUPERF, Business Unit Performance) | .050<br>.474 | 1.000 | .249**<br>.000 | .084<br>.226 | .049<br>.479 | .094<br>.175 | .042<br>.549 | .070<br>.313 | .090<br>.196 | .072<br>.302 |
| MUPERF (Marketing Unit Performance) | .225**<br>.001 | .249**<br>.000 | 1.000 | .048<br>.488 | -.002<br>.982 | .218**<br>.002 | .415**<br>.000 | .249**<br>.000 | .420**<br>.000 | .445**<br>.000 |
| INTMKTG (Interactive Marketing) | .363**<br>.000 | .084<br>.226 | .048<br>.488 | 1.000 | .180**<br>.009 | .223**<br>.001 | .018<br>.796 | .104<br>.133 | .159*<br>.021 | .099<br>.153 |
| CUST (Customization) | .268**<br>.000 | .049<br>.479 | -.002<br>.982 | .180**<br>.009 | 1.000 | .171*<br>.013 | .041<br>.559 | .020<br>.777 | .140*<br>.043 | .099<br>.152 |
| LOWCOST (Low-Cost) | .270**<br>.000 | .094<br>.175 | .218**<br>.002 | .223**<br>.001 | .171*<br>.013 | 1.000 | .139*<br>.045 | .059<br>.399 | .753**<br>.000 | .496**<br>.000 |
| DIFFERN (Differentiation) | .155*<br>.025 | .042<br>.549 | .415**<br>.000 | .018<br>.796 | .041<br>.559 | .139*<br>.045 | 1.000 | .228**<br>.001 | .756**<br>.000 | .929**<br>.000 |
| BFOCUSED (Broad vs. Focused) | .027<br>.695 | .070<br>.313 | .249**<br>.000 | .104<br>.133 | .020<br>.777 | .059<br>.399 | .228**<br>.001 | 1.000 | .190**<br>.006 | .222**<br>.001 |
| STRATEXC (Mean of DIFFERN and LOWCOST) | .281**<br>.000 | .090<br>.196 | .420**<br>.000 | .159*<br>.021 | .140*<br>.043 | .753**<br>.000 | .756**<br>.000 | .190**<br>.006 | 1.000 | .945**<br>.000 |
| STRATPER (Weighted mean of DIFFERN and LOWCOST, 1-7) | .237**<br>.001 | .072<br>.302 | .445**<br>.000 | .099<br>.153 | .099<br>.152 | .496**<br>.000 | .929**<br>.000 | .222**<br>.001 | .945**<br>.000 | 1.000 |

**2-tailed significance, N=209, *.05 level, **.01 level**



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

**Table 44B: Model Construct Correlations, N=206**

| | CIS | BULOG | MUPERF | INTMKTG | CUST | LOWCOST | DIFFERN | STRATEXE | STRATPER |
|---|---|---|---|---|---|---|---|---|---|
| CIS (Customer Information System) | 1.000 | .049<br>.489 | .242**<br>.000 | .371**<br>.000 | .284**<br>.000 | .267**<br>.000 | .147*<br>.034 | .277**<br>.000 | .231**<br>.001 |
| BULOG (Log of BUPERF, Business Unit Performance) | .049<br>.489 | 1.000 | .248**<br>.000 | .088<br>.208 | .060<br>.395 | .091<br>.192 | .035<br>.618 | .084<br>.228 | .065<br>.351 |
| MUPERF (Marketing Unit Performance) | .242**<br>.000 | .248**<br>.000 | 1.000 | .083<br>.237 | .074<br>.293 | .218**<br>.002 | .415**<br>.000 | .422**<br>.000 | .448**<br>.000 |
| INTMKTG (Interactive Marketing) | .371**<br>.000 | .088<br>.208 | .083<br>.237 | 1.000 | .170*<br>.014 | .226**<br>.001 | .024<br>.729 | .168*<br>.016 | .107<br>.125 |
| CUST (Customization) | .284**<br>.000 | .060<br>.395 | .074<br>.293 | .170*<br>.014 | 1.000 | .184**<br>.008 | .064<br>.364 | .166*<br>.017 | .126<br>.072 |
| LOWCOST (Low-Cost) | .267**<br>.000 | .091<br>.192 | .218**<br>.002 | .226**<br>.001 | .184**<br>.008 | 1.000 | .122<br>.080 | .750**<br>.000 | .487**<br>.000 |
| DIFFERN (Differentiation) | .147*<br>.034 | .035<br>.618 | .415**<br>.000 | .024<br>.729 | .064<br>.559 | .122<br>.080 | 1.000 | .748**<br>.000 | .927**<br>.000 |
| STRATEXC (Mean of DIFFERN and LOWCOST) | .277**<br>.000 | .084<br>.228 | .422**<br>.000 | .168*<br>.016 | .166*<br>.017 | .750**<br>.000 | .748**<br>.000 | 1.000 | .943**<br>.000 |
| STRATPER (Weighted mean of DIFFERN and LOWCOST, 1-7) | .231**<br>.001 | .065<br>.351 | .448**<br>.000 | .107<br>.125 | .126<br>.072 | .487**<br>.000 | .927**<br>.000 | .943**<br>.000 | 1.000 |

**2-tailed significance, N=206, *.05 level, **.01 level**



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

# CHAPTER FIVE: HYPOTHESIS TESTING AND RESULTS

## PRELIMINARY ANALYSIS

Prior to testing the stated hypotheses which suggest the relationship between strategic choice and the development of the Customer Information System and competitive advantage, the data were examined to determine if there was a particular industry bias. Before proceeding with the analysis the normality assumptions of the data were analyzed by producing normal probability plots and inspecting them visually. Only one variable, BULOG, appeared to differ slightly from the regression line, but not significantly enough as to jeopardize the ensuing analysis.

After examining the data for normality assumptions, t-tests of differences in means were conducted to determine whether there was a strong industry bias (Table 45). Most of the variances in the two samples were equal. Where the variances were not equal, adjustments were made and the tests for unequal variances were used. There were no differences in means in the two industries in the critical strategy variables. The primary reason for choosing two industries for the study was to make sure that enough of each strategy type was represented, with insurance companies believed *a priori* to be more likely to pursue a Low-Cost strategy and software firms more likely to pursue Differentiation (Peterson, Balasubramanian, and Bronnenberg 1997). This lack of difference between industries did not hamper the analysis, since there were still enough responses in each strategic category to conduct the independent samples t-tests for differences in means and other category-related analysis.

Only two of the model constructs, CIS (Customer Information System) and BULOG (Log of Business Unit Performance) differed by industry, with the Insurance Industry having a slightly higher CIS and the software industry reporting a slightly higher



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Business Unit Performance (Table 45). These differences might be explained by the fact that the insurance industry is an older, more mature industry with a more stable customer base and more time to develop a deep and sophisticated CIS. A further analysis of the differences in means between the CIS sub-constructs revealed that the differences in CIS primarily came from differences in the Quality component of CIS construct of Generate and the constructs of Dissemination and Shareability (Table 46). For Quality, insurance industry mean is 3.7800 and the software industry mean 3.4128. In the Dissemination construct, DISUNIT2, the mean for the insurance industry is 3.6125 and the mean for the software industry is 3.2569 In the two shareability constructs, for SHARDOP (Shareability, R&D and Operations), the means are 3.2180 Insurance versus 2.6173 Software, and for SHARWALL (Shareability, Share of Wallet), 3.1681 Insurance versus 2.2048 Software. All the statistically significant differences in these results are significant at the level of $p < .01$ (Tables 45 and 46).



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

**Table 45: Differences in Means Between Industries, Model Constructs**

| | MEAN | STD. DEV. | SIG. LEVEL, LEVENE'S TEST EQUAL VARIANCES | T-TEST FOR EQUAL MEANS | DF | 2-TAILED SIG. LEVEL |
|---|---|---|---|---|---|---|
| **CIS (Customer Information System, 1-5)** | | | | | | |
| **Insurance (N=100)** | **3.5741** | **.5775** | **F=.118** | **3.835** | **207** | **.000** |
| **Software (N=109)** | **3.2680** | **.5754** | **(.731)** | | | |
| **BULOG (Log of BUPERF, 0-6.38)** | | | | | | |
| **Insurance (N=100)** | **3.8225** | **.2584** | **F=7.554** | **-4.996** | **152.832** | **.000** |
| **Software (N=109)** | **4.1260** | **.5741** | **(.007)** | | | |
| MUPERF (Marketing Unit Performance, 1-7) | | | | | | |
| Insurance (N=100) | 4.9000 | .9428 | F=1.180 | -.930 | 207 | .353 |
| Software (N=109) | 5.0287 | 1.0474 | (.279) | | | |
| INTMKTG (Interactive Marketing, 1-5) | | | | | | |
| Insurance (N=100) | 3.2375 | 1.0960 | F=3.598 | -.430 | 207 | .668 |
| Software (N=109) | 3.1766 | .9528 | (.059) | | | |
| CUST (Customization, 1-5) | | | | | | |
| Insurance (N=100) | 3.5333 | .8449 | F=.273 | .266 | 207 | .791 |
| Software (N=109) | 3.5015 | .8803 | (.602) | | | |
| LOWCOST (Low-cost, 1-7) | | | | | | |
| Insurance (N=100) | 4.6800 | .8919 | F=.000 | .699 | 207 | .485 |
| Software (N=109) | 4.5917 | .9302 | (.989) | | | |
| DIFFERN (Differentiation, 1-7) | | | | | | |
| Insurance (N=100) | 4.9250 | .9702 | F=.985 | -1.135 | 207 | .257 |
| Software (N=109) | 5.0688 | .8606 | (.322) | | | |
| BFOCUSED (Broad vs. Focused, 1-7) | | | | | | |
| Insurance (N=100) | 4.6825 | 1.1944 | F=216 | .939 | 207 | .349 |
| Software (N=109) | 4.5298 | 1.1556 | (.643) | | | |
| STRATEXC (Mean of DIFFERN and LOWCOST, 1-7) | | | | | | |
| Insurance (N=100) | 4.8025 | .7390 | F=3.778 | -.290 | 207 | .772 |
| Software (N=109) | 4.8303 | .6429 | (.053) | | | |
| STRATPER (Weighted mean of DIFFERN and LOWCOST, 1-7) | | | | | | |
| Insurance (N=100) | 2.4258 | .3959 | F=2.317 | -.733 | 207 | .465 |
| Software (N=109) | 2.4628 | .3557 | (.130) | | | |

**Bold indicates statistical significance**



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

**Table 46: Differences in means between industries, CIS sub-constructs**

| | MEAN | STD. DEV. | SIGNIFICANCE LEVEL, LEVENE'S TEST FOR EQUAL VARIANCES | T-TEST FOR EQUAL MEANS | DF | 2-TAILED SIG. LEVEL |
|---|---|---|---|---|---|---|
| **QUALITY4 (Quality)** | | | | | | |
| **Insurance (N=100)** | **3.7800** | **.6289** | **F=6.715** | **3.803** | **204.63** | **.000** |
| **Software (N=109)** | **3.4128** | **.7646** | **(.010)** | | | |
| PSPECSL2 (Person Specificity Sales) | | | | | | |
| Insurance (N=100) | 3.8575 | .9583 | F=5.958 | -.041 | 182.684 | .967 |
| Software (N=109) | 3.8624 | .7173 | (.015) | | | |
| PSPECMK2(Person Specificity Marketing) | | | | | | |
| Insurance (N=100) | 3.1750 | 1.1418 | F=5.891 | .433 | 192.68 | .665 |
| Software (N=109) | 3.1124 | .9443 | (.016) | | | |
| TIMESPEC (Time Specificity) | | | | | | |
| Insurance (N=100) | 4.1700 | 1.0960 | F=.001 | .913 | 207 | .362 |
| Software (N=109) | 4.0390 | .9528 | (.973) | | | |
| ADDBCAP (Addressability, Database Capabilities) | | | | | | |
| Insurance (N=100) | 3.6767 | 1.0333 | F=.4.235 | -.328 | 197.57 | .743 |
| Software (N=109) | 3.7209 | .9044 | (.041) | | | |
| **DISUNIT2 (Dissemination)** | | | | | | |
| **Insurance (N=100)** | **3.6125** | **.7110** | **F=3.992** | **3.272** | **204.919** | **.001** |
| **Software (N=109)** | **3.2569** | **.8583** | **(.047)** | | | |
| **SHARDOP (Shareability, R&D and Operations)** | | | | | | |
| **Insurance (N=100)** | **3.2180** | **1.2150** | **F=.000** | **3.587** | **207** | **.000** |
| **Software (N=109)** | **2.6173** | **1.2040** | **(.999)** | | | |
| **SHARWALL (Shareability, Share of Wallet)** | | | | | | |
| **Insurance (N=100)** | **3.1681** | **1.9004** | **F=13.018** | **5.037** | **189.09** | **.000** |
| **Software (N=109)** | **2.2048** | **1.5140** | **(.000)** | | | |

**Bold indicates statistical significance**

It was expected that the higher level CIS variables would represent a level of sophistication in the management of Customer Information and that Dissemination and Shareability in particular would account for the differences in information management capability. It is interesting but not unexpected that Quality, although conceptualized on



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

the lower level of the CIS pyramid, would be an important differentiator between the respondents in the two industries. Information that is of low quality would be of no value when moved throughout the organization. Information Quality and therefore Shareability, are harder to maintain in rapid-growth industries like the software industry.

The performance differences in Business Unit Performance were not unanticipated, since the software industry is experiencing more growth than the insurance industry and both items in the scale are concerned with growth. The self-reported growth rates for this sample prior to the log transformation (7 percent growth in sales for insurance versus 34 percent for software and 5 percent growth rate in net income for insurance versus 27 percent for software) are consistent with industry reports. Under these circumstances, the fact that the differences in growth rates of sales and net income were not greater is encouraging. The critical variable of Marketing Performance, which is expected to be associated with a deep and sophisticated CIS, is not different between industries. Comparing the standard deviations of the model constructs of the total population in table 43A with the industry-specific data in Table 45 reveals that the standard deviations of the industry groups are not larger than those of the total sample. As there seems to be as much if not more variability within each industry as there is across industries, the decision was made to conduct the analysis with pooled data of 209 observations (206 for the Structural Equation Model). However, the robustness of the final SEM (Structural Equation Model) was also tested by industry subgroups.

Another test for differences in means before beginning the analysis revealed that strategy selection of Broad versus Focused strategy did not result in differences in CIS or in any of the other independent variables. This relationship will be discussed in more detail in connection with Hypothesis 3 below. Because there was no difference in CIS in



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

terms of Broad versus Focused strategies, a more detailed analysis looking at the interaction of the positioning and segmentation strategies was eliminated from the thesis. The strategy analysis will primarily focus on the effects of the Differentiation versus Low-Cost positioning selection.

The third step before proceeding with the analysis was to determine if there were a significant number of business units in each of the strategic categories to continue with an analysis of the differences between them. Four strategic categories, Low-Cost, Differentiators, Stuck-in-the-Middle and the Strategically Excellent, each with at least 40 members, resulted from this analysis and are illustrated in Figure XI (The term category will be used instead of group going forward to avoid confusion with other uses of the term strategic group in the strategy literature).

The categories were determined by dividing the sample at each mean. The Differentiators (DF) had responses above the mean for Differentiation and below the mean for Low-Cost(LC). This DF category focuses on the uniqueness of their products and tailoring them for specific groups, creating value for their customers that is sufficient to warrant a price premium. The LC category reported above average responses for the Low-Cost scale, below average for the Differentiation scale. This category focuses on improving efficiencies in their operations and creates value for customers through providing a competitively priced product offering. Those in the "Strategic Excellence" (SE) category had responses equal to or greater than the mean on both the Low-Cost and Differentiation scale and create value through a combination of both strategies. The "Stuck-in-the-Middle" (SIM) category had responses below the mean on both scales and has yet to identify and adopt a dominant strategy. The mean was used rather than the



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

neutral "4" in the scale because of the tendency for respondents to inflate their answers on scales of this type (Sudman and Schwartz 1996).

## HYPOTHESIS TESTING

Testing the hypotheses below involved both subcategory analysis, primarily t-tests of differences in category means, $\chi^2$ tests, and correlation analysis, as well as testing the relationships between the constructs as continuous variables in regression and Structural Equation Models (SEM). This set of analyses provide a complete picture of the data.

### Overarching Hypothesis

*Hypothesis 1 (Overarching Hypothesis): Business units with greater coherence and consistency between their Customer Information management and their chosen positioning and segmentation strategies will be more likely to achieve competitive advantage through those particular strategies.*

The overarching hypothesis of this research was tested using several different methods, including a Structural Equation Model (SEM), which will be presented and discussed after the specific hypotheses testing the relationships of the individual model paths have been presented. The following statistical tests were used to examine this relationship for the original strategic categories (LC, DF, SIM, SE).

1) T-tests for differences in means, to determine if the groups are different in key variables, the CIS and performance measures.
2) $\chi^2$ tests of differences in means, to determine if there is a difference in mean of the category versus population in these variables.
3) Correlation analysis, to determine if CIS and performance are correlated and for which category, partial correlation coefficients to determine the effect of controlling for strategy category on CIS and performance
4) Analysis 1-3 above for the eight CIS sub-constructs

#### *Strategic Categories*

The first step in testing Hypothesis 1 was to perform t-tests for differences in means between the various strategic categories (LC, DF,SIM, SE). This test is



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

appropriate as a first step because if there are differences in means between categories in CIS and the performance variables, then the alignment hypothesis would be supported and analysis can continue to further explore these relationships.

To support the hypothesis that strategy must be aligned with CIS to achieve superior performance (Table 47), certain strategies (more Differentiated and Strategically Excellent firms) should have a higher CIS and also result in superior performance, particularly Marketing Performance, which is expected to be most closely related to CIS development. Although none of the $\chi^2$ tests indicate that any variable has categories with a mean that is statistically significantly different from the sample mean, Table 47 reveals a trend in almost every variable of declines in mean by strategic category from the Strategically Excellent (SE) down to the Stuck-in-the-Middle (SIM). The t-tests (one-tailed significance) reveal that there are significant differences in Customer Information System management by strategic type. This one-tailed test was conducted because the responses on the 1-5 CIS scale did not result in negative responses. Hence, the relevant test is the one for the positive tail of the distribution. However, it is recognized that this is a weaker test than the two-tailed test.



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

**Table 47: Performance and Strategic Category**

| | CIS (CUSTOMER INFORMA-TION SYSTEM) | CUST (CUSTOMI -ZATION) | INTMKG (INERACTIVE MARKETING) | MUPERF (MARKET-ING UNIT PERFORM-ANCE) | BUPERF (BUSINESS UNIT PERFORM-ANCE) |
|---|---|---|---|---|---|
| Strategically Excellent (SE) (N=67) | **3.6144** | **3.7114** | **3.4478** | **5.2873** | **4.0697** |
| Low Cost (LC) (N=40) | **3.4554** | 3.4917 | **3.4125** | **4.9813** | **4.0114** |
| Differentiators (DF) (N=55) | 3.3097 | 3.3273 | 2.9364 | **5.1795** | 3.9278 |
| SIM (SIM) N=47 | 3.2171 | 3.4823 | 3.0000 | 4.2500 | 3.8899 |
| Overall Mean N=209 | 3.4145 | 3.5167 | 3.2057 | 4.9671 | 3.9808 |
| $\chi^2$ (df) Two-tailed significance level | 484.093 (474) .389 | 40.662 (36) .273 | 47.845 (48) .479 | 72.481 (63) .194 | 72.481 (63) .194 |
| T-Tests, between groups | SE >DF**, SIM** LC > SIM* | SE>DF** | SE > DF**, SIM** LC > DF*, SIM* | SE > LC*, SIM** LC > SIM* DF > SIM** | SE > SIM* LC > SIM* |

**T-test, One-tailed significance level, *.05 level, *.01 level, Bold is significant**

The SIM category, which has the lowest CIS score, under-performs in terms of both Marketing Performance and Business Unit Performance in comparison to every other category. This result supports what has been previously theorized, that having a strategy, any strategy, is more likely to lead to competitive advantage than not having one at all (Porter 1985).

The SE category has a statistically higher CIS than all other strategic categories, except Low-Cost (LC). This strategic category also leads in terms of all Marketing Performance against all but the Differentiators (DF) category. It is possible that the SE category has a higher CIS score because it has developed underlying capabilities for achieving "Strategic Excellence" of which a superior CIS is only a part. In other words, CIS might be seen as being a part of being an excellent company and a capability which



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

goes hand-in-hand with Strategic Excellence, but is not sufficient to create Strategic Excellence.

However, this performance advantage does not extend to Business Unit Performance, as reported by growth in sales and net income. Here the SE and LC categories are superior only to the SIM category. There is no other significant performance advantage gained in terms of Business Unit Performance. The SE category in this sample does not reap the benefits of statistically superior Business Unit performance in spite of superior of CIS development, Interactive Marketing and Customization. (As will be seen later, Interactive Marketing and Customization do not automatically translate into Marketing Performance as measured by Share of Wallet, Lifetime Customer Value, Retention and ROI at the business unit level). However, this result could be due to the fact that these are cross-sectional data and the benefits from these improvements are not yet realized. Alternatively, the investment in CIS by the SE category might be past the optimal point from which benefits can be received as hypothesized in Hypothesis 3a.

Several other tests were conducted to investigate the relationship between CIS and Marketing and Business Unit Performance. A $\chi^2$ test of differences in category means versus the population was conducted. If the means of CIS and the Performance variables in the model were different from the overall mean, the alignment hypothesis would be further supported. This test revealed that, for none of the variables in the model, including CIS, Marketing Performance and Business Unit Performance, were there differences between the means of the strategic categories and the mean of the entire sample (Table 47). These results do not specifically support the alignment hypothesis,



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

but further analysis indicates the source of the relationship between CIS and performance.

This thesis does not specifically hypothesize a relationship between CIS and Business Unit Performance (BUPERF), but this relationship was examined for purposes understanding the data and not overlooking a relationship that could effect future analysis. CIS and BUPERF are not correlated overall ($\rho$=.050, p=.454) (Table 44A). A partial correlation coefficient ($\rho$=.010, p=.885) shows that, controlling for the effect of strategic category, a higher level of CIS is not associated with a higher level of Business Unit Performance. Additionally, analyzing each strategic category separately, there are no significant correlations between CIS and Business Unit Performance. Thus, there is no direct association between CIS and Business Unit Performance, based on these data.

This thesis does suggest a relationship between CIS and Marketing Unit Performance. Although CIS and MUPERF are correlated overall ($\rho$=.225, p=.001) (Table 44A), a partial correlation coefficient ($\rho$=.030, p=.330) shows that, controlling for the effect of strategic category, a higher level of CIS is not associated with a higher level of Marketing Unit Performance. Thus, the relationship between CIS and Marketing Performance comes from differences across the strategic groups, not from within in group. Analyzing each category separately, the only significant correlation between CIS and Marketing Performance occurs in the Low-Cost category ($\rho$=.372, p=.01). This results suggests that there might be differences in CIS development according to strategy.

The next step was to examine differences in the CIS sub-constructs and examine if there is a trend in the underlying construct by strategic category. The Table 48 illustrates the differences in CIS sub-constructs according to strategic category. The t-tests between categories (one-tailed significance level) reveal that the SE category



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

operates with overall excellence in CIS, with particularly high scores for Time Specificity and also for Shareability, the highest level of the CIS pyramid and presumably the most difficult to achieve.

**Table 48: Differences in means between groups, CIS sub-constructs**

| | SE N=67 | LC N=55 | DF N=40 | SIM N=47 | OVERALL MEAN N=209 | $\chi^2$ (DF) TWO-TAILED SIG. LEVEL | |
|---|---|---|---|---|---|---|---|
| QUALITY4 (Quality) | **3.6978** | **3.6375** | 3.3909 | 3.2926 | 3.5885 | 58.954 (48) .134 | SE > SIM**, DF** LC > SIM* |
| PSPECSL2 (Person Specificity Sales) | **3.9851** | **4.0750** | 3.7182 | 3.6649 | 3.8600 | 44.947 (39) .899 | SE > SIM*, DF* LC > SIM*, DF* |
| PSPECMK2(Person Specificity Marketing) | 3.1978 | 3. 0688 | 3.1182 | 3.1543 | 3.1423 | 35.979 (48) .237 | |
| TIMESPEC (Time Specificity) | **4.4030** | 4.1750 | 3.9682 | 3.7660 | 4.1017 | **58.884 (45) .080** | SE > SIM**, DF** |
| ADDBCAP (Addressability, Database Capabilities) | **3.8219** | **3.7881** | **3.7528** | 3.3883 | 3.6998 | 227.975 (228) .485 | SE > SIM** LC > SIM* DF > SIM* |
| DISUNIT2 (Dissemination) | **3.7065** | 3.5083 | 3.4303 | 3.3121 | 3.4270 | 60.378 (48) .108 | SE > SIM* |
| SHARDOP (Shareability, R&D and Operations) | **3.1328** | 2.6611 | 2.8491 | 2.8519 | 2.9047 | 204.967 (183) .127 | SE > LC* |
| SHARWALL (Shareability, Share of Wallet) | **3.0651** | 2.7125 | 2.3167 | 2.4649 | 2.6657 | 84.004 (45) .571 | SE > SIM*, DF** |

**T-test, One-tailed significance level, *.05 level, *.01 level, Bold is significant**

However, those in the LC strategy appear to achieve their competitive advantage by focusing on lower order of CIS pyramid, Quality and Person Specificity-Sales. The data in Table 48 suggest that the different strategic categories are achieving competitive advantage, but doing it with different levels of CIS and different combinations of CIS variables.



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

To further investigate this relationship, a $\chi^2$ test of differences in means between categories and the overall sample mean was conducted and revealed no differences in means in the CIS sub-constructs by category and their overall means except perhaps in the area of Time Specificity (p=.080) (Table 48). However, Time Specificity is not associated with higher levels of Marketing Performance (ρ=.099, p=.155).

For Marketing Performance, partial correlation coefficients show that, controlling for the effect of strategic category, higher levels of Quality (ρ=.152, p=.028), Person Specificity-Sales (ρ=.119, p=.085) and Addressability (ρ=.130, p=.060) are associated with higher levels of Marketing Performance. The only significant correlation between the specific elements of the CIS sub-constructs and Marketing Performance in the Stuck-in-the-Middle category occurs for Quality (ρ=.337, p=.021) and Addressability (ρ=.330, p=.023). For the Strategic Excellence category, significant correlations with CIS exists for Shareability-Share of Wallet (ρ=.316, p=.009). For Low-Cost category there is a significant correlation with CIS for Quality (ρ=.314, p=.048). (All significance levels are two-tailed). The rest of the effect occurs in the sample.

For Business Unit Performance, partial correlation coefficients show that, controlling for the effect of strategic category, there is a negative association between Share of Wallet (ρ = -.1707, p =.014) and Business Unit Performance. Analyzing each category separately, the only significant correlation between the specific elements of the CIS sub-constructs and Business Unit Performance occurs in the Low-Cost category, for Person Specificity-Sales (ρ=.287, p=.05), where there is a positive correlation and the Strategic Excellence (ρ=-.254, p=.038) and Differentiation category for Shareability-Share of Wallet (ρ=-.413, p=.008), where there are negative correlations. (All significance levels are two-tailed). The rest of the effect occurs in the overall sample.



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

To summarize, although overall Marketing Performance is associated with Quality, Person Specificity-Sales and Addressability, each category appears to be taking a separate path to competitive advantage in terms of the development of its Customer Information System. Although the Low-Cost category emphasizes Quality and Person-Specificity-Sales versus other categories, these data suggest that Marketing Performance in the Low-Cost category is associated only with data Quality. This capability is a feature of Customer Information that would be related to the Low-Cost strategy of efficient operations. Focusing at the quality level is a less-sophisticated Customer Information strategy, but one associated with Marketing Performance in that category. It was originally hypothesized that the LC category would have a less deep and sophisticated CIS overall, but it appears that it is necessary to look at the sub-constructs of the CIS as well as the overall score to make judgments about alignment between strategic choice and Customer Information Management. Business Unit Performance is associated with Person Specificity-Sales for the LC category, suggesting that investment in obtaining information from its sales force would be associated with higher performance overall. This result may explain the development of CIS systems by Low-Cost providers, such as Wal-Mart. These systems might emphasize good quality data that can be easily used throughout the organization to provide efficiencies that would result in a Low-Cost advantage.

For the Strategic Excellence category, although it emphasizes excellence in all areas of the CIS versus other categories (Table 48), obtaining Marketing Performance is related to Shareability-Share of Wallet, or gaining a "complete picture" of the customer for that organization, which products the customer has by business unit and entire



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

company. However, this emphasis is costly, as this investment has not yet translated into Business Unit Performance, and indeed is negatively associated with it. Perhaps this category has over-invested in shareability capabilities, which are indeed the most expensive to implement.

For the Stuck-in-the Middle category, which does not compare favorably to any other category in terms of the CIS sub-constructs, Quality and Addressability are associated with improved Marketing Performance. Having quality data and a place to put it indeed sounds like a good place to begin for this category, in the absence of any clear strategy.

Differentiators do not rely on any particular element of the CIS to achieve Marketing Performance, though they do have a slightly higher capability in Addressabilty than the Stuck-in-the-Middle category. This category, however, also shows a negative correlation between Shareability, Share of Wallet and overall Business Unit Performance and has perhaps not yet reaped the reward of its investment or is over-spending in that area.

Overall, the separate strategic categories each take their own path to competitive advantage as measured by Marketing Performance through their CIS development. In addition, while CIS as a whole is not related to Marketing Performance independently of strategic category membership, Quality, Person Specificity-Sales, Addressability and Share of Wallet, independent of each category, are related to Marketing Performance.

There are two other important findings in this analysis. One finding is that there is no difference in the CIS or any performance variables between the Low-Cost category and Differentiators. The lack of performance differences appears to follow from Porter (1985) in that these strategies are two separate paths to competitive advantage, not



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

necessarily different in overall performance. Both are achieving competitive advantage against other categories, but doing it by emphasizing different aspects of the CIS pyramid (Figure I).

The other important finding in the data (Table 47) is that there is a clear difference in performance that is related to strategy. A SIM strategy is unlikely to achieve competitive advantage and the concept of "Strategic Excellence" appears to be born out by the performance of the SE category, the only category to outperform a category other than the SIM's.

***Strategic Excellence/CIS Alignment within Strategic Categories***

A further investigation of the concept of the pure effect of strategy in the alignment process involved another series of t-tests. Respondents were placed into a new set of categories, also divided at the mean, in terms of high versus low Strategic Excellence (an average of the Low-Cost and Differentiation variables) and CIS (Figure XII). A new continuous variable was used to measure strategy selection because the tests in Table 47 indicated that further testing could not be done merely by testing the differences between Low-Cost versus Differentiation strategies. The importance of the SE strategy and the overall dismal results with the SIM strategy needed to be captured in a continuous variable, named STRATEXC (Strategic Excellence) to model what is actually happening in the data. STRATEXC is a mean of LOWCOST and DIFFERN. This STRATEXC variable is correlated with CIS ($\rho$=.281, p=.001) and Marketing Performance ($\rho$=.445, p=.000) but not Business Unit Performance ($\rho$=.072, p=.302) (Table 44A).

The results for this variable were also divided at the mean and business unit responses were categorized in terms of High versus Low Strategic Excellence and High



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

versus Low CIS. The resulting categories are shown in Figure XII and Table 49. Note that these groupings are consistent with the initial strategic categories based on positioning strategy. Respondents in the SIM category has either both a Low Strategic Excellence and Low CIS (26/55) or a Low Strategic Excellence and High CIS (21/41). Similar results occur for the SE category, where respondents have either a High Strategic Excellence/High CIS (42/71) or High Strategic Excellence/Low CIS (25/42). The LC and DF categories have a variety of alignment strategies.

The results of the t-tests in Table 49 indicate that those in the High Strategic Excellence Category have performance that is always better than the Low Strategic Excellence category for Marketing Performance, even when faced with a higher CIS in the lower strategy category. However, for Business Unit performance, a combination of High Strategic Excellence, Low CIS is better than all others. High Strategic Excellence/High CIS is associated with lower Sales and Net Income growth than the High Strategic Excellence/Low CIS category. However, the opposite is not true. The Low Strategic Excellence/High CIS category does not win in terms of performance over any category. A high CIS alone is no guarantee of success. Alignment is only powerful at the upper ends of the strategy scale. This is initial evidence that there may be an "optimal" level of CIS.



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

**Table 49: CIS/Strategic Excellence Alignment and Performance**

| | MUPERF (MARKETING UNIT PERFORMANCE) | BUPERF (BUSINESS UNIT PERFORMANCE) |
|---|---|---|
| High Strategy/High CIS (HH), (N=71) | **5.2958** | 4.0052 |
| High Strategy/Low CIS (HL), (N=42) | **5.1845** | **4.1454** |
| Low Strategy/High CIS (LH), (N=42) | 4.8110 | 3.9302 |
| Low Strategy/ Low CIS (LL),(N=55) | 4.4932 | 3.8613 |
| Overall Mean (N=209) | **4.9671** | 3.9808 |
| $\chi^2$<br>(df)<br>Two-tailed significance level | **94.389**<br>**(63)**<br>**.006** | 146.662<br>(156)<br>.692 |
| T-tests, between groups, one-tailed significance level, **N=209** | HH > LH**, LL**<br>HL > LL**,LH* | HL > HH*, LH**, LL** |

**T-test, One-tailed significance level, *.05 level, *.01 level, Bold is significant**

A $\chi^2$ test of the differences in means between the alignment categories compared to the overall mean indicates that there is a difference in the mean performance for the differently aligned categories compared to the mean Marketing Performance (p=.006) (Table 49). Partial correlation coefficients indicate that, as with differences in strategic categories, controlling for the different alignment categories, Marketing Unit performance is not correlated with the CIS (ρ=.030, p=.330). However, within the HH category (High Strategic Excellence/High CIS), and only within that category, Marketing Performance is positively correlated with CIS (ρ=.252, p=.034) and is also correlated with emphasis on Strategic Excellence (ρ=.257, p=.031). (Two-tailed tests for significance). This relationship between CIS and Marketing Performance does not exist for any other strategic category. That the relationship between CIS and Marketing Performance in the data is coming from that category in which CIS and Strategic Excellence are both High indicates support for the alignment Hypothesis 1 above.



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Within the LL category (Low CIS, Low Strategic Excellence), Marketing Performance is positively correlated with Strategic Excellence ($\rho$=.599, p=.000). (Two-tailed test). There is no other correlation in either the LH or HL category. Although this data suggests that strategy and information alignment is associated with Marketing Performance, for the Low Strategic Excellent, Low CIS category, moving toward Strategic Excellence is more highly associated with improved Marketing Performance than improvements in CIS. This relationship makes sense, in that we would expect strategy selection to occur before capabilities such as the CIS were developed (Chandler 1990, Rumelt 1986), a very basic need in this category. This result is consistent with the later analysis of the SEM later in this chapter.

There is no difference in Business Unit performance for the differently aligned categories as compared to the mean (Table 49), as indicated by the $\chi^2$ test (p=.692). The partial correlation between Business Unit Performance and CIS, controlling for strategic alignment category is also not significant (p=.480). These results are as hypothesized in the Models in Figures IV and V where Marketing Performance mediates the path from CIS to Business Unit Performance, but CIS does not directly lead to Business Unit Performance. Within the High Strategic Excellence/Low CIS ($\rho$=.315, p=.145) and Low Strategic Excellence /High CIS ($\rho$=.384, p=.012) categories, there is a correlation between the two types of performance, indicating that the overall relationship between Business Unit and Marketing Unit Performance is coming primarily from these categories, with the rest scattered about the sample. (All significance tests are two-tailed). There are no categories with a significant correlation between Business Unit Performance and CIS or Strategic Excellence.



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

*Summary of results testing H1*

These results indicate that although there is a tendency to associate strong Marketing Performance with an alignment of High Strategic Excellence and High CIS, that there is also a strong association between Marketing Performance and strategy selection alone. This result, coupled with the result that in these data that a High CIS alone is not associated with competitive advantage, provide support for the hypothesis that strategy and customer information must be aligned in pursuit of performance. In addition, this relationship may be more complex than originally hypothesized, with different strategic categories emphasizing different elements of CIS. This relationship is explored more fully in the tests of Hypothesis 2a and 2b, which follow, and in the SEM development at the end of this chapter.

From this set of results the overarching hypothesis that business units with greater coherence and consistency between their Customer Information management and their chosen positioning and segmentation strategies will be more likely to achieve competitive advantage has been supported.

**Testing the Hypotheses Associated with the Individual Paths**

*Hypothesis 2a: Strategy selection is associated with Customer Information System (CIS) development.*

A regression of STRATEXC, Strategic Excellence, on CIS delineates and supports this relationship (Equation 1). A finding of a linear relationship in these data means that as companies move toward Strategic Excellence, they improve their CIS capabilities. Although the relationship was hypothesized as linear, and is strongly supported, the non-linear forms of quadratic and logarithmic were also tested. Since the variables in the quadratic equation were not significant and the differences in Adjusted $R^2$ between the linear and logarithmic relationships were small (.074 vs.072), the linear



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

relationship was retained. The relationship is positive, as hypothesized, and the regression relation, constant and independent variable are all significant in the equation.

The resulting Equation 1 (unstandardized regression weights) is as follows:

**CIS=2.244 +.2428*STRATEXC (Equation 1)**
p: <.001 <.001
$R^2$(ADJ) = .074, F=17.68, p <.001, df=208

Thus, the higher the value of the STRATEXC variable, the greater the development of the Customer Information System. As will be seen in the SEM section which follows, the separate regression relationships between DIFFERN and CIS and LOWCOST and CIS are also significant (DIFFERN and LOWCOST were summed to create STRATEXC). A further discussion of this relationship will be discussed in the SEM model development section of this chapter.

This hypothesized relationship between CIS and Marketing Performance is supported.

*Hypothesis 2b: Differentiation will have a higher CIS than Low-Cost strategies, Focused will have a higher CIS than Broad and Low-Cost/Focused will be higher than Differentiation/Broad.*

As indicated in Table 47, and discussed previously, there is no support for the hypothesis that Differentiation strategies have a higher CIS than Low-Cost strategies. If the CIS is associated with strategy selection, as seen in the discussion of Hypothesis 1, then it makes sense that a higher CIS might not be associated with a Low-Cost versus Differentiation Strategy. These differences are highlighted most strongly at the extreme ends of the scale, the SIM and SE categories. Table 48 highlights these differences across categories.

Table 44 shows that the correlation between BFOCUSED (Broad versus Focused Scale) and CIS is not significant (ρ=.027, p=.695). Dividing the BFOCUSED at the



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

mean and testing for differences in the categories above and below the mean revealed no differences in CIS. ($\mu_1$ Broad 3.442 vs. $\mu_2$ Focused 3.3852, t =.700, p = .242. In addition, t-tests for differences in means between Broad versus Focused segmentation among the eight different sub-constructs of the CIS were also not significant (not reported).

This hypothesis was not supported.

*Hypothesis 3a: As the CIS increases, the benefits in terms of Marketing Performance increase, up to an optimal point, past which costs increase and performance decreases, independent of strategy.*

There is a relationship between a deeper and more sophisticated CIS and the Marketing Performance of the unit. However, there is no support for the inverted-U shape originally hypothesized. The variable CIS and its squared form are not significant in that equation (p >.80). On the other hand, both the linear and logarithmic regression results are significant and have the same $R^2$. In the absence of a compelling theoretical reason to argue for a logarithmic relationship, the linear relationship between Marketing Performance and CIS is reported (unstandardized regression weights). This equation takes the form of Equation 2 below:

**MUPERF=3.678 +.377*CIS** **(Equation 2)**
p: <.01 <.001
$R^2$(ADJ) = .046, F=11.04, p <.01, df=207

That the quadratic form was not supported could result from the lack of variability in the data. The standard deviation of CIS of .597 is fairly low (see Table 43B) and responses are clustered about the mean, which is also fairly high (3.4165). The coefficient of variation (Standard Deviation/Mean) is less than .25 (.19), indicating low variability in the data. This hypothesis is partially supported in that there is a linear relationship between the two variables, just not the posited quadratic. (At the proposal



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

stage, the committee recognized that this result might occur. The quadratic function without extreme responses for an extremely high CIS looks remarkably like a regression line).

This hypothesis is partially supported. There is a relationship, but not the hypothesized form.

*Hypothesis 3b: As the CIS increases, the benefits in terms of Marketing Performance are more pronounced for business units following Differentiation versus Low-Cost strategies.*

As Table 47 indicates, there is no difference in either CIS or performance variables for Low-Cost versus Differentiation strategy. Additional regressions with subsets of the data by strategic choice were unable to tease out any differences in performance due to the Customer Information System for these two categories. Conceptually, if the CIS is a mediator of performance and Low-Cost vs. Differentiation should not occur, and do not, according to this data, then perhaps the total CIS response should also be the same between strategic categories. The alternate hypotheses of differences in CIS associated with other strategic categories are supported by the data and illustrated in Table 47. The t-tests indicate that a high CIS is associated with a SE strategy and Low CIS with the SIM strategy. In addition, the different categories use different combinations of CIS variables to achieve competitive advantage, as shown in Table 48 and discussed above in the discussion of Hypothesis 1.

This hypothesized relationship is not supported by these data.

*H3c: As CIS increases, Marketing Performance increases, but there are optimal points of investment. The benefits are more pronounced for business units following Focused versus Broad Segmentation.*

As indicated previously, there is no difference in CIS reported for Broad versus Focused segmentation strategies. The variable measuring the Broad vs. Focused segmentation construct, BFOCUSED, is correlated with Marketing Performance ($\rho$=.249,



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

p=.000) but not Business Unit Performance (Table 44A). There are differences reported for both Marketing Performance and Business Unit Performance with a Broad strategy (many products and segments) reporting superior performance (Table 50). This relationship was tested by breaking the sample at the mean and treating those responses greater than or equal to 4.6189 as having a broad strategy and those with response less than 4.6189 as having a focused strategy. These relationships are summarized in Table 50 below.

**Table 50: Differences in means between categories, Broad vs. Focused**

| | CIS | INTERACTIVE MARKETING | CUSTOMI-ZATION | MUPERF (MARKETING UNIT PERFORMANCE) | BUPERF (BUSINESS UNIT PERFORM-ANCE) |
|---|---|---|---|---|---|
| **T-TESTS, TWO-TAILED SIGNIFICANCE LEVEL, N=206** | | | | | |
| BROAD (N=108) | 3.4411 | 3.2616 | 3.5772 | **5.2581**** | **4.0588*** |
| FOCUSED (N=98) | 3.3894 | 3.1301 | 3.4184 | 4.7628 | 3.9026 |

**T-test, Two-tailed significance level, *p < .05 level, **p < .01 level, Bold is significant**

There is a difference in mean between Broad versus focused strategies for both performance variables, with Broad having greater performance. Both performance variables are statistically significant in spite of the fact that the results for both categories in terms of Business Unit Performance are close together in value. In an effort to further understand the relationship between performance differences in the two categories, a regression of the continuous variable BFOCUSED was run on MUPERF, and the results were not statistically significant. Next, two separate regressions were run, one for Broad and one for Focused segmentation strategies, using the data from the BFOCUSED variable. This variable is a continuous variable composed of four items as indicated in Chapter four previously, so splitting the category at the mean separated those reporting Broad from Focused strategies.. A relationship between CIS and Marketing Performance



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

does not hold for Broad strategies, but does hold for Focused strategies. The CIS variable is not significant in a regression of for those following a Broad strategy and the overall regression relationship is not supported (F=1.418, p=.236, df=106), but the relationship does hold for those following a Focused strategy. Those business units following a Focused Strategy may be receiving these benefits from pure strategy selection or in combination with an investment in a CIS. The regression equation for CIS on MUPERF for the focused strategy of the Broad vs. Focused Variable (BFOCUSED) is shown below in Equation 3 (unstandardized regression weights), with the designated name FOCUSED after CIS in parentheses to indicate these results are for those 98 business units reporting the focused strategy.

**MUPERF=2.874 +.577*CIS (FOCUSED) (Equation 3)**
p: <.001 <.001
$R^2$(ADJ) = .128, F=15.245, p <.001, df=96

This hypothesis is partially supported. There is a relationship between CIS and Marketing Unit Performance for those following the Focused Segmentation Strategy as opposed to the Broad Segmentation Strategy. However, the relationship is linear and not quadratic as hypothesized.

*Hypothesis 4: As Marketing Performance increases, Business Unit performance increases.*

The relationship between CIS and Business Unit Performance may not be direct but may be mediated through the Marketing Performance measures of Customer Retention, Share of Wallet and Lifetime Customer Value (Reichheld 1996). That there are many other sources of Business Unit Performance, other than CIS, as also hypothesized, is indicated by the small adjusted $R^2$ (.058) in the regression relationship in Equation 4. However, the relationship is significant, and improving Marketing



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Performance (MUPERF) metrics does affect Business Unit Performance(BUPERF), as indicated in equation 4 (unstandardized regression weights).

**BUPERF=3.391 +.119*MUPERF (Equation 4)**
p: <.001 <.001
$R^2$(ADJ) = .058, F=13.731, p <.001, df=207

This hypothesis is supported. The SEM will be used to test whether the CIS relationship is direct to BUPERF or mediated by MUPERF.

*Hypothesis 5a: As the CIS increases, business unit Customization and Interactive Marketing increase, then level off.*

Empirical testing supports a relationship between CIS and Customization (CUST) and Interactive Marketing (INTMKTG), but it is more likely to be linear than logarithmic in nature. The variables in the quadratic equation were not significant (p>.3), and the differences in Adjusted $R^2$ between linear and logarithmic regressions are negligible (.067 vs. .061). The supported relationships are outlined in the following regression equations (unstandardized regression weights):

**CUST=2.219 +.387*CIS (Equation 5a)**
p: <.001 <.001
$R^2$(ADJ) = .067, F=15.97, p <.001, df=207

**INTMKTG=1.077 +.623*CIS (Equation 5b)**
p: <.001 <.001
$R^2$(ADJ) = .128, F=31.43, p <.001, df=207

This hypothesis is partially supported since there is a relationship between the variables, even though it is not the non-linear relationship hypothesized.



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

*Hypothesis 5b: Customization and Interactive Marketing increases are more pronounced for Differentiation versus Low-Cost Strategies.*

As Table 47 indicates, there is no difference in Customization activities reported for Differentiators versus the Low-Cost category. However, there is a difference in Interactive Marketing, with the Low-Cost category reporting more Interactive Marketing activity. This result is counter to expectations and might be related to the suggestion, further developed in the model, that decisions for Interactive Marketing and Customization are marketing actions made parallel to the decision regarding Strategic Excellence and are not necessarily related in any other way to broader marketing policies like positioning.

This hypothesis is partially supported because there is a relationship between CIS and Interactive Marketing and Customization. However, the difference by positioning strategy is the opposite of what was predicted.

*Hypothesis 5c: Customization and Interactive Marketing increases are more pronounced for Focused versus Broad Strategies.*

The t-tests for differences in means do not show differences in means in Table 50 for Interactive Marketing and Customization for Broad versus Focused Strategies. The variable measuring these strategies is not correlated with either Interactive Marketing ($\rho$=.104, p=.133) or Customization ($\rho$=.020, p=.777). The analysis did not progress further.

This hypothesis is not supported, again perhaps because these are not activities necessarily stemming from strategic considerations, but separate marketing actions.



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

*Hypothesis 6a: As the information Generation constructs of Acquisition, Specificity and Quality in the CIS increase, business unit Customization and Interactive Marketing increase.*

Acquisition was not tested in this analysis because it is not part of the CIS variable as a result of the analysis in Chapter Four. All the results will be reported for these hypotheses and then a general discussion will be included at the end of these data.

Since the Acquisition variables are correlated (See Table 28), they will be tested in a single regression relationship. Again, there is no compelling statistical support for a nonlinear versus a linear relationship, so the linear relationship is reported (unstandardized regression weights).

**CUST =1.299** +.140*QUALITY4+.005* PSPECMK2.-
p: <.001 >.05 >.05
**.168*PSPECSL2**+.004*TIMESPEC **(Equation 6a)**
p: <.032 >.05
$R^2$(ADJ) = .069, F=4.879, p <.01, df=204

**INTMKTG=1.299 +.340*QUALITY4+.257* PSPECMK2.-**
p: <.001 <.001 <.000
.111*PSPECSL2+.007*TIMESPEC **(Equation 6b)**
p: >.05 >.05
$R^2$(ADJ) = .149, F=10.106, p <.001, df=204

As Equation 6a and 6b indicate, there is a relationship between Person-Specificity-Sales and Customization and a relationship between Quality and Person Specificity-Marketing and Interactive Marketing. It makes sense that Person Specificity-Sales would be most important in developing customized products in a business-to-business setting and that Quality and Person-Specificity Marketing would be related to Interactive Marketing actions. Product customization requires detailed knowledge that a sales force possesses and Interactive Marketing relies on data quality to create personalized communications to customers.

This hypothesis is partially supported



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

*Hypothesis 6b: As Addressability increases, business unit Customization and Interactive Marketing increase then level off.*

The relationship between Addressability (ADDBCAP) and Customization (CUST) and Interactive Marketing (INTMKTG) is not supported by any type of curve fitting procedure. The linear regression results are included as examples.

CUST=3.302 +**.058*ADDBCAP** (Equation 7a)
p: >.05 <.05
$R^2$(ADJ) = .004, F=.84, p>.05, df=207

INTMKTG=2.09 +**.149*ADDBCAP** (Equation 7b)
p: >.05 <.05
$R^2$(ADJ) = .010, F=2.09, p >.05, df=207

This hypothesis is not supported by these data. The Addressability variable is significant in the equation but the entire regression relationship is not supported.

*Hypothesis 6c: As Dissemination increases, business unit Customization and Interactive Marketing increase to an optimal point.*

As Equations 8a and 8b indicate, there is no support for the relationship between Dissemination (DISUNIT2) and Interactive Marketing, however, there is a relationship, though not a quadratic one, between Dissemination and Customization activities. The unstandardized regression weights are reported. As usual in these data, there was no support for a non-linear regression relationship.

**CUST=2.740 +.227*DISUNIT2 (Equation 8a)**
p: <.01 <.01
$R^2$(ADJ) = .041, F=9.83, p<.001, df=207

**INTMKTG=1.812 +.407*DISUNIT2 (Equation 8b)**
p: <.01 <.01
$R^2$(ADJ) = .099, F=23.956, p <.001, df=207

*Hypothesis 6d: As the Shareability increases, business unit Customization and Interactive Marketing increase to an optimal point.*

As the variables Shareability, Share of Wallet (SHARWALL) and Shareability-Operations and Production (SHARDOP) are correlated (Table 28), they must be reported



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

in the same regression equation (9a). However, as with other examples in these data, this relationship is also more likely to be a linear one. These linear relationships with unstandardized regression weights are reported below.

**CUST=3.108** +.002*SHARWALL **+.110*SHARDOP** **(Equation 9a)**
p: < .001 >.05 <.05
$R^2$(ADJ) = .0542, F=6.903, p<.01, df=206
**INTMKTG=2.556 +.148*SHARWALL** +.002*SHARDOP **(Equation 9b)**
p: .01 <.01 >.05
$R^2$(ADJ) = .047, F=11.264, p <.01, df=206

In general, the CIS capabilities associated with Customization and Interactive Marketing are those associated with Acquisition, Dissemination and Shareability and possibly Addressability (Day 1998, Deighton 1996). The hypothesis that there is a relationship between Shareability and Customization and Interactive Marketing is supported, with the relationship between Shareability-R&D and Operations and Customization supported and the relationship between Interactive Marketing and Share of Wallet supported.

The summary Table 51 indicates these relationships.



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

**Table 51: Relationship between CIS Sub-Constructs and Customization and Interactive Marketing**

| | CUST (CUSTOMI-ZATION) | INTMKTG (INTERACTIVE MARKETING) |
|---|---|---|
| QUALITY4 (Quality) | | √ |
| PSPECSL2 (Person Specificity Sales) | √ | |
| PSPECMK2(Person Specificity Marketing) | | √ |
| TIMESPEC (Time Specificity) | | |
| ADDBCAP (Addressability, Database Capabilities) | √(?) | √(?) |
| DISUNIT2 (Dissemination) | √ | √ |
| SHARDOP (Shareability, R&D and Operations) | √ | |
| SHARWALL (Shareability, Share of Wallet) | | √ |

**√=significant relationship**

Interactive Marketing activities rely more on overall quality as well as information, such as responses to various marketing offers, and overall share of the customer's wallet held by the business unit. Additionally, information addressability and the ability to disseminate information may also be associated somewhat with increased interactive marketing activities. Interactive Marketing is defined as the ability to address the customer and respond in a certain way that takes into account that response. These data suggest that overall quality and breadth of marketing knowledge are more important than a huge database of information. Most of the questions in the Interactive Marketing construct are concerned with tracking response rates and it would seem difficult to do so without a database to track the information. However, the addressability construct as operationalized measured basic and extended contact information, which does not have as strong a relationship with Interactive Marketing as Quality and Person Specificity



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Marketing. The addressability construct perhaps measured more of a sales-oriented database capability than a marketing one.

Customization activities are more likely to be associated with the information that a salesperson is likely to know about the customer, dissemination, shareability of information in the business unit with R&D and Operations, and possibly, addressability. This relationship makes sense. As was stated in Chapter Two, the nature of Customization activities will require the entire organization to be involved and extends beyond the scope of the marketing department. While Interactive Marketing occurs primarily in the marketing function, Customization involves the dissemination of information throughout the sales, operations and R&D functions as well.

*Hypothesis 7: As Customization and Interactive Marketing increase, Marketing Performance increases.*

Although it was hypothesized that for all strategies, Customization (CUST) and Interactive Marketing (INTMKTG) would provide greater knowledge of the customer that would translate into Marketing Performance (MUPERF), these data do not support this relationship. The model and its coefficients are not significant.

MUPERF=4.863 +.048*INTMKTG -.0128*CUST (Equation 10)
p: <.001 >.10 >.10
$R^2$(ADJ) = -.007, F=.251, p >.05, df=206

The absence of a direct relationship between Interactive Marketing, Customization and MUPERF is directly counter to the popular management notions that more customized and interactive web sites will directly produce benefits in terms of greater customer retention and lifetime value, concepts operationalized and measured in the MUPERF construct.

*Hypothesis 8: As Customization and Interactive Marketing increase, business unit Relationship Performance increases*



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

*Hypothesis 9: As Relationship Performance increases, Marketing Performance increases but with diminishing returns.*

These hypotheses were not tested because the operationalization of the variable Relationship performance was unsuccessful. Testing these remains for future research.

**Summary of Hypothesis Testing**

The results of these hypotheses directly lead to the form of the final Structural Equation Model, which suggests that the decisions to engage in Interactive Marketing and Customization are separate strategies that precede rather than follow the development of the CIS. As will be seen in the next section, there is support for the alternate hypothesis that the path from Interactive Marketing and Customization to competitive advantage is mediated by the CIS variable. This mediation could occur as Interactive Marketing and Customization allow for more information that is collected and shared through the organization from the Customization and Interactive Marketing processes. Most of the relationships found the data between the pairs of variables were in fact linear, facilitating the next step of the analysis, fitting the data to a Structural Equation Model.

## MODEL DEVELOPMENT

Structural equation modeling is appropriate to analyze these data because the technique allows for the examination of the relationship of a chain of variables in a broader context. In other words, the Structural Equation Model (SEM) provides an overall view of what is happening in the data, the relative importance of the variables, and how well they fit together. The results reported are standardized regression weights and are essentially the same results as if sub-set regressions had been performed on the data. The benefit of a structural equation model in this context is not only to examine the relationships as a whole but to be able to determine how the constructs best fit together



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

by examining, as was done for Confirmatory Factor Analysis, fit statistics, standard errors and residual matrices.

The model analysis was performed in AMOS 4.1 and double-checked in SAS using the COSAN subroutine, using the RAM (Reticular Action Model) model (McArdle & McDonald 1984). RAM is a Structural Equation Model of the type found in LISREL. Before fitting the model, the regression relationships among the various variables were tested and normality plots were examined to determine normality. Although normality is not required for structural equation modeling, it is a desired characteristic. As stated above, with the exception of the BUPERF relationship, there is strong evidence of normality in these data. Three outliers were dropped from the data which were greater than three standard deviations from the mean in the CIS to MUPERF regression relationship. The total sample size analyzed for the model was 206.

Since examination of the strategic categories indicated that there are differences in performance between categories and that strategic choice in itself can produce a superior competitive advantage (Tables 44A, 47, 49), a direct link between strategy selected and performance was expected in the final model. (Note that this relationship differs from the initial hypotheses as represented in Figures IV and V). The dependent variable used was the continuous variable entitled STRATEXC, a summed mean of LOWCOST and DIFFERN, which represents the continuum of strategies tested. A "Strategic Excellence" strategy represents the high end of the continuum of response and a "Stuck-in-the-Middle "strategy represents the low end of the continuum. The mid-ranges represent either the more pure Low-Cost or Differentiated strategies. As there were few differences in the dependent variables or independent variables across these two more pure categories, collapsing the two dimensions of the strategy construct into one



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

dimension is appropriate. All variables were treated as observed variables in the model (McDonald 1996) using composite variables as indicated in Table 52.

As above, the variable representing Relationship Performance was not used, because the exploratory and Confirmatory Factor Analysis could not yield a satisfactory operationalization for this construct. Also, as indicated previously, the variable representing the segmentation decision of broad versus focused (BFOCUSED) was also not used because, although there was a relationship between segmentation and Marketing Unit performance ($\rho$=.249, p=.000), there was no relationship with the CIS variable($\rho$=.027, p=.695) or with Business Unit Performance ($\rho$=.070, p=.313) (Table 44A). This BFOCUSED variable did not contribute to the study of the alignment between Customer Information and Strategy and hence was omitted from the analysis. The following variables were included in the analysis:

**Table 52: Variables Used in the SEM Model**

| Variable | Operational Definition |
|---|---|
| STRATEXC | Strategic Excellence, the summed mean of LOWCOST and DIFFERN, each of which were the summed mean of four items as reported in Chapter Four. |
| CUST | Customization, summed mean of three items as reported in Chapter Four. |
| INTMKTG | Interactive Marketing, summed mean of four items as reported in Chapter Four |
| CIS | Customer Information System, summed mean of eight sub-constructs as reported in Chapter Four |
| MUPERF | Marketing Unit Performance, summed mean of self reports such as Share of Wallet, Customer Retention and Lifetime Customer Value |
| BULOG | Log of Business Unit performance, summed mean of self reports of Sales and Net Income Growth |

There was no support for a difference in models depending upon strategic orientation as hypothesized in figures IV and V. A number of different models were fit to sub-categories of the data based on strategy, always keeping the sample size to 100, the number of observations minimally necessary to fit such a model from these data.



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

These models did not fit well and results are not reported here. The conceptual framework representing the path from strategy to performance does not differ with different strategies. One framework represents the paths for all strategies.

The next step was to fit a model to the entire set of observations. The SEM fit to the pooled data as a whole (N=206) was then fit to the data as indicated in Figure IV, using the variables in Table 52. The simpler model in Figure V has few degrees of freedom (df=3) in comparison to alternative models. The more complex models, with greater degrees of freedom provide a greater chance of producing results that can be reasonably interpreted as significant. The models were all fit with the error variances of the endogenous variables set to one. These error variances are not reported on the figures for clarity of presentation.

The model as specified did not fit (see Table 53, Figure XIII, Original Model, CIS Leads), with no major fit indices reaching the desired level. RMR is .052 when less than .05 is acceptable. RMSEA is .135 when close to zero is desired. GFI is .945 when above .95 is desired and a p=.00 when p >.05 is desired. The hypothesized model relationship between Customization and Interactive Marketing and Marketing Unit Performance was not supported in the analysis above. Further analysis of path coefficients and residuals indicated that although there is a relationship between Interactive Marketing and CIS as hypothesized in the initial model, there is no relationship between these variables and Marketing Performance. This result was supported by the analysis of Hypothesis 7, which was not supported.

Although there was reason to believe that Customization and Interactive Marketing would lead to increased Marketing Unit Performance through relationship development, not including the Relationship Performance variable in the model allows a



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

reconceptualization. The decisions to engage in Interactive Marketing and Customization activities could then be viewed as additional strategic antecedents, implemented at the level of marketing strategy and by the marketing function, relating to development of the Customer Information System. In fact, there is an indication in the literature that these decisions are separate strategic choices, quite apart from the Low-Cost vs. Differentiation choices (Glazer 1991, Blattburg and Deighton 1991). The findings from this research supports the notion of a new type of strategic decision-making process (Customization and Interactive Marketing) that is related to new technologies available to marketing professionals (CIS).

The relationship between Strategic Excellence and CIS is significant, as indicated in Equation 1, Hypothesis 2a. Additionally, Tables 47, 49 and 44A suggest a direct effect between Strategic Excellence and Marketing Unit Performance. That there is a direct association between strategy selection and Marketing Performance and a weaker association between strategy selection and Business unit Performance suggests a model where Strategic Excellence is related to Marketing Units Performance. In addition, the proposed relationship between Customization and Interactive Marketing activities and CIS (H5) exists, but based on the data, the path to Marketing Unit Performance from these variables may be mediated by CIS. Furthermore, well-fitting models may have the decision to use Interactive Marketing and Customization as decisions which are correlated with Strategy and which are exogenous and not endogenous variables.

These results suggest that Interactive Marketing and Customization are not marketing programs as classified by Bonoma and Crittendon (1988), but separate marketing actions that are correlated with broader strategic marketing policies. Thus, the conceptualization of Customization and Interactive Marketing in the implementation



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

scheme below differs from the initial ideas in Chapter Three conceptualizing Customization/Interactive Marketing as Marketing actions and not programs, as originally discussed.

> *Marketing policies:* Broad rules of conduct regarding the customer **(Positioning and Segmentation)**
> *Marketing systems:* Control and decision-aid devices regarding the customer, **(Customer Information System)**
> *Marketing programs:* Decisions to integrate sub functions to serve a special segment or manage a product line
> *Marketing actions:* Execution, such as selling, new product development, trade promotion and distributor management **(Customization/Interactivity)**

However, like strategic choice, these marketing actions must be selected in advance of development of the Customer Information System capabilities. The action is desired and the system is developed to support the action. As hypothesized, this general ability to customize is related to the ability to access and use a multi-leveled and highly sophisticated Customer Information System, although the capabilities were originally theorized to result from the abilities of the CIS. Rather than decisions resulting from what information is available, these decisions appear to be either separate choices or marketing actions (Bonoma and Crittendon 1988) which have a life within the organization prior to the development of the CIS. Logically, the decision to customize and be interactive with the customer does require more than a Customer Information System. For Customization, manufacturing capabilities (in this case the ability to customize services), sales and service policies, and other parts of the organization must be brought to bear before Customization can be effective. Likewise, although the ability to interact with the customer in terms of Interactive Marketing may be associated with the development of the customer information system, it is possible to pursue marketing actions without the use of such a system. Once those decisions are made, implementing a CIS may make achieving those marketing goals easier.



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Given that the model was going to vary from the model originally conceptualized, several alternative models were then tested with Interactive Marketing and Customization as exogenous variables, correlated with strategy selection but not resulting specifically from strategy selection. There are three candidates for final models which all have excellent goodness-of-fit characteristics and a basis in theory. These are models reported below in Table 53 and as illustrated in Figures XIV through XVI. All analyses were performed on the correlation matrix and results shown for path coefficients are standardized regression weights because of the difference in scales between the variables:

**Table 53: Alternate Models**

| | RMR | RMSEA | GFI | $\chi^2$ (DF) | P-VALUE |
|---|---|---|---|---|---|
| + (Figure XIII) CIS Leads Model N=206 | .052 | .136 | .945 | 38.377 (8) | .000 |
| **(Figure XIV) Strategy Leads CIS Model N=206** | **.011** | **.000** | **.996** | **2.416 (6)** | **.878** |
| * (Figure XV) Separate Strategy Model N=206 | .010 | .000 | .996 | 3.182 (6) | .868 |
| (Figure XVI) Weighted Strategy Model N=206 | .009 | .000 | .996 | 2.554 (6) | .862 |
| * (Figure XVII) Insurance Model N=100 | .020 | .000 | .986 | 4.453 (6) | .616 |
| +(Figure XVIII) Software Model N=109 | .028 | .000 | .984 | 5.228 (6) | .515 |
| (Figure XIV) Strategy Leads Model N=206 | .030 | .000 | .989 | 6.860 (7) | .444 |

***All paths not significant at p <.05, + all paths not significant at p <.10**

In the Strategy Leads CIS Model, Figure XIV, decisions regarding Strategic Excellence determine both the CIS and Marketing Unit Performance relationship. Although it is recognized that there is a dynamic interaction between technology and



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

strategy formation (Venkatraman, Henderson and Oldach 1993, Henderson and Venkatraman 1993, Henderson 1991) which would indicate that technology capabilities influence strategy and vice versa, there is also a well-established view that structure (in this case the structure of the management of customer information technology) must follow strategy (Chandler 1990 and Rumelt 1986). The Final Model Strategy Leads CIS as indicated here has the linkage between strategy and structure proposed in the initial conceptualization of the model, in which strategic decisions precede the formation of the structure of Customer Information Management in the business unit. Also, it is reasonable to expect a direct link between strategy and performance based on the analysis in Tables 47 and 49 (H1), as well as the link between strategic decisions and CIS. In this model, CIS is central and mediates the relationship between Strategy selection, Interactive Marketing and Customization and the performance variables.

**Alternate Models and Robustness**

Several alternate models were tested and the most strongly supported, empirically and theoretically, are the ones are discussed here. A regression indicated that the strongest effect of strategy on Business Unit Performance comes from the decision to pursue a Differentiation strategy. Therefore, two additional models, one with separate variables for LOWCOST and DIFFERENTIATION (Separate Strategy, Figure XV) and another (Weighted Strategy Figure XVI) with a new variable, STRATPER, weighted for the relative size of the Path Coefficients for LOWCOST and DIFFERN in the Separate Strategy Model, were tested. The Separate Strategy Model, Figure XV, also fits well but not all path coefficients are significant at less than $p < .05$. Neither of these models were superior in fit to the model as originally conceptualized in Strategy Leads CIS.



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Therefore, the first version of the reconceptualized model selected, Strategy Leads CIS, was retained.

The fit statistics for alternate models in Figures XV and XVI are nearly identical to those of the final model Strategy Leads CIS, Figure XIV. However, the model Strategy Leads CIS is robust, as will be discussed later, fitting for the Insurance industry (Insurance Model Figure XVII) and fitting for all but one path for the software industry (Software Figure XVIII). Another alternate model that also fits well is Strategy Leads All, Figure XIX, in which Strategic Excellence leads to decisions to use Interactive Marketing and Customization in relationships with customers, which in turn leads to Customer Information system development. Although the model fits well, the theoretical basis is not as compelling. Since there has been little discussion in the strategy literature of the role of Interactive Marketing and Customization, these seem more likely to be independent decisions made at the marketing level.

In addition, although Strategic Excellence could affect the decisions to develop Interactive Marketing and Customization capabilities directly, this model, Strategy Leads All, is not as robust under different circumstances, such as industry differences between insurance and software, as the model Strategy Leads CIS. Finally, there might be a possible identification problem as the model does not meet the requirements of the order rule which requires that there be no more than *m* paths leading to an endogenous variable where *m* is the number of exogenous variables. In Figure XIX, Strategy Leads All, we have three paths leading to CIS and only one exogenous variable, STRATEXC. In the absence of compelling theoretical arguments to the contrary and in the face of possible identification problems, the model Strategy Leads CIS, in which these marketing actions



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

of Interactive Marketing and Customization go hand in hand with Strategic Excellence, but do not necessarily follow, will be retained.

**Model Fit**

In analyzing the goodness of fit of a structural equation model, there are four steps: 1) Examine the significance of the paths of the regression relationships 2) Examine the overall goodness of fit of the model (as in Confirmatory Factor Analysis, RMR and RMSEA are most important, but GFI and $\chi^2$ statistics are reported here also 3) Examine the residuals of the correlation matrix to verify goodness of fit and standard errors to see if they are sufficiently small and 4) Check identification conditions if necessary. The model fit statistics of the final model Strategy Leads CIS, Figure XIV are good, the residual correlations small and all path coefficients are significant at the .05 level or less and standard errors are also small.

As with any structural equation model, identification issues are a concern. If a model is not identified, then we cannot be sure that a unique solution can be obtained through the analysis. Figure XIV is a recursive model, meaning, somewhat counter-intuitively, that the path coefficients "run back" to the initial or exogenous variables in the sequence. The recursive nature of the model implies the endogenous orthogonality assumption necessary for identification in recursive models, which implies that error terms are uncorrelated. The *orthogonality assumption* is implied in the model by the presence of only directed paths (arrows pointing one direction) that lead back to the exogenous variables (McDonald 1997). The model also meets an easily checked condition for identifiability of nonrecursive models known as the *order rule*, that each equation of the model should contain no more than *m* path coefficients where *m* is the



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

number of exogenous variables. The *rank* rule for nonrecursive models is also met. There are no unidentifiable endogenous variables in the model.

It should be noted that while there were other models that appeared to fit the two categories labeled Differentiators vs. Low-Cost, none were theoretically as compelling as this overall model of the alignment of strategy and technology. Possibly this effect occurs because in the final sample in the reduced database of 206 respondents the total number of companies that fit neither the "True" Differentiation (DF) or "True" Low-Cost (LC) categories (SE plus SIM) totaled 100 out of 209, or nearly half of the sample. In addition, treating the SE and DF as the same category (N=121) to fit a structural equation model was not effective because the two groups have different characteristics in terms of performance and how they structure their CIS. Fitting a model to these two categories resulted in models that needed to be so simple they were neither interesting nor theoretically compelling. It was difficult under these circumstances to tease out some of the predicted effects through SEM.

**Model Results**

The final model, Strategy Leads CIS, indicates that this positioning decision, the overall level of Strategic Excellence achieved, directly affects both CIS and Marketing Unit Performance. More importantly, the overwhelming performance advantage obtained by the selection of the "Strategic Excellence" strategy fits the analysis in the final model, which first considers the effect of strategy on both the CIS and Marketing Unit Performance.

The parameter estimates are all positive, as originally hypothesized. These model parameter estimates are interpreted like estimates in regression equations. For example, the mean of responses for MUPERF increases by .38 for every one unit change in the



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

standard deviation of STRATEXC, reported strategy choice, which is approximately .68. In contrast, the mean of MUPERF increases only by .14 for every change in the standard deviation of CIS (.60), so the effect of Strategy is nearly three times that of CIS in its impact on Marketing Unit Performance as measured here. The path to competitive advantage as measured by Business Unit Performance is mediated, as hypothesized, by Marketing Performance, with the mean of BULOG increasing by .25 for every one unit increase in the standard deviation MUPERF (.90). In terms of initial choices which affect CIS, the mean of responses for CIS increases by .19 for every one unit change in reported strategy choice (.68), .30 for every one unit change in Interactive Marketing (1.0 ) activities and .20 by a one unit increase in Customization activities (.85). Both CIS and STRATEXC affect MUPERF. When either the path from CIS to MUPERF or the path from STRAEXC to MUPERF is removed from the model, the remaining path takes up the slack and its coefficient increases. Because of this effect, multicollinearity diagnostics in separate regression relationships were examined, but these diagnostics did not indicate a significant problem with multicollinearity in the data in these relationships.

Relationships between strategy and CIS and between CIS and Marketing Unit performance are supported in this model, with the understanding that strategy directly affects marketing unit performance and is correlated with the decision to engage in Interactive Marketing and Customization activities. This result suggests that the role of strategy in the development of the Customer Information System cannot be ignored and that strategy must be integrated into the development of the CIS. The overarching hypothesis that business units whose strategy and information are aligned are more likely to be successful than those whose strategy is not is further supported by this model.



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

These results suggest that the customer information system is important in contributing to overall marketing and hence Business Unit Performance.

This model also fits well for the insurance industry (Figure XVII), with the exception that the path from Customization to CIS is significant at $p < .1$ instead of .05. In the software industry, the model fits well, but the path between CIS and Marketing Unit Performance is not significant even at the .1 level. One reason for this difference could lie in the heterogeneity of the data. While all the insurance companies were business-to-business insurers, primarily in property/casualty, the software responses were much more diverse. There appeared to be many companies that were experiencing performance growth simply on the basis of being in a growth segment of the market. Another reason for the lack of fit of this one path could be data quality problems in this fast-moving industry. Eliminating outliers greater than two standard deviations does produce a fit for the Strategy Leads CIS Model for the software industry, but requires eliminating almost ten percent of the software data from the sample.

**Effect of Control Variables on Performance**

Regression of the control variables upon Marketing Unit Performance indicated that none of these variables was significant at the $p < .05$ levels. Similarly, only one of the items related to Porter's Five Forces, FFSUBEAS, which asked whether it would be easy for customers to evaluate other products and services to meet their needs, was significant the $p < .05$ level. An exploratory factor analysis revealed that two of the three items relating to threat of substitutes loaded on the same factor, FFSUBEAS and FFSUBOTH, the later of which asked about competition coming from outside the industry. A mean sum score of both of these items together was regressed against Marketing Performance ( $\alpha$=.6894 and correlation =.5290) and the resulting regression



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

was significant, with an Adjusted $R^2$ of .056, about the size of that associated with the CIS variable.

Similarly, only one other control variable was significant in a regression against MUPERF as well as in a regression of all variables that affect Marketing Performance. This variable was CNTLSLS, the size of the firm in terms of sales as compared to the competition. Regressed against MUPERF by itself the item was significant and the regression had an Adjusted $R^2$ of .078.

The two items together increase the $R^2$ of the equation containing strategy selection and CIS from .195 to .297. The threat of substitutes has a negative effect and the size of the firm in terms of sales a positive one in terms of Marketing Performance. While strategy selection has the most profound effect on Marketing Performance, the additional variables provide a more complete picture of the effects of outside forces and other effects not related to this research. The results of a regression showing all variables which affect Marketing Performance is included below.



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

**Table 54: Control Variables: Regression Results, Dependent Variable, Marketing Performance**

| | CHANGE IN ADJ $R^2$ AS VARIABLES ENTERED INTO EQUATION | COEFFICIENT (STANDARDIZED)<br><br>T (SIGNIFICANCE) |
|---|---|---|
| Constant | | 2.262<br><br>4.348<br>(.000) |
| STRATEXC* Strategy Selection | .178 | .326<br><br>5.168<br>(.000) |
| CIS* Customer Information System | .195 | .166<br><br>2.666<br>(.008) |
| SUBSTIUT* Threat of Substitutes | .230 | .-.188<br><br>-3.104<br>(.002) |
| CNTLS* Size of Firm in Terms of Sales | .297 | .259<br><br>4.357<br>(.000) |

*Variables significant, p<.01, F(df)=21.109, sig. of F=.000



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

## SUMMARY OF RESULTS TESTS

The following table summarizes the results of the testing of the hypotheses.

**Table 55: Results Summary**

| HYPOTHESIS | RESULTS OF ANALSYSIS |
|---|---|
| **Hypothesis 1 (Overarching Hypothesis):** Business units with greater coherence and consistency between their Customer Information management and their chosen positioning and segmentation strategies will be more likely to achieve competitive advantage through those particular strategies. | Supported |
| **Hypothesis 2a:** Strategy selection is associated with Customer Information System (CIS) development.<br>**Hypothesis 2b:** Differentiation will have a higher CIS than Low-Cost strategies, Focused will have a higher CIS than Broad and Low-Cost/Focused will be higher than Differentiation/Broad. | Supported<br>Not Supported |
| **Hypothesis 3a:** As the CIS increases, the benefits in terms of Marketing Performance increase, up to an optimal point, past which costs increase and performance decreases, independent of strategy.<br>**Hypothesis 3b:** As the CIS increases, the benefits in terms of Marketing Performance are more pronounced for business units following Differentiation versus Low-Cost strategies.<br>**Hypothesis 3c:** As the CIS increases, Marketing Performance increases, but there are optimal points of investment. The benefits are more pronounced for business units following Focused versus Broad Segmentation. | Partially Supported<br>Not Supported<br>Partially Supported |
| **Hypothesis 4:** As Marketing Performance increases, Business Unit Performance increases. | Supported |
| **Hypothesis 5a:** As the CIS increases, business unit Customization and Interactive Marketing increase, then level off.<br>**Hypothesis 5b:** Customization and Interactive Marketing increases are more pronounced for Differentiation versus Low-Cost Strategies.<br>**Hypothesis 5c:** Customization and Interactive Marketing increases are more pronounced for Focused versus Broad Strategies. | Partially Supported<br>Partially Supported<br>Partially Supported |
| **Hypothesis 6a:** As the information Generation constructs of Acquisition, Specificity and Quality in the CIS increase, business unit Customization and Interactive Marketing increase.<br>**Hypothesis 6b:** As Addressability increases, business unit Customization and Interactive Marketing increase then level off.<br>**Hypothesis 6c:** As Dissemination increases, business unit Customization and Interactive Marketing increase to an optimal point.<br>**Hypothesis 6d:** As Shareability increases, business unit Customization and Interactive Marketing increase to an optimal point. | Partially Supported<br>Not Supported<br>Partially Supported<br>Partially Supported |
| **Hypothesis 7:** As Customization and Interactive Marketing increase, Marketing Performance increases. | Not Supported |
| **Hypothesis 8:** As Customization and Interactive Marketing increase Relationship Performance increases. | Not Tested |
| **Hypothesis 9:** As Relationship Performance increases, Marketing Performance increases, but with diminishing returns. | Not Tested |



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

# CHAPTER SIX, DISCUSSION, MANAGERIAL IMPLICTIONS AND FUTURE RESEARCH

## DISCUSSION

When this research was conceptualized, the major goals were to determine how to measure how well business units managed Customer Information and to place these capabilities in context in terms of their strategic choices of positioning and segmentation. However, it was recognized that because of the lack of empirical work in this area and the number of new constructs operationalized and tested in this work that this thesis would produce a rich data set which could be used to develop future research in this area. Indeed, the data have proved as full of life as anticipated and the resulting thesis has produced three separate contributions as follows: 1) a measurement model for Customer Information management (CIS constructs, Figure X) 2) a structural model for how strategy and information interact within organization for competitive advantage (Strategy Leads CIS Model, Figure XIV), and 3) a separate strategy component highlighting differences in performance based on strategy alone. (Hypotheses 2a, 2b and Figures XIV, XV and XVI).

First, this research supports the theoretical concept that learning organization theory provides an organizing framework for operationalizing the measures of how well business units manage Customer Information. The difficulties in measuring the higher level constructs such as shareability, or a lack of variability in the business unit responses, resulted in a measure that was overweighted in terms of the lower order variables which were expected to have less of an impact on Marketing Performance. However, the measure is a good start in understanding how to explain differences in firm capabilities in this area.



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Second, the process by which business units align their strategy and Customer Information in these data illustrates the role played by these Customer Information System capabilities in the path to competitive advantage. The effect of the Customer Information System on Marketing Performance in terms of share of wallet, customer retention, lifetime customer value and return on investment is supported by this research, although to some extent overshadowed by the effect of strategic positioning choice.

Third, although there is support for the idea that strategy and information management should be aligned to achieve competitive advantage, just implementing an effective strategy combination helps the business unit achieve a marketing competitive advantage as measured by Marketing Performance. In fact, the Differentiation decision contributes more strongly to Marketing Performance than the decision to be a Low-Cost provider.

Why would the positioning decision be the most important decision for the management of Customer Information? Whether to be Low-Cost or Differentiated is the primary decision which must be made before the business unit can move forward in its decision-making. Positioning is a decision which has broad reaching implications throughout the organization and thus directly effects the value chain (Anderson 1995). The decision to follow the highly effective "Both" strategy could be considered a surrogate for "Strategic Excellence" in general (Treacy and Wiersema 1993) and in most cases requires coordination of information throughout the business unit and a deep and sophisticated knowledge of the customer as well.

The finding that strategic positioning choice is related to Marketing Performance and is in fact the most compelling contributor to Marketing Performance is perhaps



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

second only to the finding that Marketing Performance variables, as hypothesized, are the missing link between both positioning strategy and CIS and the ultimate performance variable, increases in business unit sales and net income. This mediation perhaps occurs because of the role the understanding and knowledge of the customer plays in the organization as well as the overall Strategic Excellence of the business unit. Thus the relationship between the strategy variables and the Customer Information System becomes clear as Strategic Excellence works in accordance with the management of Customer Information to create competitive advantage in business-to-business services markets. This research did not support the idea that there are different paths to competitive advantage depending on positioning selection. Rather, all business units follow the same path, with the decision for Strategic Excellence providing a dominant path to competitive advantage.

However, working in conjunction with this strategic positioning decision, and correlated with those choices, the decisions to engage in Interactive Marketing and Customization also play a role in the developing a Customer information system. Thus, the final model which fits the data overall is one which differs from the original conception of the model in terms of the role of Interactive Marketing and Customization. While a relationship between the capabilities of the CIS, Interactive Marketing and Customization was hypothesized, the direction of the relationship in the model is the opposite of that which is supported through empirical testing. It was originally thought that the capabilities of Customization and Interactive Marketing would result from the CIS. However, this decision to be customized and interactive appears to occur first, and



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

then are associated with a deeper and more sophisticated customer system as measured by the CIS variable.

That these decisions should be made prior to the development of the CIS seems counter-intuitive to initial theory. Coherence and consistency would argue that the firm's CIS must be consistent with its strategic decisions, so that these decisions might be made first is consistent with those ideas.. The fact that the decision to be interactive on a marketing level and to provide customized products does indeed imply a stronger CIS indicates that business units seeking interactive and customized strategies do indeed require a more complex and sophisticated CIS. This improved Customer Information System then leads to Marketing Performance in terms of increased customer retention, lifetime customer value, share of wallet and return on investment. It is this Marketing Performance that then leads to increases in Business Unit performance.

It was anticipated that there would be an effect on Marketing Performance of segmentation strategy, with more products and segments associated with a deeper and more sophisticated Customer Information System which would translate into Marketing Performance and therefore Business Unit Performance. There is no difference in CIS development between Broad versus Focused segmentation strategies and no correlation between the segmentation strategy and the strategies of Customization and interactivity.

Anderson (1995) suggests that while the concept of value creation is considered important in organizations (Wilson 1995), the specific mechanisms by which value is created is not well known. This model suggests that value is created for the customer in these business-to-business service markets, in part, through both strategy selection and the management of customer information, but that strategy selection far outweighs the



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

impact of the CIS. This finding is counter-intuitive to claims for Customer Information Management made in the popular press, but illuminates the value-creation mechanisms in business-to-business services markets.

This thesis also focuses on new measurement metrics that are associated with Customer Information System development. Retention rate, lifetime value and share of wallet were statistics that were beyond the capabilities of most firms four or five years ago, and even now are not widely kept and reported. Traditional financial databases do not report these measurements that might be seen to provide crucial mediating metrics between the marketing activities of the business unit and overall performance.

## MANAGERIAL IMPLICATIONS

Marketing database and interactive web technologies represent significant investments for business marketers. These investments are made in the hope of improved relationships with customers, and ultimately business unit performance. However, success in the use of marketing technology to improve customer relationships and marketing performance has been documented by anecdotal stories and not tested by empirical means. Meanwhile, managers are bombarded with choices of software and consulting services to automate their business practices in this area. For example, there are currently over 400 software packages that claim to help with customer relationship management. This thesis represents one of the first attempts to empirically test the relationship between Customer Information System development and performance.

As can been seen in the final model (Figure XIV), a deep and sophisticated CIS is associated with the "Both" Strategy, overall Strategic Excellence, and is also associated with higher retention rates, a greater share of wallet, and greater customer lifetime value



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

and Return on Investment for the Business unit. These metrics ultimately are associated with overall business unit performance, and managers should carefully review including these and others that are facilitated by the development of the CIS in their regular measurement tool kit. Perhaps the ultimate value of the CIS will be the ability to provide the crucial metrics for evaluating Marketing Performance. The CIS also mediates the relationship between Interactive Marketing and Customization decisions and their associated performance measures, such as customer retention and share of wallet. The CIS must not be ignored, but also must be put into perspective as managers evaluate where to spend their crucial resources.

The good news for managers is that all of these elements are to some degree under their control. Strategy selection and the development of the CIS can all be affected by managerial decisions. Even ease of substitutability can be combated through the differentiation strategy so critical to marketing unit performance. By focusing on the "big" picture, positioning and delivering value in a general way, and achieving Strategic Excellence, managers can make the most of the Customer Information Systems capabilities that they have currently and develop others consistent with their strategy.

Managers might be advised as a result of this research to consider the type and quality of available information used in their organizations rather than force the broad adoption of a specific system or database. Most business units are at the very beginning of the process in terms of developing a sophisticated CIS and these systems will likely be seen as "table stakes" to achieving "Strategic Excellence" in the future. However, the fact that none of the survey items relating to Acquisition activities are in the final CIS construct indicates, in accordance with the Resource-based view, that it is not the



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

acquisition of large amounts of data, but what is done with it that is important in the development of the CIS.

In regards to developing Interactive Marketing and Customization strategies, Quality, Addressability, Dissemination and Shareability are more important than being able to store large amounts of information in the organization. Again, this result supports the notion that merely collecting huge amounts of information is not enough in terms of developing and implementing overall business unit strategy for competitive advantage.

Managers should also remember that while it appears a deep and sophisticated CIS goes hand in hand with implementing certain types of strategies, a good CIS without a good strategy won't lead to superior performance. For the Stuck-in-the-Middle group seeking to achieve superior performance and also to develop a CIS, the task is simple: Pick a strategy and concentrate on good quality data and an organized place to put it.

## LIMITATIONS

Although this study has a larger sample size than many published business-to-business studies, only two industries and 206 observations in the final model mean that more work needs to be done to further support the relationships suggested here. The exploratory nature of the work means that other services industries should be studied to further refine the measurements of strategic orientation in the services context as well.

In spite of the research that indicates that self-reports of managerial performance, if the managers are at the right level in the organization, are highly consistent with actual performance, the self-reports used here mean that the research cannot be triangulated by an outside source. A more robust study with outside business unit performance measures



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

would also be a natural extension of this work. Another source of triangulation would be talk to actual customers of these business units to measure relationship performance. Operationalizing the Relationship Performance construct remains illusive and needs more refinement to be adapted generally to the business-to-business services marketing context. Preliminary analysis of the data indicates that some of the information might be applicable on an industry basis.

## FUTURE RESEARCH

This model, although a start to understanding the complex relationships between strategy and information and information and performance, also indicates a need for future research to understand these variables and their relationships. There is more to marketing performance than strategy selection and CIS. Knowledge creation activities, and other value-adding business disciplines must also be investigated and incorporated into a true understanding of competitive advantage in a marketing context. As the regression with the control variables indicates, outside forces as well as sheer business unit size can impact performance.

Future efforts in this area will focus on the relationship between the Customer Information System capabilities in the organization and other areas such as New Product Development, which rely upon customer input for their success. In addition, how to measure Marketing Performance, especially in light of the information-collection capabilities of the Internet coupled with the widespread use of Customer Information Systems, will be a continuing topic of interest.

Future focus in the development of the CIS construct will be on Shareability and the higher level constructs. There are some interesting differences in the management of



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Customer Information between industries that also provide opportunities for development of the CIS construct.

Immediately, case studies of companies from this data set that manage information well and align this management activity with their strategic choice and those that do not should provide more insight into how strategic objectives and customer information are aligned to provide competitive advantage in the business unit. This study and this model provides a cross-sectional view of a point in time in the lives of the business units studied. Case studies will allow for a better understanding of the dynamic interactions between strategy and technology for marketing and business unit performance.



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Figure I: Managing Customer Information

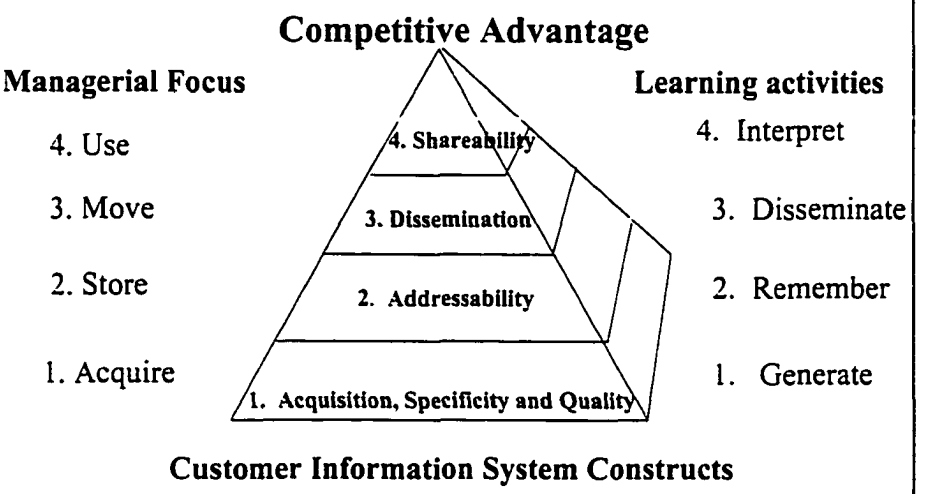
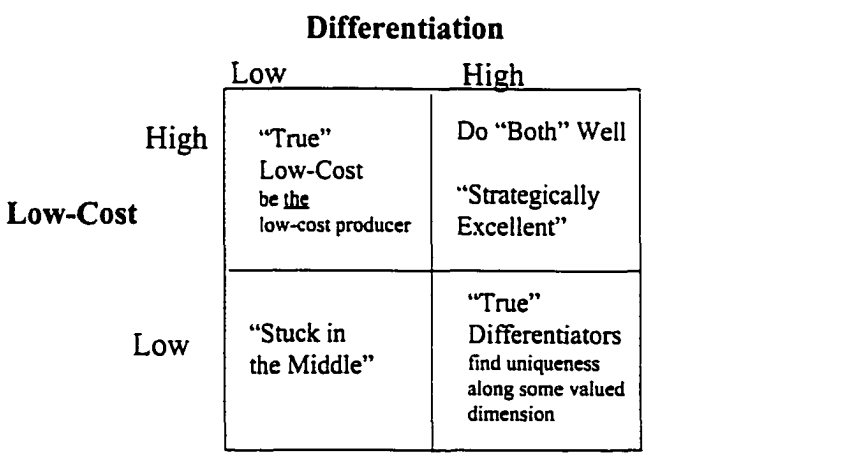



Figure II: Generic Competitive Strategies




From Porter (1985), Treacy (1993)



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Figure III: Paths to Competitive Advantage

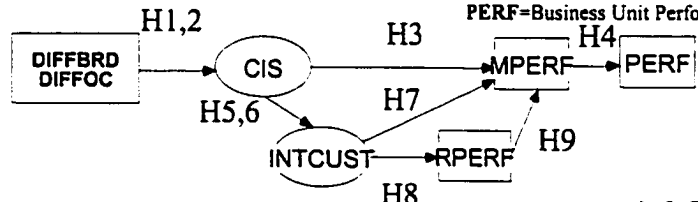
**Competitive Positioning**

| **Competitive Scope (Segmentation)** | Low Cost | Differentiation |
|---|---|---|
| Broad Target | 1. **Cost Leadership-** be the low-cost producer **LCBRD** | 2. **Differentiation-** find uniqueness along some valued dimension **DIFFBRD** |
| Narrow (focused) target | 3A. **Cost Focus-** seek cost advantage in target segment **LCFOC** | 3B. **Differentiation Focus-**serve special needs of buyers in certain segments **DIFFFOC** |

From Porter (1985)

Figure IV: Path for Differentiation and Focused Strategies With Latent Variable

**LC**=Low-Cost Positioning
**DIFF**=Differentiation Positioning
**BRD**=Broad Segmentation
**FOC**=Focused Segmentation
**CIS**=Customer Information System (GENERATE, ADDRESS, DISSEMINATE, SHARE)
**INT**=Interactive Marketing
**CUST**=Customization
**RPERF**=Relationship Performance
**MPERF**=Marketing Performance
**PERF**=Business Unit Performance



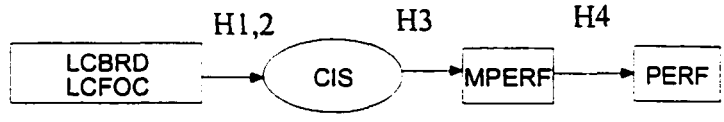

**1. Strategy/CIS Alignment** **2. Customer Interaction** **3. Relationship Building** **4. & 5. Marketing Advantage and Competitive Advantage Creation**



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Figure V: Path for Low Cost/Broad With Latent Variable

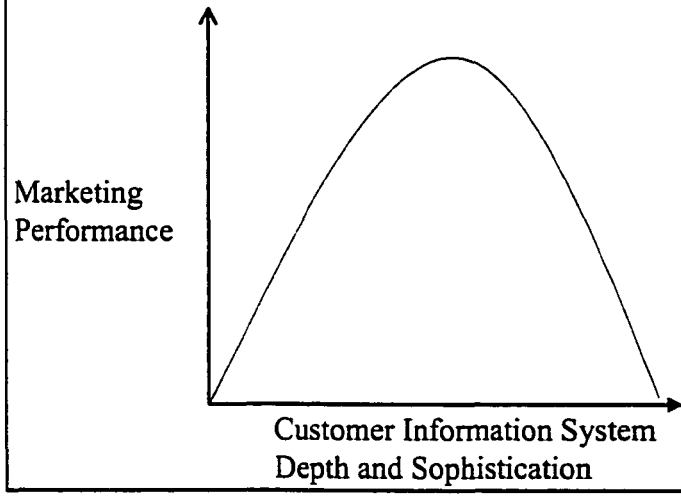
LC=Low-Cost Positioning
BRD=Broad Segmentation
CIS=Customer Information System (GENERATE, ADDRESS, DISSEMINATE, SHARE)
MPERF=Marketing Performance
PERF=Business Unit Performance




**1. Strategy/CIS Alignment**

**2. & 3. Marketing Advantage and Competitive advantage Creation**

Figure VI: Hypothesis 3a: As the CIS increases in depth and sophistication, Marketing Performance increases, but there is an optimal point of investment, past which costs increase and performance decreases.






Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Figure VII: Hypothesis 5a: As the CIS increases in depth and sophistication, business unit Customization and Interactivity increase, then level off.

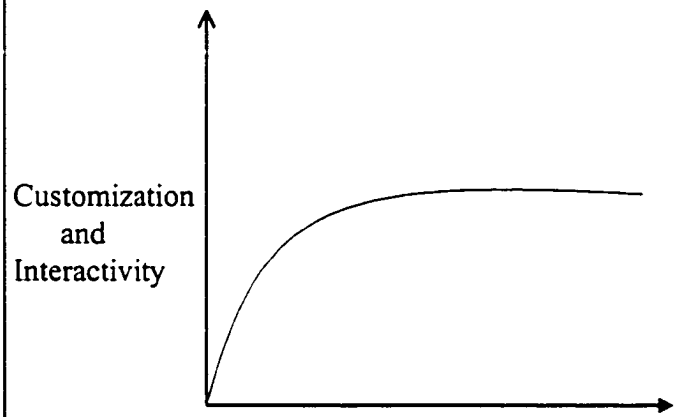
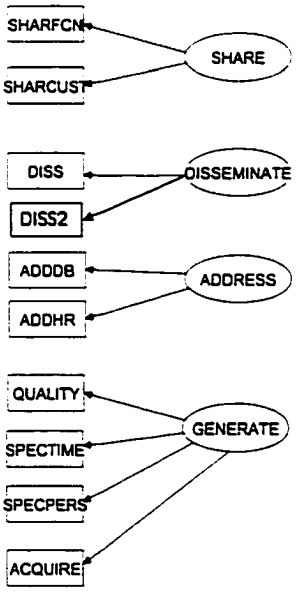



Figure VIII: Initial CIS Factor Models

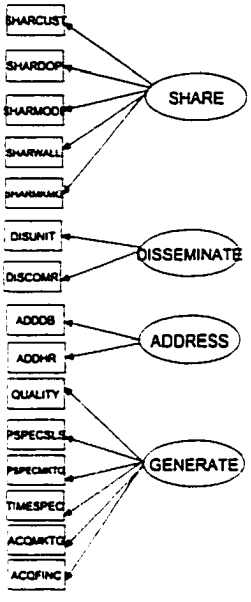



CIS=Customer Information System
SHARE=Shareability
SHAREFCN=Across functions
SHARECUST=Across customers/product lines
DISSEMINATE=Dissemination
DISS=Dissemination within unit
DISS2=Dissemination between groups
ADDRESS=ADDRESSABILITY
ADDDB=Database capability
ADDHR=Human resources
GENERATE=Generate
QUALITY=Quality
SPECTIME=Time Specific
SPECPERS=Person Specific
ACQUIRE=Acquisition



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Figure IX: EFA Results/CIS Variables



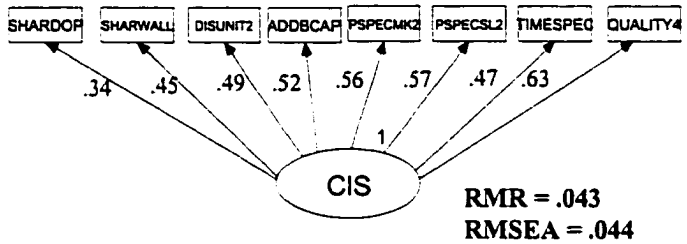

CIS= Customer Information System
SHARE=Shareability
DISSEMINATE=Dissemination
ADDRESS=Addressability
GENERATE=Generation

SHARECUST=Share across customers/product lines
SHARDOP=Share with R&D & Opns.
SHARMODF=Modify
SHARWALL=Share of wallet
SHARMKMG=Access by Marketing and Management
DISUNIT=Disseminate in Unit
DISCOMR=Disseminate/Communicate between depts.
ADDNOW=Information on current customers
ADDFUTR=Information on future behavior
ADDHR=Human resources
QUALITY=Quality
PSPECSLS=Person Specific-Sales
PSPECMKT=Person Specific-Marketing
TIMESPEC=Time Specific
ACQMKTG=Acquisition by Marketing
ACQFINC=Acquisition by Finance

Figure X: Final CIS Model

4. Shareability
3. Dissemination
2. Addressability
1. Specificity 1. Quality

**SHARDOP**=Share with R&D & Opns.
**SHARWALL**=Share share of wallet info.
**DISUNIT2**=Disseminate in Unit
**ADDBCAP**=Database Capabilities
**PSPECMK2**=Person Specific-Marketing
**PSPECSL2**=Person Specific-Sales
**TIMESPEC**=Time Specific
**QUALITY4**=Quality

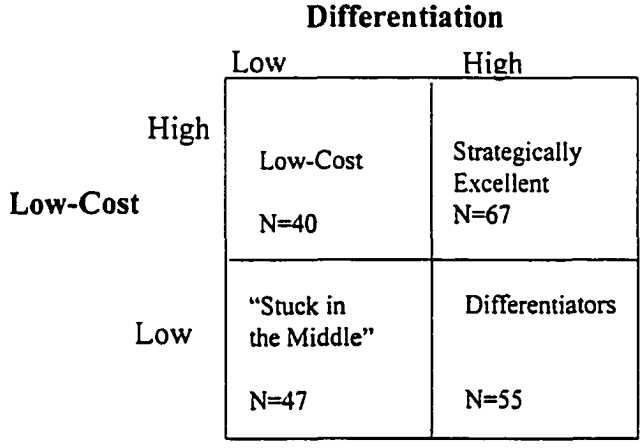



**RMR = .043**
**RMSEA = .044**
**GFI = .967**
**Chi Sq (df) = 27.987 (20)**
**p = .110**



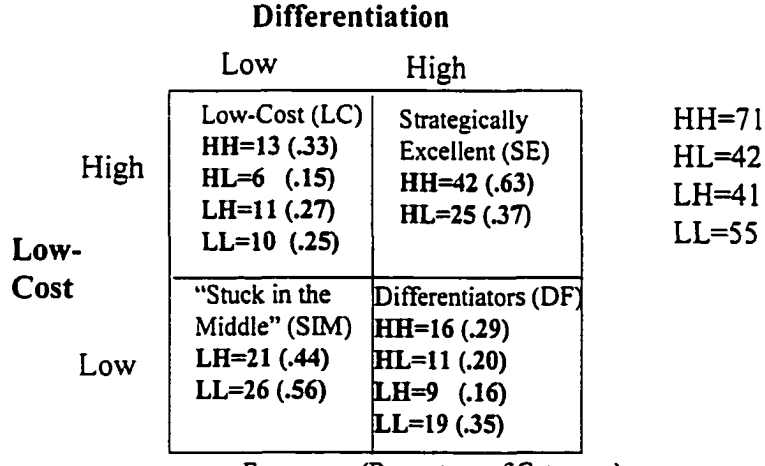
Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Figure XI: Generic Competitive Strategies in Sample, N=209




From Porter (1985), Treacy and Wiersema(1993)

Figure XII: Alignment between CIS and Strategic Excellence Level Within Strategic Categories (SE, DF, LC, SIM)

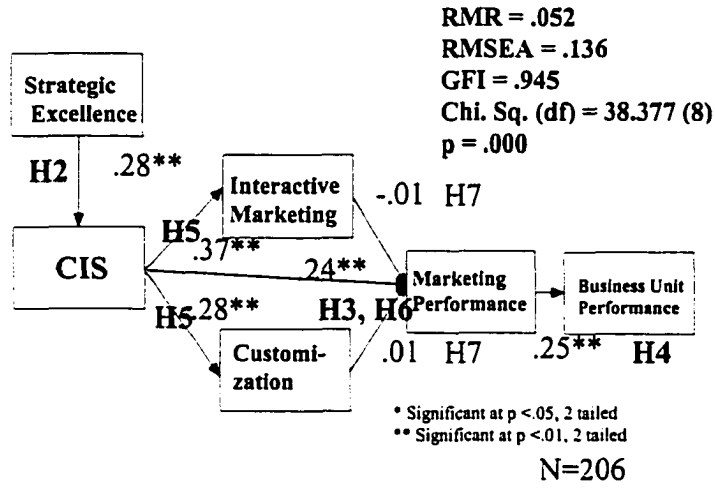



Frequency (Percentage of Category)
(For all combinations (HH, HL, etc.) first letter indicates Strategic Excellence level, second CIS level, where H=High, L =Low)



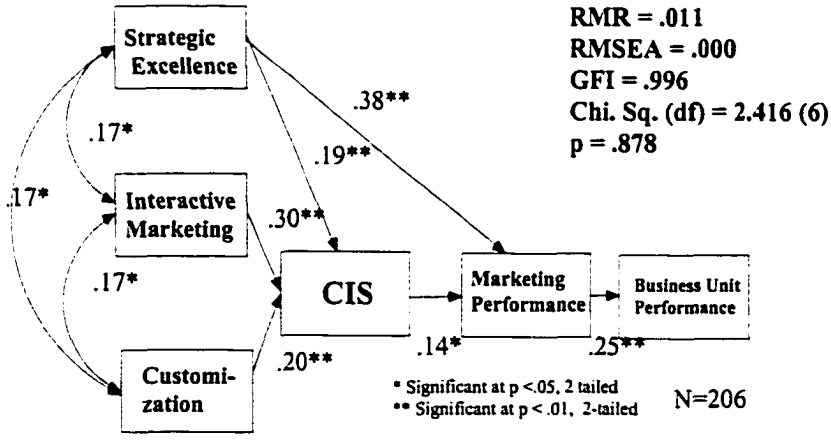
Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Figure XIII: Original Model: CIS Leads




**Bold=Supported, partially supported**

Figure XIV: Final Model: Strategy Leads CIS






Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Figure XV: Separate Strategy

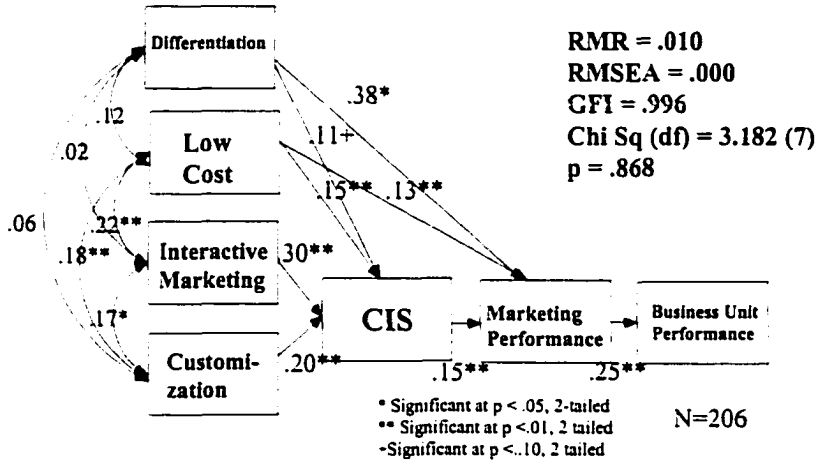
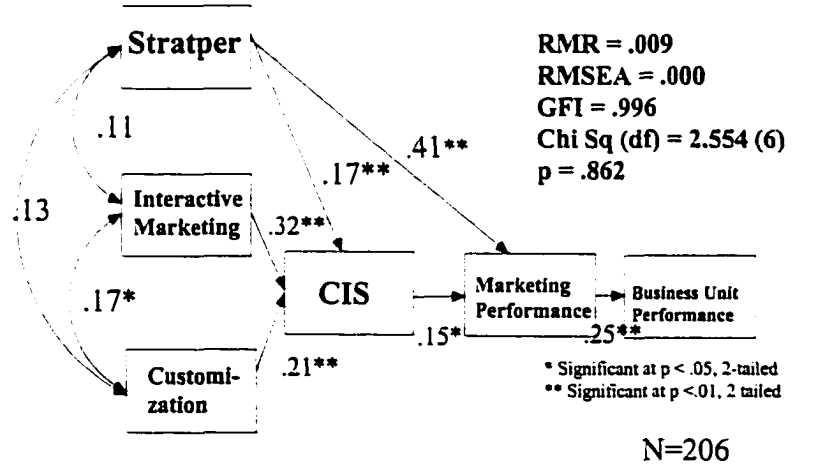



Figure XVI: Weighted Strategy






Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Figure XVII: Insurance

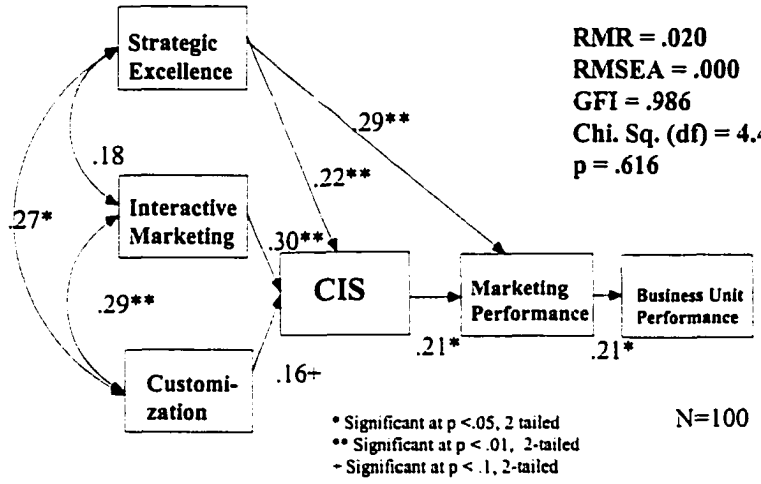
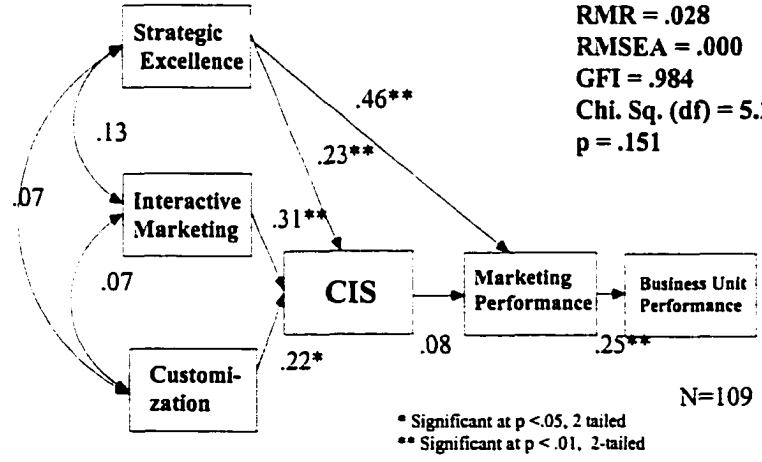


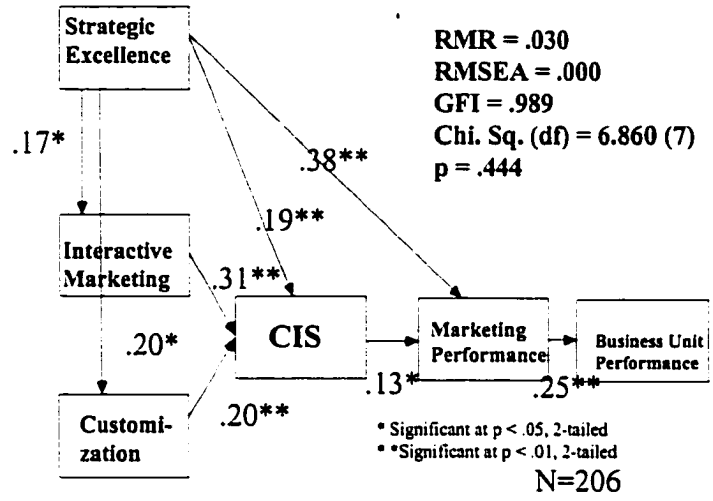

Figure XVIII: Software






Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Figure XIX: Strategy Leads All






Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

# APPENDIX A:
# SURVEY

**Please refer to Figures VIII and IV for a further explanation of construct names.** This is a survey about activities in your business unit. Thank you very much for taking the time to help with this study. This survey is conducted in fulfillment of the requirements for a doctorate in marketing at the University of Illinois in Urbana-Champaign. All results will be aggregated and your business unit's individual responses will be kept confidential. If you would like, a copy of the survey results will be provided to thank you for your participation. Please indicate you would like a copy of the results at the end of the survey. This survey asks you a series of questions about your customers, so please start thinking about your customers for your business unit. The survey is for those whose customers are businesses, not individuals. A business unit is responsible for marketing a particular product or set of products to a specific set of customers. Product in this context can also mean a service providing. **Briefly describe your business unit** _____Tell me, when you think of customers in your unit are "customers" your direct customers or are most of your customers in your indirect network, such as distributors, wholesalers or agents?

1. **a. direct customer/indirect (Please circle your answer). b. About how many? _____ (Provide number).** Please answer this survey for your customers as defined here. **DIRIND**

2. a. A customer database is a central depository of customer data in an electronically stored form or a way to access separate databases so that they look like one central depository of customer information. Do you have a customer database(s)? (Y/N) **DATABASE**

b. Do you have a web site for your business unit information? (Y/N)**WEBSITE**

c. Can customers make purchases on your web site? (Y/N) **PURCHASE**

d. Can customers make customer service requests on your site? (Y/N) **SERVICE**

e. List any other web activities (list all):

3. Rate the extent to which your business unit focuses on the following in comparison to your major competitors. **LOWCOST**

| | Much Lower | Lower | Slightly Lower | The Same | Slightly Higher | Higher | Much Higher |
|---|---|---|---|---|---|---|---|
| a. Level of capacity utilization **LOWCAP** | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| b. Level of operating efficiency **LOWOPEFF** | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| c. Low overhead cost **LOWOHEAD** | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| d. Offering competitive prices **LOWPRICE** | 1 | 2 | 3 | 4 | 5 | 6 | 7 |



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

e. Emphasis on finding ways to reduce cost of production **LOWPRODC** 1 2 3 4 5 6 7

f. Emphasis on finding ways to reduce cost of customer service **LOWSERVC** 1 2 3 4 5 6 7

4. Rate the extent to which your unit focuses on the <u>following in comparison to your major competitors</u>. (**DIFFERN, BFOCUSED**, Control Variables.

| | Much Lower | Lower | Slightly Lower | The Same | Slightly Higher | Higher | Much Higher |
|---|---|---|---|---|---|---|---|
| a. Uniqueness of your products **DIFFUNQA** | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| b. Targeting clearly identified segment or segments **DIFFSEGS** | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| c. Offering products suitable for high price segments **DIFFHIGH** | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| d. Offering specialty products **DIFFSPEC** | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| e. Serving many market segments **BFSEGS** (Groups of customers that are similar) | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| f. Size of firm in terms of sales **CNTLSLS** | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| g. Number of employees **CNTLEMPS** | | | | 1 | 2 | 3 | 4 5 6 7 |
| h. Number of customers **CNTLCUST** | | | | 1 | 2 | 3 | 4 5 6 7 |
| i. Offering a broad line of products across categories **BFBROAD** | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| j. Offering both products and services **BFBOTH** | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| k. Offering multiple products lines across categories **BFMULT** | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

| | Low Margin | | | Average | | | High Margin |
|---|---|---|---|---|---|---|---|
| l. High margin versus low margin product line **DIFFHILO** | 1 | 2 | 3 | 4 | 5 | 6 | 7 |



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Indicate the extent to which your unit acquires the following information

**ACQUIRE**

| | Never | | 50% of the time | | 100% of the time | |
|---|---|---|---|---|---|---|
| 5. From commercial sources | | | | | | |
| a. Magazine subscriber lists **AQAMAG** | 1 | 2 | 3 | 4 | 5 | NA |
| b. Association memberships **AQBASSN** | 1 | 2 | 3 | 4 | 5 | NA |

| | Never | | 50% of the time | | 100% of the time | |
|---|---|---|---|---|---|---|
| c. Commercial databases (like Dun & Bradstreet) or other purchased lists **AQCCDB** | 1 | 2 | 3 | 4 | 5 | NA |
| d. News sources **AQDNEWS** | 1 | 2 | 3 | 4 | 5 | NA |
| From customer feedback from the following sources: | | | | | | |
| e. Face-to-face sales calls **AQEFACE** | 1 | 2 | 3 | 4 | 5 | NA |
| f. Service calls, i.e. after-sale processing **AQFSVCE** | 1 | 2 | 3 | 4 | 5 | NA |
| g. Service complaints **AQGCOMP** | 1 | 2 | 3 | 4 | 5 | NA |
| h. Response to catalogs **AQHCATLG** | 1 | 2 | 3 | 4 | 5 | NA |
| i. Response to direct mail offers **AQIDMOFF** | 1 | 2 | 3 | 4 | 5 | NA |
| j. Response to telesales offers **AQJTELSL** | 1 | 2 | 3 | 4 | 5 | NA |
| k. Response to web hits/inquiries **AQKWEB** | 1 | 2 | 3 | 4 | 5 | NA |
| l. Response to emails **AQLWEB** | 1 | 2 | 3 | 4 | 5 | NA |
| m. Marketing research surveys **AQMMRS** | 1 | 2 | 3 | 4 | 5 | NA |
| n. Customer initiated phone calls **AQNCIPC** | 1 | 2 | 3 | 4 | 5 | NA |
| From internal business unit sources: | | | | | | |
| o. Purchasing history **AQOPURCH** | 1 | 2 | 3 | 4 | 5 | NA |
| p. Credit history **AQPCRDIT** | 1 | 2 | 3 | 4 | 5 | NA |
| q. Payment history **AQQPAYMT** | 1 | 2 | 3 | 4 | 5 | NA |
| r. Loyalty/retention programs **AQRLOYAL** | 1 | 2 | 3 | 4 | 5 | NA |
| s. Customer satisfaction studies **AQSSATIS** | 1 | 2 | 3 | 4 | 5 | NA |

6. For current customers what percentage of the time do those in your unit have the following information?:

| **SPECPERS** | Never | | 50% of the time | | 100% of the time | |
|---|---|---|---|---|---|---|
| a. Company Name **SPECPCOM** | 1 | 2 | 3 | 4 | 5 | NA |
| b. Address **SPECPADD** | 1 | 2 | 3 | 4 | 5 | NA |
| c. Phone **SPECPPHO** | 1 | 2 | 3 | 4 | 5 | NA |
| d. Fax **SPECPFAX** | 1 | 2 | 3 | 4 | 5 | NA |
| e. Email **SPECPEML** | 1 | 2 | 3 | 4 | 5 | NA |
| f. Web address/URL **SPECPWEB** | 1 | 2 | 3 | 4 | 5 | NA |
| g. Business size(sales or other)**SPECPSIZ** | 1 | 2 | 3 | 4 | 5 | NA |
| h. SIC or industry classification **SPECPSIC** | 1 | 2 | 3 | 4 | 5 | NA |
| i. Contact name **SPECPNAME** | 1 | 2 | 3 | 4 | 5 | NA |
| j. Type of contact **SPECPTYP** | 1 | 2 | 3 | 4 | 5 | NA |



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

k. Response to contact **SPECPRESP** 1 2 3 4 5 NA

l. Primary decision maker name 1 2 3 4 5 NA
**SPECPDMN**

m. Names of others involved in the purchase1 2 3 4 5 NA
**SPECPOTH**

n. Marketing offers made **SPECPOFF** 1 2 3 4 5 NA

6. For <u>current</u> customers what percentage of the time do those in your unit have the following information?:

| | Never | | 50% of the time | | 100% of the time | |
|---|---|---|---|---|---|---|
| o. Marketing offers responded to **SPECPMOR** | 1 | 2 | 3 | 4 | 5 | NA |
| p. Method of contact **SPECPMET** | 1 | 2 | 3 | 4 | 5 | NA |
| q. Type of person contacted **SPECPPER** | 1 | 2 | 3 | 4 | 5 | NA |
| r. Lifetime value **SPECPLTV** | 1 | 2 | 3 | 4 | 5 | NA |

(This is the amount of money a customer is worth to the firm over its entire stay with you as a customer)

**TIMESPEC**

| | | | | | | |
|---|---|---|---|---|---|---|
| s. First purchase date **SPECTFPD** | 1 | 2 | 3 | 4 | 5 | NA |
| t. Next planned purchase date **SPECTNPD** | 1 | 2 | 3 | 4 | 5 | NA |
| u. Contract renewal date **SPECTCRD** | 1 | 2 | 3 | 4 | 5 | NA |
| v. Last purchase date **SPECTLPD** | 1 | 2 | 3 | 4 | 5 | NA |
| w. Purchase history **SPECTHST** | 1 | 2 | 3 | 4 | 5 | NA |
| x. Last contact date **SPECTCXN** | 1 | 2 | 3 | 4 | 5 | NA |
| y. Next contact date **SPECTNXT** | 1 | 2 | 3 | 4 | 5 | NA |
| z. Timing of response to various marketing offers **SPECTTIM** | 1 | 2 | 3 | 4 | 5 | NA |

aa. Other information? Please list all:

**INTMKTG**

| | Never | | 50% | | 100% of the time | of the time |
|---|---|---|---|---|---|---|
| 7a. What percentage of the time your unit sends different offers/information to <u>different market segments</u>? **IMSEGMNT** | 1 | 2 | 3 | 4 | 5 | NA |
| b. What percentage of the time your unit sends different offers/information to <u>specific customers</u>? **IMCUST** | 1 | 2 | 3 | 4 | 5 | NA |
| c. What percentage of the time your unit can track the response rate of offers by <u>program</u>? **IMPROGM** | 1 | 2 | 3 | 4 | 5 | NA |
| d. What percentage of the time your unit can track the response rate of offers by <u>segment</u>? **IMRRSEG** | 1 | 2 | 3 | 4 | 5 | NA |
| e. What percentage of the time your unit can track the response rate of offers by <u>specific customers</u>? **IMRRCUST** | 1 | 2 | 3 | 4 | 5 | NA |



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

**QUALITY**

8a. When people in your unit access customer information, they find it is accurate. 1 2 3 4 5 NA

**QUALACC**

b. When people in your unit access customer information, they find it is complete. 1 2 3 4 5 NA

**QUALCOMP**

c. When people in your unit access customer information, they find it is consistent from one source or stored place to another. 1 2 3 4 5 NA

**QUALCONS**

d. When people in your unit access customer information, they find it has been updated in a timely fashion 1 2 3 4 5 NA

**QUALTIME**

e. When people in your unit access customer information, they find it is relevant to their jobs 1 2 3 4 5 NA

**QUALRELV**

| | Poor | | Moderate | | Excellent | |
|---|---|---|---|---|---|---|
| 8 f. Overall, the data quality in your unit is | 1 | 2 | 3 | 4 | 5 | NA |

**QUALACC**

**ADDDB**

For the next few questions, answer in a percentage to the best of your knowledge.

9a. For what percentage of current customers do you have what you would call basic contact information at your fingers or available quickly on demand? ( )

**ADDBASIC**

b. For what percentage of current customers do you have what you would call extended contact information at your fingers or available quickly on demand? ( )

**ADDEXTEND**

c. For what percentage of prospective customers that you plan to contact in the next three months do you have what you would call basic contact information at your fingers or available quickly on demand? ( )

**ADDTHREE**

d. For what percentage of prospective customers you plan to contact in the next six months do you have what you would call basic contact information at your fingers or available quickly on demand? ( )

**ADDSIX**

e. For what percentage of those customers who have not purchased in the last year do you have what you would call basic contact information at your fingers or available quickly on demand? ( )

**ADDNOTB**

f. For what percentage of those customers who have not purchased in the last year do you have what you would call extended contact information at your fingers or available quickly on demand? ( )

**ADDNOTEX**



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

g. If you are answering for direct customers but also work through brokers and/or agents, and/or distributors, for what percentage of those relationships do you have what you would call basic contact information at your fingers or available quickly on demand? ( )

**ADDOTHER**

**ADDHR**

10. What percentage of your staff has attended a course in the following subjects:

a. Direct Marketing ( )
**ADDDM**

b. Database Marketing ( )
**ADDDBS**

c. Web-based Marketing ( )
**ADDWBM**

d. Interactive Marketing ( )
**ADDIM**

**DISEMINATE**

11. Again, answer for your unit.

| **DISS** | **Not At all** | | | **Mod. Extent** | **Large Extent** | |
|---|---|---|---|---|---|---|
| a. Data on customer satisfaction are disseminated at all levels in this business unit on a regular basis **DISDATA** | 1 | 2 | 3 | 4 | 5 | NA |
| b. Our business unit periodically circulates documents (e.g. reports, newsletters, news clippings) that provide information on our customers **DISDOCS** | 1 | 2 | 3 | 4 | 5 | NA |
| c. When something important happens to a major customer of ours, the whole business unit knows about it within a short period **DISKNOW** | 1 | 2 | 3 | 4 | 5 | NA |
| d. Data on customer purchase patterns are disseminated at all levels in this business unit on a regular basis **DISPATNS** | 1 | 2 | 3 | 4 | 5 | NA |
| e. Marketing personnel in our department regularly exchange customer information with other departments **DISEXCH** | 1 | 2 | 3 | 4 | 5 | NA |

**DISS2**

| | | | | | | |
|---|---|---|---|---|---|---|
| f. There is a <u>minimal</u> communication between marketing and product development departments concerning market developments **DISMINP** | 1 | 2 | 3 | 4 | 5 | NA |
| g. There is a <u>minimal</u> communication between marketing and customer service departments concerning customer developments **DISMINCS** | 1 | 2 | 3 | 4 | 5 | NA |
| h. There is a <u>minimal</u> communication between marketing and operations departments concerning customer developments **DISMINOP** | 1 | 2 | 3 | 4 | 5 | NA |



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

**CUST**

i. Products offered to the market depend on customer transaction information (a customer transaction is an exchange of either goods or information with the customer) 1 2 3 4 5 NA

**CUSTTRN**

j. The marketing effort of products depends on customer transaction information 1 2 3 4 5 NA

**CUSTMKTG**

k. Products are customized based on customer transaction information 1 2 3 4 5 NA

**CUSTPRTR**

l. Information or knowledge based on customer transactions is bundled with product offerings (i.e., a product sold with a computer system that allows the customer access to its own information, like Federal Express's tracking system) 1 2 3 4 5 NA

**CUSTBUND**

m. Customer transaction information is a source of revenues 1 2 3 4 5 NA

**CUSTREV**

n. Extent to which it is easy for our customers to communicate their particular needs to us 1 2 3 4 5 NA

**CUSTCOMM**

**SHARFCN**

12. What percentage of employees in the following departments who routinely interface with customers can easily access Customer Information (it takes less than fifteen minutes to locate the information needed)?

| | | |
|---|---|---|
| a. Sales | ( ) | **SHARSALE** |
| b. Customer Service | ( ) | **SHARCSSV** |
| c. Marketing | ( ) | **SHARMKTG** |
| d. Management | ( ) | **SHARMANG** |
| e. R&D (NPD) | ( ) | **SHARRND** |
| f. Operations/Pdn. | ( ) | **SHAROPNS** |

13. What percentage of employees in the following departments who routinely interface with customers can easily (as above) modify, add to or clarify stored customer information?

| | | |
|---|---|---|
| a. Sales | ( ) | **SHAMSALE** |
| b.Customer Service | ( ) | **SHAMCSSV** |
| c. Marketing | ( ) | **SHAMMKTG** |
| d. Management | ( ) | **SHAMMANG** |
| e. R&D (NPD) | ( ) | **SHAMRND** |
| f. Operations/Pdn | ( ) | **SHAMOPNS** |



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

**SHARCUS**

14. For what percentage of current customers can employees in your business unit easily determine the following:

a. All products purchased from your unit ( ) **SHARUPRO**
b. All products purchased from your unit by customer location ( ) **SHARULOC**
c. Customer penetration of your unit (percent of customer/wallet) ( ) **SHARUPEN**

15. For what percentage of current customers can employees in your company easily determine the following:

a. All products purchased from your company ( ) **SHARCPRO**
b. All products purchased from your company by customer location ( ) **SHARCLOC**
c. Customer penetration of your company (percent of customer/wallet) ( ) **SHARCPEN**

**RPERF**

16. Please estimate answers to the following questions for **the top twenty per cent of your customers in terms of sales.**

a. Average margins for all products sold to these customers ( ) **RPERFAVG**

b. Percent of my unit's total dollar sales to these customers ( ) **RPERFPCT**

c. Number of products/services sold to these customers ( ) **RPERFNUM**

d. Average length of time they have been customers (in years)( ) **RPERFTIM**

e. Percent of these customers' total business my business unit has ( ) **RPERFTOT**

16. Again, please estimate answers to the following questions for **the top twenty per cent of your customers in terms of sales.**

f. Length of sales cycle in months for products/services sold to those customers ( ) **RPERCYC**

g. Growth in sales over the past five years for those customers ( ) **RPERGRO**

**BUPERF**

17. Over the past two years, what percent changes have you observed about the following for your business unit?

a. Sales revenues

-30% -25% -20% -15% -10% -5% 0% +5% +10% +15% +20% +25% +30%

**BUPSLS**



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

b. Net income

-30% -25% -20% -15% -10% -5% 0% +5% +10% +15% +20% +25% +30%

**BUPNINC**

**MUPERF**

**Answer for your unit versus its competition.**

| | Unprofitable | | | Breakeven | | | Profitable |
|---|---|---|---|---|---|---|---|
| c. On a scale of 1 to 7 where 1 is extremely unprofitable and 7 is extremely profitable, how profitable do you think your unit has been over the last two years compared to your unit's competition? **MUPPROF** | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

| | Low | | | Same | | | High |
|---|---|---|---|---|---|---|---|
| d. On a scale of 1 to 7 where 1 is low customer retention and 7 is high customer retention, compared to competitors, how successful do you think your unit has been in retaining customers over the last two years? **MUPRETN** | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

| | Small or Low | | | Same | | | All or High |
|---|---|---|---|---|---|---|---|
| e. On a scale of 1 to 7 where 1 is low customer penetration and 7 is high customer penetration (share of wallet), compared to competitors, how well do you think your unit sells to current customers? **MPPSHOW** | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

| | Low | | | Same | | | High |
|---|---|---|---|---|---|---|---|
| f. On a scale of 1 to 7 where 1 is low lifetime value compared to competitors and 7 is high lifetime value, how would you characterize the lifetime value of your unit's customers? **MPPLTV** (Lifetime value is the total value to the firm of one customer over time). | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

**Again, answer for your unit versus its competition.**

| | Low | | | Same | | | High |
|---|---|---|---|---|---|---|---|
| g. On a scale of 1 to 7 where 1 is low ROI (Return on Investment) compared to competitors and 7 is high ROI, how would you characterize your unit's ROI? **MPROI** | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

**CONTROL VARIABLES, FIVE FORCES**

18. Please indicate the extent to which you agree with each of the following for your business unit:

| | Strongly Disagree | | | Neutral | | | Strongly Agree |
|---|---|---|---|---|---|---|---|
| a. Our markets are extremely competitive **FFCOMP** | 1 | 2 | 3 | 4 | 5 | 6 | 7 |



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

| | Strongly Disagree | | | Neutral | | | Strongly Agree |
|---|---|---|---|---|---|---|---|
| b. It is difficult for a new company to enter our market(s) **FFENTR** | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| c. We tend to do things ourselves as opposed to using outside sources **FFSELVES** | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| d. It would be costly to evaluate new suppliers **FFSUPPLC** | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| e. There have been few new competitors in our market(s) in the last year **FFCOMPN** | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| f. It would be difficult to change from our major suppliers **FFSUPPLH** | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| g. It would be easy for our customers to find another vendor to provide the products and services we provide **FFSUBEAS** | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| h. It would be costly for our customers to evaluate another vendor to provide the products and services we provide **FFSUBEVAL** | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| i. It would be easy for our customers to find other products to meet their needs **FFSUBOTH** | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| j. There is a great deal of competition coming from outside our industry **FFCOMP** | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

| | Locally Concentrated | | Entire US Some offshore | | | Globally Distributed | |
|---|---|---|---|---|---|---|---|
| 19 a. How would you characterize your market in terms of geographic dispersion? **CNTLGEO** | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

| | No info needed | | Moderate Could decide without | | | Extensive Can't decide without | |
|---|---|---|---|---|---|---|---|
| b. How would you characterize your customers in terms of their need for product information when making a purchasing decision **CNTLINFO** | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

c. How would you characterize your customers in terms their average annual sales revenue to you? **CNTLSLS** $_____

d. How would you characterize the $_____



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

average size of a typical customer transaction
in sales dollars? **CNTL AVG**

e. How often do your customers purchase? _____X___year/mo/wk/day
**CNTLPURCH**

20. Thanks again for your time and your thoughtful responses. I appreciate the help in completing this survey for my doctoral studies and look forward to sharing these results with you. a. Would you like to receive a copy of the final results (Please circle Yes/No)? b. Would you like to receive them by email/fax? (circle) c. Would you like to keep updated on other research in this area as I report the results (circle Yes/No)?

21. I just need to confirm some additional information for research purposes. Again, this information will be kept in complete confidence and results will be aggregated.

a. Name: **NAME**

b. Company Name: **CONAME**

c. Title: **TITLE**

d. Address: **ADDRESS**

e. Age: **AGE**

f. Phone: **PHONE**

g. Fax: **FAX**

h. Email: **EMAIL**

i. Education level: High school ____
Undergraduate degree ____
**EDUC** Grad degree or some graduate work ____

j. Years (approx.) in business-to business sales and marketing **YEARS** _____

k. Percent of total annual sales from business-to-business in the unit **PERCENT** _____

**Thanks again for your help.**

**QUESTIONS: Please contact Debra Zahay at 217-356-4810 to conduct the interview on the phone or clarify questions.**

**Please return the survey to 217-356-2548 or zahay@uiuc.edu**



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

# APPENDIX B:
# FINAL SURVEY

**Please refer to Figures X and IV for a further explanation of construct names.**

1. Rate the extent to which your business unit focuses on the following in comparison to your major competitors.

| LOWCOST | Much Lower | Lower | Slightly Lower | The Same | Slightly Higher | Higher | Much Higher |
|---|---|---|---|---|---|---|---|
| a. Level of capacity utilization LOWCAP | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| b. Level of operating efficiency LOWOPEFF | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| c. Low overhead cost LOWOHEAD | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| d. Emphasis on finding ways to reduce cost of production LOWPRODC | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

2. Rate the extent to which your unit focuses on the following in comparison to your major competitors.

| DIFFERN | Much Lower | Lower | Slightly Lower | The Same | Slightly Higher | Higher | Much Higher |
|---|---|---|---|---|---|---|---|
| a. Uniqueness of your products DIFFUNQA | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| b. Targeting clearly identified segment or segments DIFFSEGS | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| c. Offering products suitable for high price segments DIFFHIGH | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| d. Offering specialty products DIFFSPEC | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| BFOCUSED | | | | | | | |
| e. Serving many market segments BFSEGS (Groups of customers that are similar) | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| f. Offering a broad line of products across categories BFBROAD | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| g. Offering both products and services BFBOTH | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| h. Offering multiple products lines across categories BFMULT | 1 | 2 | 3 | 4 | 5 | 6 | 7 |



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

3. For current customers what percentage of the time do those in your unit have the following information?:

| | Never | | | 50% of the time | 100% of the time | |
|---|---|---|---|---|---|---|
| **PSPECMK2** | | | | | | |
| a. Contact name **SPECPNAME** | 1 | 2 | 3 | 4 | 5 | NA |
| b. Type of contact **SPECPTYP** | 1 | 2 | 3 | 4 | 5 | NA |
| c. Response to contact **SPECPRES** | 1 | 2 | 3 | 4 | 5 | NA |
| d. Names of others involved in the purchase **SPECPOTH** | 1 | 2 | 3 | 4 | 5 | NA |
| **PSPECMK2** | | | | | | |
| a. Marketing offers made **SPECPOFF** | 1 | 2 | 3 | 4 | 5 | NA |
| b. Marketing offers responded to **SPECPMOR** | 1 | 2 | 3 | 4 | 5 | NA |
| c. Method of contact **SPECPMET** | 1 | 2 | 3 | 4 | 5 | NA |
| d. Timing of response to various marketing offers **SPECTTIM** | 1 | 2 | 3 | 4 | 5 | NA |
| **TIMESPEC** | | | | | | |
| a. First purchase date **SPECTFPD** | 1 | 2 | 3 | 4 | 5 | NA |
| b. Next planned purchase date **SPECTNPD** | 1 | 2 | 3 | 4 | 5 | NA |
| c. Last purchase date **SPECTLPD** | 1 | 2 | 3 | 4 | 5 | NA |
| d. Purchase history **SPECTHST** | 1 | 2 | 3 | 4 | 5 | NA |

| **INTMKTG** | Never | | | 50% | 100% of the time | of the time |
|---|---|---|---|---|---|---|
| 4a. What percentage of the time your unit sends different offers/information to different market segments? **IMSEGMNT** | 1 | 2 | 3 | 4 | 5 | NA |
| c. What percentage of the time your unit can track the response rate of offers by program? **IMPROGM** | 1 | 2 | 3 | 4 | 5 | NA |
| d. What percentage of the time your unit can track the response rate of offers by segment? **IMRRSEG** | 1 | 2 | 3 | 4 | 5 | NA |
| e. What percentage of the time your unit can track the response rate of offers by specific customers? **IMRRCUST** | 1 | 2 | 3 | 4 | 5 | NA |
| **QUALITY4** | | | | | | |
| 5a. When people in your unit access customer information, they find it is accurate. **QUALACC** | 1 | 2 | 3 | 4 | 5 | NA |
| b. When people in your unit access customer information, they find it is consistent from one source or stored place to another. **QUALCONS** | 1 | 2 | 3 | 4 | 5 | NA |



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

| | Never | | 50% | | 100% of the time | of the time |
|---|---|---|---|---|---|---|
| c. When people in your unit access customer information, they find it has been updated in a timely fashion | 1 | 2 | 3 | 4 | 5 | NA |
| **QUALTIME** | | | | | | |
| | **Poor** | | **Moderate** | | **Excellent** | |
| 5 d. Overall, the data quality in your unit is | 1 | 2 | 3 | 4 | 5 | NA |
| **QUALACC** | | | | | | |

**ADDDBCAP**

For the next few questions, answer in a percentage to the best of your knowledge.

6a. For what percentage of current customers do you have what you would call basic contact information at your fingers or available quickly on demand? ( )

**ADDBASIC**

b. For what percentage of prospective customers that you plan to contact in the next three months do you have what you would call basic contact information at your fingers or available quickly on demand? ( )

**ADDTHREE**

c. For what percentage of those customers who have not purchased in the last year do you have what you would call basic contact information at your fingers or available quickly on demand? ( )

**ADDNOTB**

d. For what percentage of those customers who have not purchased in the last year do you have what you would call extended contact information at your fingers or available quickly on demand? ( )

**ADDNOTEX**

| 7. Again, answer for your unit<br>**DISUNIT2** | **Not At all** | | **Mod. Extent** | | **Large Extent** | |
|---|---|---|---|---|---|---|
| a. Our business unit periodically circulates documents (e.g. reports, newsletters, news clippings) that provide information on our customers | 1 | 2 | 3 | 4 | 5 | NA |
| **DISDOCS** | | | | | | |
| b. When something important happens to a major customer of ours, the whole business unit knows about it within a short period | 1 | 2 | 3 | 4 | 5 | NA |
| **DISKNOW** | | | | | | |
| c. Data on customer purchase patterns are disseminated at all levels in this business unit on a regular basis | 1 | 2 | 3 | 4 | 5 | NA |
| **DISPATNS** | | | | | | |
| f. Marketing personnel in our department regularly exchange customer information with other departments | 1 | 2 | 3 | 4 | 5 | NA |
| **DISEXCH** | | | | | | |



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

**CUST**

| | Not At all | | | | Mod. Extent | Large Extent | |
|---|---|---|---|---|---|---|---|
| 8a. Products offered to the market depend on customer transaction information (a customer transaction is an exchange of either goods or information with the customer) **CUSTTRN** | 1 | 2 | 3 | 4 | 5 | NA | |
| b. The marketing effort of products depends on customer transaction information **CUSTMKTG** | 1 | 2 | 3 | 4 | 5 | NA | |
| c. Products are customized based on customer transaction information **CUSTPRTR** | 1 | 2 | 3 | 4 | 5 | NA | |

**SHARDOP**

9. What percentage of employees in the following departments who routinely interface with customers can easily access Customer Information (it takes less than fifteen minutes to locate the information needed)?

a. R&D (NPD) ( ) **SHARRND**
b. Operations/Pdn. ( ) **SHAROPNS**

What percentage of employees in the following departments who routinely interface with customers can easily (as above) modify, add to or clarify stored customer information?

c. R&D (NPD) ( ) **SHAMRND**
d. Operations/Pdn ( ) **SHAMOPNS**

**SHARWAL**

10. For what <u>percentage</u> of current customers can employees in your business unit easily determine the following:

a. Customer penetration of your unit (percent of customer/wallet) ( )
**SHARUPEN**

For what <u>percentage</u> of current customers can employees in your company easily determine the following:

b. Customer penetration of your company (percent of customer/wallet) ( )
**SHARCPEN**

**BUPERF**

11. Over the past two years, what percent changes have you observed about the following for your business unit?

a. Sales revenues

-30% -25% -20% -15% -10% -5% 0% +5% +10% +15% +20% +25% +30%

**BUPSLS**

b. Net income

-30% -25% -20% -15% -10% -5% 0% +5% +10% +15% +20% +25% +30%

**BUPNINC**



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

**MUPERF**

12. Answer for your unit versus its competition.

| | Low | | | Same | | | High |
|---|---|---|---|---|---|---|---|
| a. On a scale of 1 to 7 where 1 is low customer retention and 7 is high customer retention, compared to competitors, how successful do you think your unit has been in retaining customers over the last two years? **MPPRETN** | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

| | Small or Low | | | Same | | | All or High |
|---|---|---|---|---|---|---|---|
| b. On a scale of 1 to 7 where 1 is low customer penetration and 7 is high customer penetration (share of wallet), compared to competitors, how well do you think your unit sells to current customers? **MPPSHOW** | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

| | Low | | | Same | | | High |
|---|---|---|---|---|---|---|---|
| c. On a scale of 1 to 7 where 1 is low lifetime value compared to competitors and 7 is high lifetime value, how would you characterize the lifetime value of your unit's customers? **MPPLTV** (Lifetime value is the total value to the firm of one customer over time). | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

**Again, answer for your unit versus its competition.**

| | Low | | | Same | | | High |
|---|---|---|---|---|---|---|---|
| d. On a scale of 1 to 7 where 1 is low ROI (Return on Investment) compared to competitors and 7 is high ROI, how would you characterize your unit's ROI? **MPROI** | 1 | 2 | 3 | 4 | 5 | 6 | 7 |



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

# APPENDIX C:
# COVER LETTER

September 19, 1999

George Bigshot
President
Bigshot Software
12 Bigshot Drive
Somewhere, CA 99999

Dear Mr. Bigshot:

In a few days, someone representing the University of Illinois will be calling to request an interview for an important study of how marketing managers manage customer relationships. This University of Illinois sponsored-study is in fulfillment of the requirements for the Doctoral degree in Marketing at the University of Illinois and we would greatly appreciate the chance to interview you briefly for this study.

The most appropriate person in your firm would likely be a Marketing Manager, Director, Vice President or possibly the President/CEO. This person should be knowledgeable about relationships with customers, how information to manage those relationships is collected and processed and the measures of success in this area. If you are not the appropriate contact for the study, please refer the person who calls to set up an appointment to the right contact in your firm. To thank you for your participation, we will be happy to send a copy of the survey results to you. In this survey, all responses will be kept strictly confidential and individual firms will not be identified in the final reporting.

The interview itself will be conducted by Debra Zahay, a doctoral candidate here at the University of Illinois. If you have any questions, you may contact Debra at 217-356-4810 or at zahay@uiuc.edu. To look at the survey questions before your interview, access the survey on the web at http://www.staff.uiuc.edu/~zahay. We look forward to speaking to you during your interview and, on behalf of the University of Illinois, we thank you for your support of this research effort.

Sincerely yours,

Debra Zahay
Doctoral Candidate

Abbie Griffin
Professor, Business Administration



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

# REFERENCES


Alba, Joseph, John Lynch, Barton Weitz, Chris Janiszewski, Richard Lutz, Alan Sawyer, Alan, Stacy Wood (1997), "Interactive Home Shopping: Consumer Retailer and Manufacturer Incentives to Participate in Electronic Marketplaces," *Journal of Marketing*, 61 (3), 38-53.

Anderson, James C. (1995), "Relationships in Business Markets: Exchange Episodes, Value Creation and Their Empirical Assessment," *Journal of the Academy of Marketing Science*, 23 (4), 346-350.

Andrews, Kenneth R. (1987), *The Concept of Corporate Strategy*. Burr Ridge, Illinois: Irwin Custom Publishing.

Ansoff, H. Igor (1965), *Corporate Strategy*. New York: McGraw-Hill.

Arrow, Kenneth J. (1974), *The Limits of Organization*. New York: W.W. Norton and Company.

Barney, Jay (1991), "Firm Resources and Sustained Competitive Advantage," *Journal of Management*, 17 (1), 99-120.

Biggadike, E. Ralph, "The Contributions of Marketing to Strategic Management, (1981), *Academy of Management Review*, 6 (4), 621-632.

Billington, Jim, Harvard Management Update (1997), "All you Need to know about Making Money off the Internet--at Least as of This Month."

Blattberg, Robert C. and John Deighton (1991), "Interactive Marketing: Exploiting the Age of Addressabilty, *Sloan Management Review*, 33 (Fall), 5-14.

Boisot, Max H. (1998), *Knowledge Assets*. New York: Oxford Press.

Bollen, Kenneth A. (1989), *Structural Equations with Latent Variables*. New York: Wiley & Sons.

Bonoma, Thomas V. (1984), "Making Your Marketing Strategy Work," *Harvard Business Review*, 62 (March/April), 69-76.

Bonoma, Thomas V. and Victoria L. Crittenden (1988), "Managing Marketing Implementation," *Sloan Management Review*, 29 (Winter), 7-14.

Booth, Marilyn E. and George Philip (1998), "Technology Competencies and Competitiveness: The Case for Reconfigurable and Flexible Strategies," *Journal of Business Research*, 41 (1), 29-40.




Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Bradley, Sam (1996), "By the Numbers," *Brandweek*, 37 (April 15), 54.

Browne, Michael and Robert Cudeck, (1993), "Alternative ways of assessing model fit," K.A. Bollen and J.S. Long (eds.), *Testing structural equation models.* Newbury Park, CA: Sage, Publications.

Bruce, Karin (1998), "Can You Align IT with Business Strategy?," *Planning Review* 26 (November/December), 16-21.

Cain, Rita Marie (1995), "The State of Telemarketing Regulation in the States," *Journal of Direct Marketing*, 9 (4), 76-83.

Carlson, David C. (1996), "An Exploratory Study of Bingo Card Use in Consumer Magazine," *Journal of Direct Marketing*, 10 (3), 61-68.

Chan, Yolande E. and Sid L. Huff (1993), "Strategic Information Systems Alignment," *Business Quarterly*, 53 (Autumn), 51-55.

Chandler, Alfred D. (1990), *Strategy and Structure: Chapters in the History of the American Industrial Enterprise.* Cambridge, Mass: MIT Press.

Chopoorian, John A., Omar E. M. Khalil, Mehnaz Ahmed (1998), "Data Quality and Database Marketing," *Developments in Marketing Science: Proceedings of the Annual Conference of the Academy of Marketing Science*, Norfolk, Virginia, John B. Ford and Earl D. Honeycutt, Jr., Eds., May 27-30, 254- 259.

Chorn, Norman H. (1991), "The Alignment Theory: Creating Strategic Fit," *Management Decision*, 29 (1), 20-24.

Choudhury, Vivek and Jeffery L. Sampler (1997), *Information Specificity and Environmental Scanning: An Economic Perspective*, MIS Quarterly, 21 (March), 25-53.

Coase, Ronald H. (1937), "The nature of the firm," *Economica*, 4, 33-48.

Danaher, Peter (1997), "A Comparison of Media Factors that Influence the Effectiveness of Direct Response Television Advertising," *Journal of Direct Marketing*, 11 (2), 46-58.

Davis, Judy Foster (1996), "The Convenience of Catalog Shopping: Is There More to It than Time?," *Journal of Direct Marketing*, 10 (4), 30-41.

Day, George S. (1990), *Market-Driven Strategy, Processes for Creating Value.* New York: The Free Press.

Day, George S. (1992), "Marketing's Contribution to the Strategy Dialogue," *Journal of the Academy of Marketing Science*, 20 (4), 323-329.



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Day, George S. (1994), "Continuous Learning About Markets," *California Management Review*, (Summer), 9-31.

Day, George S. (1998), "Organizing for Interactivity," *Journal of Interactive Marketing*, 12 (1), 47-53.

Day, George S. (1999), *The Market Driven Organization: Understanding, Attracting and Keeping Valuable Customers*. New York: The Free Press.

De Castro, Julio O. and James J. Chrisman (1995), "Order of Market Entry, Competitive Strategy, and Financial Performance," *Journal of Business Research*, 33 (2), 165-477.

Deshpande, Rohit and Gerald Zaltman (1982), "Factors Affecting the Use of Market Research: A Path Analysis," *Journal of Marketing Research*, 19 (February), 14-31.

Deighton, John (1996), The Future of Interactive Marketing," *Harvard Business Review*, 74 (November-December), 151-160.

Deighton, John (1997), Commentary on "Exploring the Implications of the Internet for Consumer Marketing," *Journal of the Academy of Marketing Science*, 25 (4), 347-351.

Dess, Gregory G. and Peter S. Davis (1984), "Porter's (1980) Generic Strategies as Determinants of Strategic Group Membership and Organizational Performance," *Academy of Management Journal*, 27 (3), 467-488.

Dess, Gregory G. and Richard B. Robinson, Jr., (1984), "Measuring Organizational Performance in the Absence of Objective Measures: The Case of the Privately-held Firm and Conglomerate Business Unit," *Strategic Management Journal*, 5 (3), 265-273.

Dillman, Don (1978), *Mail and Telephone Surveys*. New York: John Wiley and Sons.

*Direct Marketing International* (1994), "New Databases Boost Direct Mail Activity," 51 (September 1), 7.

Duncan Tom and Sandra E. Moriarty (1998), "A Communication-Based Marketing Model for Managing Relationships," *Journal of Marketing*, 62 (April), 1-13.

Dwyer, F. Robert, Paul H. Schurr, Paul H. and Sejo Oh (1987), "Developing Buyer-Seller Relationships," *Journal of Marketing*, 51 (April), 11-27.

Elliot, Michael T. and Pamela Lockard (1996), "An Analysis of the Information Content in Infomercial Programs," *Journal of Direct Marketing*, 10 (2), 44-55.

Fletcher, Keith, George Wright and Caroline Desai (1996), "The Role of Organizational Factors in the Adoption and Sophistication of Database Marketing in the UK Financial Services Industry, *Journal of Direct Marketing*, 10 (1), 10-21.



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Fontenot, Renee, Richard P. Vlosky, Elizabeth J. Wilson, and David T. Wilson (1998), "Effect of Buyer-Seller Relationship Structure on Firm Performance," Institute for the Study of Business Markets Working Paper 6-1997, Pennsylvania State University.

Fournier, Christophe (1996), "The Salesperson's Role Clarity and Task Clarity in Direct Marketing," *Journal of Direct Marketing*, 10 (3), 8-17.

Gehrt, Kenneth C., Laura J. Yale, and Diana A. Lawson (1996), "The Convenience of Catalog Shopping: Is There More to It than Time?," *Journal of Direct Marketing*, 10 (4), 19-28.

Glazer, Rashi (1991), "Marketing in an Information-Intensive Environment: Strategic Implications of Knowledge as an Asset," *Journal of Marketing*, 55 (October), 1-19.

Glazer, Rashi (1993), "Measuring the Value of Information: The Information-Intensive Organization," *IBM Systems Journal*, 32 (1), 99-110.

Glazer, Rashi (1997), "Strategy and Structure in Information-Intensive Markets: The Relationship between Marketing and IT," *Journal of Market Focused Management*, 2 (1), 65-81.

Gorski, Debbie (1996), "Software Review: The Role of the Marketing Database in Lead Management—Part 2," *The Journal of Database Marketing*, 4 (3), 288-292.

Griffin, Abbie, John R. Hauser (1992), "Patterns of Communication among Marketing, Engineering and Manufacturing--a Comparison between Two New Product Teams," *Management Science*, 38 (3), 360-373.

Gupta, Ashok K. and David Wilemon (1988), "Why R&D Resists Using Market Intelligence," *Research Technology Management*, 31 (6), 36-41.

Hagel, John II and Marc Singer (1999), *Net Worth: Shaping Markets When Customers Make the Rules*. Boston: Harvard Business School Press.

Hair, Joseph F. (1979), *Multivariate Data Analysis, with Readings*. Tulsa, Oklahoma: PPC.

Harker, William C. (1991), "Alignment for Success in the 1990s (Royal Trust Co. of Canada," *Business Quarterly*, 55 (Winter), 107-112.

Henderson, John C. (1991), "Understanding Strategic Alignment (Information Technology Strategic Planning," *Business Quarterly*, 55 (3), 72-78.



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Henderson, John C. and N. Vehkatraman (1993), "Strategic Alignment: Leveraging Information Technology for Transforming Organizations," *IBM Systems Journal*, 32 (1), 4-16.

Hess, James D. and Glenn E. Mayhew (1997), "Modeling Merchandise Returns in Direct Marketing," *Journal of Direct Marketing*, 11 (2), 20-35.

Hill, Charles W. (1988), "Differentiation Versus Low Cost or Differentiation and Low Cost: A Contingency Framework," *Academy of Management Review*, 13 (3), 401-412.

Hoffman, Donna L. and Thomas P. Novak (1996), "Marketing in Hypermedia Computer Medicated Environments: Conceptual Foundations," *Journal of Marketing,* 60 (July), 50-68.

Homburg, Christian, Harley Krohmer, and John P. Workman, Jr. (1999), "Marketing's Influence Within the Firm," *Journal of Marketing*, 63 (April), 1-17.

Hopper, Max D. (1990), "Rattling SABRE—New Ways to Compete on Information," *Harvard Business Review*, May-June, 118-125.

Hughes, Arthur M. (1994), *Strategic Database Marketing.* Chicago: Irwin Professional Publishing.

Hurley, Robert F. and G. Tomas M. Hult (1998), "Innovation, Market Orientation, and Organizational Learning: an Integration and Empirical Examination," *Journal of Marketing*, 62 (July), 42-54.

Itami, Hiroyuki and Tsuyoshi Numagami. (1992). "Dynamic Interaction between Strategy and Technology," *Strategic Management Journal,* 13 (Special Issue), 119-135.

Itami, Hiroyuki and Roehl, Thomas W. (1987). *Mobilizing Invisible Assets.* Cambridge, MA: Harvard University Press.

Iacobucci, Dawn (1998), "Interactive Marketing and the Meganet: Networks of Networks," *Journal of Interactive Marketing*, 12 (1), 5-16.

Jackson, Rob and Paul Wang (1995), *Strategic Database Marketing.* Lincolnwood, Illinois, NTC Publishing Group.

Jacobson, Robert (1988), "Distinguishing Among Competing Theories of the Market Share Effect," *Journal of Marketing*, 32 (October), 68-80.

Jaffee, Larry (1995), "DMA Show Jammed with Interactive," *DM News*, 17 (13), 2.

Jain, Chaman L. (1995), "How to Forecast the Rollout Response of a Mailing List from a Sample Test in Direct Mail," *Journal of Direct Marketing*, 9 (1), 29-36.



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Karnani, Aneel (1984), "Generic Competitive Strategies--An Analytical Approach," *Strategic Management Journal*, 5 (4), 367-380.

Kim, Linsu and Yooncheol Lim (1988), "Environment, Generic Strategies and Performance in a Rapidly Developing Country: A Taxonomic Approach," *Academy of Management Journal*, 31 (4), 802-827.

Kobs, Jim (1993), *Profitable Direct Marketing*, Lincolnwood, Illinois: NTC Business Books.

Kohli, Ajay K. and Bernard J. Jaworski (1990), "Market Orientation: The Construct, Research Propositions and Managerial Implications," *Journal of Marketing*, 54 (April), 1-18.

Kohli, Ajay K. Bernard J. Jaworski and Ajith Kumar (1993), "MARKOR: A Measure of Market Orientation," *Journal of Marketing Research*, 30 (4), 467-478.

Kotler, (1994), *Marketing Management, Analysis, Planning, Implementation and Control*, Englewood Cliffs, NJ: Prentice-Hall.

Lander, Donald H. (1991), "Strategic Alignment at Canada Post," *Business Quarterly*, 55 (Winter), 100-06.

Maltz, Elliot and Ajay K. Kohli (1996), "Market intelligence dissemination across functional boundaries," *Journal of Marketing Research*, 33 (February), 47-61.

Mahoney, Joseph T. (1995), "The Management of Resources and the Resource of Management," *Journal of Business Research*, 33 (2), 91-101.

Mahoney, Joseph T. & Pandian, J.Rajendran (1992). "The Resource-Based View within the Conversation of Strategic Management," *Strategic Management Journal*, 13 (5), 363-380.

Mainardi, Jerry (Feb 1997), "Match the Media to the Message," Best's Review (Property/Casualty Insurance Editor), 88-89.

McArdle, J. Jack and Roderick P. McDonald (1984), "Some algebraic properties of the Reticular Action model for moment structures, *British Journal of Mathematical & Statistical Psychology*, 37 (2), 234-257.

McDonald, Roderick P. (1996), "Path Analysis with Composite Variables," *Multivariate Behavioral Research*, 31 (2), 239-270.

McDonald, Roderick P. (1997), "Haldane's lungs: A case study in path analysis," *Multivariate Behavioral Research*, 32 (1), 1-38.



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Mehta, Raj, Rajdeep Gewal and Eugene Sivadas (1996), "International Direct Marketing on the Internet: Do Internet Users Form a Global Segment?" *Journal of Direct Marketing*, 10 (1), 45-58.

Menon, Anil and P. Rajan Varadarajan (1992), "A Model of Marketing Knowledge Use Within Firms," *Journal of Marketing*, 56 (October), 53-71.

Merrilles, Bill and Dale Miller, (1996), "Database Marketing by Australian Shopfront Specialty Clothing Retailers," *The Journal of Database Marketing*, 4 (3), 221-235.

Miles, R.E. and C.C. Snow (1983), *Organizational Strategy, Structure and Process*, New York: McGraw-Hill.

Milne, George R. and Maria-Eugenia Boza (1998), "A Business Perspective on Database Marketing and Consumer Privacy Practices," *Marketing Science Institute Working Paper Report* No. 98-110 (June).

Montgomery, David B. and Charles B. Weinberg (1979), "Toward Strategic Intelligence Systems," *Journal of Marketing*, 43 (Fall), 41-52.

Moorman, Christine and Anne S. Miner (1997), "The Impact of Organizational Memory on New Product Performance and Creativity," *Journal of Marketing Research*, 34 (February), 91-106.

Moorman, Christine, Rohit Deshpande and Gerald Zaltman (1993), "Factors Affecting Trust in Market Research Relationships," *Journal of Marketing*, 57 (January), 81-101.

Morgan, Robert M. and Shelby D. Hunt (1994), "The Commitment-Trust Theory of Relationship Marketing," *Journal of Marketing*, 58 (July), 20-38.

Moriarty, Rowland T. and Ursula Moran (1990), Managing Hybrid Marketing Systems," *Harvard Business Review*, (November-December), 146-155.

Narver, John C. and Slater, Stanley (1990), "The Effect of a Market Orientation on Business Profitability," *Journal of Marketing*, 54 (October), 20-35.

Nunnally, Jum C. (1967), *Psychometric Theory*. New York: McGraw-Hill.

Nunnally, Jum C. (1978), *Psychometric Theory*. New York: McGraw-Hill.

Parasuraman, A. (1997), "Reflections on Gaining Competitive Advantage Through Customer Value," *Journal of the Academy of Marketing Science*, 25 (2), 154-161.

Penrose, Edith (1959), *The Theory of the Growth of the Firm*. New York: John Wiley & Sons.



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Peppers, Don and Martha Rogers (1997), *Enterprise One to One: Tools for Competing in the Interactive Age.* New York: Currency Doubleday.

Peterson, Robert A., Sridhar Balasubramanian, and Bart J. Bronnenberg, (1997), "Exploring the Implications of the Internet for Consumer Marketing," *Journal of the Academy of Marketing Science*, 25 (4), 329-346.

Pickholz, Jerome W. (1994), "Marketing to an Audience of One: the New Packaged Goods Marketing Paradigm (Editorial)," *Journal of Direct Marketing*, 8 (2), 2-6.

Pine, B. Joseph (1993), *Mass Customization: The New Frontier in Business Competition.* Cambridge, MA: Harvard Business School Press.

Porter, Michael (1980), *Competitive Strategy.* New York: The Free Press.

Porter, Michael (1985), *Competitive Advantage.* New York: The Free Press.

Porter, Michael E. and Victor E. Millar (1985), How Information Gives You Competitive Advantage," *The Harvard Business Review*, (July-August), 149-160.

Powell, Thomas C. and Anne Dent-Micaleff (1997), "Information Technology as Competitive Advantage: The Role of Human, Business and Technology Resources," *Strategic Management Journal*, 19 (5), 375-405.

Prahalad, C.K. & Hamel, Gary (1990), "The Core Competence of the Corporation," *Harvard Business Review*, 68 (May/June), 79-93.

Rangan, Kasturi V., Melvyn A. Menezes, E. P. Maier (1992), "Channel Selection for New Industrial Products: A Framework, Method, and Application," *Journal of Marketing*, 56 (July), 69-82.

Reached, Frederick F. (1996*), The Loyalty Effect: the Hidden Force behind Growth, Profits and Lasting Value.* Boston, MA: Harvard Business School Press.

Reichheld, Frederick F. and W. Earl Sasser, (1990), "Zero defections: quality comes to services (customer defections)," *Harvard Business Review*, 68 (Sept./Oct.), 105-111.

Robinson, Jr., Richard B., and John A. Pearce II (1988), "Planned Patterns of Strategic Behavior and Their Relationship to Business-Unit Performance," *Strategic Management Journal,* 9 (1), 43-60.

Ross, Jeanne W., Cynthia Mathis Beath, Dale Goodhue (1996), "Develop Long-Term Competitiveness through IT Assets," *Sloan Management Review*, 38 (1), 31-42.



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Rumelt, Richard P. (1986), *Strategy, Structure, and Economic Performance*. Boston, MA: Harvard Business School Press.

Rumelt, Richard P. (1991), "How Much Does Industry Matter?" *Strategic Management Journal*, 12 (3), 167-185.

Saint-Onge, Hubert, (1996), "Tacit knowledge: the Key to the Strategic Alignment of Intellectual Capital," *Planning Review*, 24 (March/April), 10-14.

Sampler, Jeffrey L. (1998), "Redefining Industry Structure for the Information Age," *Strategic Management Journal*, 19 (Special Issue), 343-355.

Scanzoni, John (1979), "Social Exchange and Behavioral Interdependence," in *Social Exchange in Developing Relationships*. Robert L. Burgess and Ted L. Huston, eds. New York: Academic Press.

Schibrowsky, John A. and James W. Peltier (1995), "Decision Frames and Direct Marketing Offers: A Field Study in A Fundraising Context," *Journal of Direct Marketing*, 9 (1), 8-16.

Schijns, Jos M. C. and Gaby J. Schroder (1996), "Segment Selection by Relationship Strength," *Journal of Direct Marketing*, 10 (3), 689-79.

Schlaphoff, Evelyn (1996), "Turning a Telemarketing Programme into a Competitive Database Marketing Weapon," *The Journal of Database Marketing*, 4 (2), 187-191.

Schramm, Wilbur Lang and Donald F. Roberts, eds. (1971), *The Process and Effects of Mass Communication*. University of Illinois Press, Urbana, Illinois.

Sethi, Vijay and William R. King (1994), "Development of Measure to Assess the Extent to Which an Information Technology Application Provides Competitive Advantage," *Management Science*, 40 (12), 1601-1627.

Seybold, Patricia B. and Marshak Ronni (1998), *Customers.com*. Toronto: Random House.

Siebel, Thomas M. and Pat House (1999), *Cyber Rules: Strategies for Excelling at E-Business*. New York: Currency/Doubleday.

Silverstone, Stuart and Warren Karlenzig (1999), "The 1999 KM Year in Review," *Knowledge Management*, December, 34-38.

Sinkula, James M. (1994), "Marketing Information Processing and Organizational Learning." *Journal of Marketing*, 58 (January), 35-45.



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Sinkula, James M., William E. Baker and Thomas Noordewier (1997), "A Framework for Market-based Organizational Learning: Linking Values, Knowledge and Behavior," *Journal of the Academy of Marketing Science*, 25 (4), 305-318.

Slater, Stanley F. (1997), "Developing a Customer Value-Based Theory of the Firm," *Journal of Academy of Marketing Science,* 25 (2), 162-167.

Slater, Stanley F. and John C. Narver (1995), "Market Orientation and the Learning Organization," *Journal of Marketing,* 59 (July), 63-74.

*Society of Insurance Research 1998 Member Directory*, Society of Insurance Research, Marietta, GA, 770-426-9270.

Srinivasar, Raji and Gary Lilien (1999), "Leveraging Customer Information for Competitive Advantage," *ISBM Report 17-1999.*

Stone, Bob (1995), *Direct Marketing Success Stories*. Lincolnwood, Illinois: NTC Business Books.

Strong D. M., Lee, Y.W. and Wang, Richard Y. (1997), "Data Quality in Context," *Communications of the ACM*, 40 (5), 103-110.

Stump, Rodney L. (1994), "Using Tie Strength as an Indicator of Buyer-Supplier Closeness: Theoretical and Empirical Bases," in *1994 Research Conference Proceedings of the second Research Conference on Relationship Marketing: Theory, Methods and Applications*, Paravatiyear, Atul and Sheth, Jagdish N., eds. Emory University, GA: Center for Relationship Marketing, Roberto C. Goizuta Business School.

Sudman, Seymour (1976), *Applied Sampling*. New York: Academic Press.

Sudman, Seymour and Norbert Schwartz (1996), *Answering Questions*. San Francisco: Jossey-Bass Publishing.

Thomas, Mark and Paul Wang (1996), "Customer Information Audit and Alignment," *The Journal of Database Marketing*, 4 (1), 76-92.

Thorp, John and DMR's Center for Strategic Leadership (1998), *The Information Paradox*. New York: McGraw-Hill.

Throckmorton, Joan (1986), "Whither Direct Marketing," *Direct Marketing*, 49 (6), 80-81, 84-86.

Treacy, Michael and Fred Wiersema (1993), "Customer Intimacy and Other Value Disciplines," *Harvard Business Review,* (January/February), 84-93.



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Vavra, Terry G. (1995), *Aftermarketing: How to Keep Customers for Life through Relationship Management*, Chicago: Irwin Professional Publishers.

Venkatraman, N. (1987), "Measurement of Business Economic Performance: An Examination of Method Convergence," *Journal of Management*, 13 (1), 109-122.

Venkatraman, N., John Henderson, and Scott Oldach (1993), "Continuous Strategic Alignment: Exploiting Information Iechnology Capabilities for Competitive Success," *European Management Journal*, 11 (2), 139-149.

Walker, Orville C. and Robert Ruekert (1987), "Marketing's role in the implementation of business strategies: a critical review and conceptual framework," *Journal of Marketing*, 51 (July), 15-33.

Wand Yair and Richard Y. Wang (1996), "Anchoring Data Quality Dimension in Ontological Foundations," *Communications of the ACM*, 39 (11), 86-95.

Wang, Paul and Ted Spiegel, (1994), "Database Marketing and Its Measurements of Success," *Journal of Direct Marketing,* 8 (2), 73-81.

Wang, Richard Y., M.P. Reddly, Amar Gupta (1993), WITS Conference proceedings, Orlando, Florida, http://web.mit.edu/tdqm/papers/93/pass2/93_14.html.

Wang, Richard Y., Veda Storey, and Chris Firth (1994), http://web.mit.edu/www/papers/93/pass2/93_11.html.

Wang, Richard Y, H. B. Kon, and B. Henry (1992), http://web.mit.edu/www/papers/93/pass2/92_02.html.

*Ward's Business Directory of U.S. Private and Public Companies Volume 5: Ranked by Sales within 4-Digit SIC* (1999a), Detroit: Gale Press.

*Ward's Business Directory of U.S. Private and Public Companies Volume 8: Ranked by Sales within 9-Digit NAICS* (1999b), Detroit: Gale Press.

Webster, Frank E., Jr. (1992), "The Changing Role of Marketing in the Corporation," *Journal of Marketing*, 56 (October), 1-17.

Wernerfelt, Birger (1984), "A Resource-Based View of the Firm (Resource Positioning Barriers and Resource-Product Matrices)," *Strategic Management Journal*, 5 (2), 171-180.

Williamson, Oliver E. (1975), *Markets and Hierarchies: Analysis and Antitrust Implications*. New York: Free Press.



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Williamson, Oliver E. (1985), *The Economic Institutions of Capitalism.* New York: Free Press.

Williamson, Oliver E. (1996), *The Mechanisms of Governance.* New York: Free Press.

Wilson, David T. (1995), "An Integrated Model of Buyer-Seller Relationships," *Journal of the Academy of Marketing Science*, 23 (4), 335-345.

Winter, Sidney G. (1987), "Knowledge and Competence as Strategic Assets," D. J. Teece ed., *The competitive challenge*. Cambridge, MA: Ballinger,159-184.

Wrenn, Brent M. and James T. Simpson (1996), "A Dyadic Model of Relationships in Organizational Buying: a Synthesis of Research Results," *Journal of Business & Industrial Marketing*, 11 (3/4), 63-79.

Woodruff, Robert B. (1997), "Customer Value: The Next Source for Competitive Advantage," *Journal of the Academy of Marketing Science*, 25 (2), 139-153.

Zahay, Debra L. and Abbie Griffin (1998), Extended abstract, "How Companies Use Customer Interaction to Develop Relationships," Frontiers in Direct Marketing Research Proceedings, DMEF's 10th Annual Robert B. Clarke Educators' Conference, October 11, 1998, San Francisco, Joseph E. Phelps, Editor, New York: John Wiley and Sons.

Zahra, Shaker A. and Jeffrey G. Covin (1993), "Business Strategy, Technology Policy and Firm Performance," *Strategic Management Journal*, 14 (6), 451-478.

Zeithaml, Valarie A. and Mary Jo Bitner (1996), *Services Marketing.* New York: McGraw-Hill.



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

# VITA

Debra L. Zahay
9004 Brook Garden Court, 202
Raleigh, NC 27615
919-515-4767 (Phone)
919-515-6943 (Fax)
Debra_Zahay@ncsu.edu

## EDUCATION

**University of Illinois** **Urbana-Champaign, IL**
Doctoral candidate in marketing (attended September, 1996 to present, final defense July 31), strategy minor, in the Department of Business and Administration. Research interests in database marketing technology relating to electronic commerce and internet-based supply-chain management. Graduate teaching assistant for Principles of Marketing, Instructor for Principles of Marketing, Teaching Assistant for Promotion Management, Fall 1998, Spring 1999, Research Assistant with Abbie Griffin (Dissertation Advisor, Chair), 1998-1999. Student representative to Graduate Studies Committee, 1998-2000.

**Dissertation title: " Aligning Strategy and Customer Information for Performance in Business Markets."** The purpose of this research is to develop and test, within business-to-business marketing firms, a model of the process by which strategic choices and the management of Customer Information are aligned to produce a business unit's competitive advantage. The resources and competencies that are most important to managing Customer Information are market information acquiring, storing, disseminating and sharing. These information processing capabilities are associated with a learning organization. This research investigates whether and how these particular capabilities then lead, depending upon choices for strategic differentiation and positioning, to the ability to interact with customers and to develop relationships that lead to competitive advantage.

**Loyola University School of Law** **Chicago, IL**
Juris Doctor (1983), Business Planning concentration.

**J.L. Kellogg Graduate School of Management, Northwestern University** **Evanston, IL**
Master of Management (1980), Quantitative Methods (MIS) and Finance.

**Washington University** **St. Louis, MO**
A.B., (1977), English Literature, Phi Beta Kappa, including senior year abroad at the University of Sussex, Brighton, England



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

## ACADEMIC PROFESSIONAL EXPERIENCE

**North Carolina State University** **Raleigh, NC**
Assistant Professor of Marketing and Electronic Commerce (July 2000)

**DePaul University** **Chicago, IL**
Executive-in-Residence/Visiting Instructor (July, 1995 to July, 1996). Adjunct Instructor (Fall, 1994 to July, 1995). Taught Marketing Management, Services Marketing, New Products, Certificate Program in New Product Management and Development. Research conducted for Direct Marketing Institute on direct marketing and profitability.

## AWARDS AND HONORS

| | |
|---|---|
| 1999 | American Marketing Association (AMA) Doctoral Consortium Student for University of Illinois |
| 1999-2000 | Strategic Account Management Association (SAMA) Scholar of the Year, in recognition of outstanding graduate work in business-to-business relationship management |
| 1998-1999 | J. M. Jones Fellowship, Verdell Frazier Young Award |
| 1997-1998 | Stellner Fellowship, David Kinley Fellowship |
| 1996-1997 | J. M. Jones Fellowship |
| 1996 | Second place, Direct Marketing Casewriters Competition, Direct Marketing Educational Foundation |
| 1978 | Elected to Phi Beta Kappa |
| 1973 | Awarded George E. Mylonas Honorary Scholarship to Washington University, providing full-tuition plus expenses for four years of undergraduate education |

## ACADEMIC PUBLICATIONS

Wagle, John S. and Debra L. Zahay (1998), "Reliable Corporation," Journal of Interactive Marketing, 12: 3 (Summer) 63-72.

Zahay, Debra L. and Abbie Griffin (1998), Extended abstract, "How Companies Use Customer Interaction to Develop Relationships," Frontiers in Direct Marketing Research Proceedings, DMEF's 10th Annual Robert B. Clarke Educators' Conference, October 11, 1998, San Francisco, Joseph E. Phelps, Editor, New York: John Wiley and Sons.

Zahay, Debra L. (1998), "Catching on: How Software Entrepreneurs Use Information from Customer Interaction to Create Advantage," forthcoming in Conference Proceedings, Entrepreneurship Symposium, Summer AMA, Boston.

Zahay, Debra L. (1998), Abstract, "Developing Competitive Advantage through Customer Relationships", 1998 Research Conference Proceedings, Relationship Marketing, Anil Menon and Jugdish Sheth, eds., Atlanta: Center for Relationship Marketing.



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

## ACADEMIC PUBLICATIONS, CONTINUED

Zahay, Debra L. (1992), "Turning Research into Results," ESOMAR Business-to-Business Marketing Conference (1992) Prague, Czech Republic, (November), publication in conference proceedings.

## ACADEMIC CONFERENCE PRESENTATONS

Winter AMA, San Antonio, Texas, February 2000, reviewer and discussant, Advertising and Promotions Track.

Haring Symposium, Indiana University, April 1999, discussant.

Zahay, Debra L. and Abbie Griffin (1998), "How Companies Use Customer Interaction to Develop Relationships," Direct Marketing Educators' Conference (DMEF), San Francisco, California, October, also a conference discussant.

Zahay, Debra L. (1998), "Catching on: How Software Entrepreneurs Use Information from Customer Interaction to Create Advantage," Summer AMA, Entrepreneurship Symposium, Boston (August).

Zahay, Debra L. (1998), "Developing Competitive Advantage through Customer Relationships," Relationship Marketing Conference, Emory University, Atlanta, Georgia (June).

Zahay, Debra L. and J. Steven Kelly (1997), Direct Marketing Educators' Conference (DMEF), Chicago, Illinois (October).

Zahay, Debra L. (1992), "Turning Research into Results," ESOMAR Business-to-Business Marketing Conference (1992) Prague, Czech Republic (November).

## RESEARCH GRANTS

1999 University of Illinois Graduate Studies Dissertation Research, DePaul University Center for Interactive and Direct Marketing, University of Cincinnati, Direct Marketing Policy Center, all for dissertation work.

1996 DePaul University and DePaul University Direct Marketing Institute, for survey to direct marketing practitioners.



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

## WORK-IN-PROGRESS

Dissertation research, see above

"Interactive Strategy," with Abbie Griffin, University of Illinois.

"Acquiring Knowledge and Time-Specific Customer Information from Sales Personnel and Distributors: Agency and Transaction Cost Theory Perspectives on Customer Information Management" with Anju Seth, University of Illinois.

"Customer Information as an Option," with Anju Seth, Unverisity of Illinois

"Why Retailers Compete with Themselves" with James Hess, University of Illinois.

## DOCTORAL SEMINARS COMPLETED

### Marketing Major

BA 490 F Advanced Topics in Marketing (2 semesters, Strategy and Interorganizational)
BA 426 Marketing Theory and Systems
BA 422 Marketing Models
BA 416 Metatheory in Consumer Behavior
ADV 483 Advertising as Communication (Audit)
BA490 Marketing Proseminar (six semesters)

### Strategy Minor

BA 490 Q Economic Foundations
BA 490AS1 Corporate Strategy, AS2 Philosophy of Science in Strategy
BA490W Classics in Strategic Management, BA 490 Competitive Strategy

### Methods and Statistical Analysis, Additional Competency

BA 431 Survey Methods in Marketing Research
BA 430 Research Methods in Business Administration (2 semesters)
BA 490C Research Statistics
BA432 Applied Multivariate Analysis in Business (Linear Models)
PSY 494 Multivariate Analysis (Factor Analysis, MANOVA, etc.)
PSY 490CA Categorical Data Analysis
PSY 488 Covariance Structure and Factor Models
SPCOM/PSY 429/493 Network Analysis (Audit)
PSY 434 Models of Decision and Choice (Audit)
EPSY 525 Qualitative Research (Northern Illinois University)



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

## COURSES PREPARED

Principles of Marketing/Marketing Management: Graduate and Undergraduate
Interactive Marketing, Continuing Education Workshop
Direct Marketing: Undergraduate, Graduate and Continuing Education Workshop
New Product Management: Graduate and Undergraduate, Professional Certificate Program
Services Marketing: Graduate and Undergraduate
Business-to-Business Selling, Role Play leader/facilitator
Introduction to Business: Undergraduate
The Art of Sales: Continuing Education Workshop
Marketing Entrepreneurship: Continuing Education Workshop
Home-Based Business: Continuing Education Workshop
Legal Issues in Management, Undergraduate

## PROFESSIONAL ASSOCIATIONS AND POSITIONS

Graduate Teacher Certificate, University of Illinois, 1998.
Member, Chicago Association of Direct Marketing, 1994 to present, Business-to-Business SIG, 1996-1997.
Member, National Business-to-Business Marketing Council, American Marketing Association, 1993 to 1994.
Vice President, Business and Services Marketing, Chicago's American Marketing Association, 1992-1993.
Member, American Marketing Association, 1990 to present.
Admitted to Illinois Bar, 1983.

## ARTICLES REVIEWED

American Marketing Association, Winter 2000, Reviewer for Advertising and Promotion Track.

## NON-ACADEMIC PUBLICATIONS

*Chicago, AMA's Business-to-Business Newsletter*, "Goodbye to the Year of the Customer," January, 1996.
*Svoboda's Home & Small Business*, "Making the Most of Your Customer Relationships," April, 1995.
*Marketing News*, "Cost-Effective Brochures," June, 1993.
*Computerworld.*, "Characteristics of a Good Programmer," February, 1981.
*Datamation*, "Carving a Systems Niche," July, 1980.



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

## PRACTITIONER EXPERIENCE

**Zahay, Inc./ Customer Marketing Partners** **Naperville, Illinois**
President (1994-1996). Worked with business-to-business and not-for-profit customers to develop market research programs, marketing databases and marketing programs.

**Illinois Chamber** **Chicago, Illinois**
Director, Center for Business Management (1993-1994). Developed and implemented direct marketing campaigns for publications unit, human resources training programs, and skill-based course evaluation process. Implemented total quality program.

**InterCall (EasySend)** **Chicago, Illinois**
Consultant and General Manager (1992-1993). Developed and evaluated marketing research for new business line, developed new-to-the-company fax broadcast product.

**MCI Telecommunications** **Chicago, Illinois**
Senior Manager, Marketing Programs (1991-1992). Developed and managed industry marketing programs, resulting in 118% performance in 1991. Developed, implemented and managed an integrated relationship marketing program, including custom database design, for the insurance industry, resulting in $3 million in revenue in six months.

Director of Sales and Marketing, MCI FORUM Conference Calling (1990-1991). With President, developed and delivered new-to-the-company Conference Calling product and grew revenue from $1.7 million to $8.6 million in ten months by developing and implementing targeted data-based marketing programs in five channels. Developed and delivered sales training for 2000-person business-to-business sales force nationwide.

**Dun & Bradstreet (Interactive Data)**
District Sales Manager (Philadelphia, PA, 1987-1989). Turned around sales in $8 million branch of eight professionals in eighteen months, resulting in over 100% performance.

Marketing Manager (Lexington, MA, 1986-1987). Developed business and marketing plans for two product lines, one of which had a 40% annual growth, twice the market rate. Designed and managed market research programs for existing and new product lines. Participated in nationwide sales training.

Marketing Representative (Chicago, IL, 1985-1986). Performed at greater than 250% of quota target each year, qualifying for President's Club, using target market techniques.

Consultant (Chicago, IL, 1983-1984). Provided user training and technical support for securities software, data and services.

**FMC Corporation** **Chicago, Illinois**
Systems Analyst (1981-1983). Developed and installed modifications to large manufacturing system. Developed and implemented training program for department. Received perfect score of "5" in user review of systems installation for new release.



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.