

LB/DOA/28/09

A FRAMEWORK FOR ALIGNING ERP WITH CORPORATE STRATEGIES

A CASE STUDY IN HIGH-TECH COMPONENT MANUFACTURING INDUSTRY

UNIVERSITY OF MORATUWA

MASTER OF BUSINESS ADMINISTRATION
University of Moratuwa, Sri Lanka.
IN Electronic Theses & Dissertations
www.lib.mrt.ac.lk
INFORMATION TECHNOLOGY

Hemachandra H.M.A

Department of Computer Science & Engineering
University of Moratuwa
Sri Lanka

December 2008

University of Moratuwa



93354

93354

004"08"
004(043)
TH

93354

A FRAMEWORK FOR ALIGNING ERP WITH CORPORATE STRATEGIES

A CASE STUDY IN HIGH-TECH COMPONENT
MANUFACTURING INDUSTRY

By

Hemachandra H.M.A



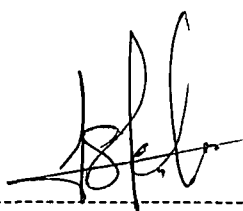
University of Moratuwa, Sri Lanka.
Electronic Theses & Dissertations
www.lib.mrt.ac.lk

The Dissertation was submitted to the Department of Computer Science & Engineering of the University of Moratuwa in partial fulfillment of the requirement for the Degree of Master of Business Administration.

Department of Computer Science & Engineering
University of Moratuwa
Sri Lanka
December 2008

DECLARATION

"I certify that this thesis does not incorporate, without acknowledgement, any material previously submitted for a degree or diploma in any university. To the best of my knowledge and belief, it does not contain any material previously published, written or orally communicated by any other person or me, except where due reference is made in the text. I also hereby give consent for my dissertation, if accepted, to be made available for photocopying and for interlibrary loans, and for the title and summary to be made available to outside organizations"



Candidate: Mr. H.M.A Hemachandra

18/03/09

Date



University of Moratuwa, Sri Lanka.
Electronic Theses & Dissertations
www.lib.mrt.ac.lk

To the best of my knowledge, the above particulars are correct.

UOM Verified Signature

Supervisor: ~~Mr.~~ Wimukthi Jayawardane

18/03/09

Date

ABSTRACT

It is empirically proved that the IS alignment with business strategies leads to peak organizational performance. This strategic alignment of information systems is an area that has been the subject of numerous research activities. The focus of the majority of these studies has been the relationship of business performances and the IS alignment and measuring the alignment of information systems. The present research introduces a comprehensive framework that can be used to align ERP, which is the ultimate existence of the current IS, with corporate level business strategies of an organization.

The methodology for the present research is based on case study methodology and a leading high-tech component manufacturer is selected for qualitative analysis. A conceptual framework was developed on the basis of literature on previous studies and then the selected business case was profoundly studied to best match the framework for the selected industry. The case selected for the study was used to maintain the validity of the framework for the entire industry by obtaining the findings from multiple sources and aligning to industry standard practices. Then the framework is tested for the same business case proving the applicability and the validity of interpretations.

The ultimate finding of the research is the framework that can be used for aligning ERP with corporate level business strategies in the high-tech component manufacturing industry. The researcher derives the most suitable *competitive strategy dimensions* (Corporate level) parallel to Potter's competitive forces, for the high-tech component manufacturing industry and models, each strategy that comes under each dimension and, the expected IS supportability for each strategy. Ultimately, the model calculates the alignments and visualizes the ways of improving the alignment while figuring out the business intensity of the investment.

The present research contributes to the empirical literature by carrying the strategic alignment of information system phenomenon, a step forward. It derives a model and shows that alignment measuring can be used for more productive IS investment decisions.

This study effectively contributes to the industry as the framework allows aligning the ERP with business strategies coping with peak performances. It drives the managers towards more effective decisions on investment, actualizing the intensity of the results. The model would be further used to fine-tune the ERP implementation processes making sure that the optimum business value could be achieved from the ERP rather than providing solutions for some current operational issues.



University of Moratuwa, Sri Lanka.
Electronic Theses & Dissertations
www.lib.mrt.ac.lk

Keywords: Strategic alignment, ERP, High-tech component manufacturing industry, Information system, Business strategies.

ACKNOWLEDGMENT

This dissertation is the outcome of a persistent effort of executing a research spanning six months. Through this untiring effort, I have earned the support and co-operation of friends and acquaintance who contributed in numerous ways to make these academic ventures a success.

The First of whom I would like to appreciate and convey my sincere gratitude to is my supervisor, Mr. Vimukthi Jayawardane, who was of utmost support and guidance throughout this effort.

My sincere gratitude must also go out to my sincere and dear friends who encouraged and extended their unstinted support throughout this research and who were of great strength to me through the numerous challenges faced throughout this project. Dear friends, those days and times of great courage and determination I drew from each of you, I will always hold as cherishing in memories.



University of Moratuwa, Sri Lanka.
Electronic Theses & Dissertations
www.lib.mrt.ac.lk

I take this opportunity to further thank each individual professional in the different disciplines, who participated and contributed their professional views and experiences, which lead to comprehend my research results. If not for your contribution, this research would not have been a success. I bow my head in respect and in gratitude to each of you. My Special thanks go out to Mrs.Vishaka Nanayakkara, Dr.Chandana Gamage and the staff of the CSE Department of University of Moratuwa for their dedication and commitment towards this MBA course. Further, my heartfelt thanks go out to all my lecturers who were my guiding source during the entire course extending two years. I must also thank my dear colleagues at work for their support and encouragement right up to the completion of this MBA

Last, but not the least, my heartfelt thanks go out to my dear parents and extended family whose unstinted support and encouragement helped me to complete this research on time.

TABLE OF CONTENTS

DECLARATION	I
ABSTRACT	II
ACKNOWLEDGMENT.....	IV
TABLE OF CONTENTS.....	V
LIST OF FIGURES	IX
LIST OF TABLES.....	X
LIST OF ABBRIVATIONS.....	XIII
CHAPTER 1: INTRODUCTION.....	1
1.1 Chapter Introduction.....	1
1.2 Background and motivation.....	1
1.3 Problem Statement.....	4
1.4 Research objectives.....	5
1.5 Significance of the study.....	6
1.6 Introduction to research methodology.....	6
1.7 Chapter summary.....	7
CHAPTER 2: LITERATURE REVIEW.....	8
2.1 Introduction.....	8
2.2 What is ERP?.....	8
2.2.1 Introduction.....	8
2.2.2 Origination of ERP	8
2.2.3 ERP defined	9
2.3 Evolution of ERP	10
2.3.1 Evolution stages.....	10
2.3.2 Architecture of today's ERP	11
2.4 How does an ERP effect to an organization?.....	12
2.4.1 Positive and negative impacts of ERP.....	13
2.5 Next generation ERPs.....	13

2.6	Aligning ERP with business strategies.....	14
2.6.1	Importance of IT alignment	14
2.6.2	Counter arguments.....	15
2.6.3	Challenges in attaining alignment	16
2.6.4	What is alignment?.....	17
2.6.5	Aignment dimensions.....	19
2.7	Measuring the Alignment.....	19
2.7.1	Importance of IT alignment	19
2.7.2	Typologies and taxonomies.....	19
2.7.3	Different fit models	20
2.7.4	Questionnaire items	22
2.8	Chapter summary.....	22
CHAPTER 3: RESEARCH METHODOLOGY.....		23
3.1	Introduction.....	23
3.2	Research steps.....	23
3.3	Research methodology.....	24
3.4	Chapter summary.....	27
CHAPTER 4: PRESENTATION OF THE BUSINESS CASE.....		29
4.1	Introduction	29
4.2	HTCM as a business case.....	29
4.3	Introduction to HTCM (Pvt) Ltd	30
4.3.1	Introducing HTCM.....	30
4.3.2	Origin and the evolution of the company.....	30
4.3.3	Long Term objectives.....	36
4.3.4	Business operations.....	37
4.4	Moving forward with the ERP.....	41
4.5	Challenges with strategic growth	44
4.6	Chapter summary.....	49

CHAPTER 5: FRAMEWORK IDENTIFICATION	50
5.1 Chapter Introduction.....	50
5.2 Deriving to the framework	50
5.3 Proposed framework.....	57
5.4 Definitions of Parameters	60
5.4.1 Aggression.....	61
5.4.2 Flexibility and proactiveness	65
5.4.3 Innovation.....	67
5.4.4 Strategic alliances.....	70
5.4.5 Factual approach in decision making	74
5.4.6 Future orientation.....	76
5.4.7 Internal defensiveness.....	78
5.5 Summary of parameters.....	81
5.5.1 SIBE verses SIES.....	81
5.5.2 SIES verses parameters used for measuring.....	84
5.6 Measuring the parameters values	91
5.7 Chapter summary.....	92

CHAPTER 6: APPLICATION OF THE FRAMEWORK AND DATA ANALYSIS	93
6.1 Introduction	93
6.2 Applying the framework for HTCM	93
6.3 Calculating the strategic alignment	94
6.4 Analysis of strategic alignment for each strategic dimension	95
6.4.1 Aggression.....	95
6.4.2 Flexibility and proactiveness	100
6.4.3 Innovation.....	103
6.4.4 Strategic alliances.....	106
6.4.5 Factual approach in decision making	111
6.4.6 Future orientation.....	115
6.4.7 Internal defensiveness.....	119

6.4.8 Overall strategic alignment.....	123
6.5 Applying the IS alignment matrix.....	125
6.6 Chapter summary.....	131
CHAPTER 7 : CONCLUSION	132
7.1 Conclusion.....	132
7.2 Limitations and future expansions.....	133
REFERENCES	135
APPENDIX - A	139



University of Moratuwa, Sri Lanka.
Electronic Theses & Dissertations
www.lib.mrt.ac.lk

LIST OF FIGURES

Figure	Page Number
Figure 1.1: The conceptual framework for ERP II (Moller, 2005)	03
Figure 2.1: ERP systems concept	10
Figure 2.2: Evolution of ERP systems	11
Figure 2.3: The conceptual framework for ERP II (Moller, 2005)	14
Figure 2.4: Venkatramans six different conceptualizations of fit in strategy research	20
Figure 4.1: The structure of HTMC	32
Figure 4.2: The structure of HTCM as at 2005	36
Figure 4.3: The structure of HTEL group	36
Figure 5.1: Potters five forces model	51
Figure 5.2: ERP strategic alignment framework	57
Figure 5.3: IS alignment matrix	58
Figure 6.1: Applying IS Alignment matrix for "Aggression"	126
Figure 6.2: How the matrix will look like after the investments	130

LIST OF TABLES

Table	Page Number
Table 5.1: SIBE verses SIES for aggression	81
Table 5.2: SIBE verses SIES for flexibility and proactiveness	82
Table 5.3: SIBE verses SIES for innovation	82
Table 5.4: SIBE verses SIES for strategic alliances	83
Table 5.5: SIBE verses SIES for factual approach in decision making	84
Table 5.6: SIBE verses SIES for Future orientation	84
Table 5.7: SIBE verses SIES for internal defensiveness	85
Table 5.8: SIES and parameters used for measuring aggressiveness	86
Table 5.9: SIES and parameters used for measuring flexibility and proactiveness	87
Table 5.10: SIES and parameters used for measuring innovation	88
Table 5.11: SIES and parameters used for measuring strategic alliances	89
Table 5.12: SIES and parameters used for measuring factual approach in decision making	90
Table 5.13: SIES and parameters used for measuring future orientation	91
Table 5.14: SIES and parameters used for measuring internal defensiveness	91
Table 6.1: SIBE values for aggressiveness dimension	96
Table 6.2: SIES values for engineer to order and make to order operation strategies	97
Table 6.3: SIES values for dynamic planning and scheduling	97
Table 6.4: SIES values for dynamic product design reviews	97
Table 6.5: SIES values for maintain high product quality	98
Table 6.6: SIES values for achieve faster deliveries	99
Table 6.7: Calculated moderation values for the aggressiveness dimension	99
Table 6.8: SIBE values for flexibility proactive ness dimension	100
Table 6.9: Table 6.9: SIES values for build partnerships	101
Table 6.9: SIES values for acquisitions	102
Table 6.9: SIES values for mergers and affiliations	102

Table 6.10: Calculated moderation values for the flexibility and proactiveness dimension	103
Table 6.11: SIBE values for proactiveness dimension	104
Table 6.12: SIES values for start new designs in quick time	104
Table 6.13: SIES values for start include new features in designs	105
Table 6.14: SiES values for online product costing and pricing	105
Table 6.15: Calculated moderation values for the innovation dimension	106
Table 6.16: SIBE values for strategic alliances dimension	107
Table 6.17: SIES values for alliances with customers	108
Table 6.18: SIES values for customer segmentation	108
Table 6.19: SIES values for differentiated service	109
Table 6.20: SIES values for better customer service	109
Table 6.21: SiES values for alliances with suppliers	110
Table 6.22: Calculated moderation values for the strategic alliances dimension	111
Table 6.23: SIBE values for factual approach in decision making dimension	112
Table 6.24: SiES values for better alliance with / analysis of customers	112
Table 6.25: SIES better alliance with / analysis of suppliers	113
Table 6.26: SIES values for manufacturing product lifecycle managements / product analysis	113
Table 6.27: SiES values for use of integrated information for decision making	114
Table 6.28: Calculated moderation values for the factual approach in decision making dimension	115
Table 6.29: SIBE values for factual approach in decision making dimension	116
Table 6.30: SiES values for forecasting key indicators of the operation (sales/ material / labor / price)	117
Table 6.31: SIES values for trend analysis (products / designs)	118
Table 6.32: Calculated moderation values for the factual approach in decision making dimension	119
Table 6.33: SIBE values for internal defensiveness dimension	120
Table 6.34: SiES values for reduced inventory	120
Table 6.35: SIES values for improved WIP efficiency	121

Table 6.36: SIES values for make to stock operations strategy	121
Table 6.37: SIES values for improved productivity	122
Table 6.38: Calculated moderation values for the internal defensiveness dimension	123
Table 6.39: Analysis of overall strategic alignment of the ERP	124
Table 6.40: SIBE values for each strategy verses SIES value for relative Functionality of ERP	125
Table 6.41: SBE and SIES values for “accurate communication of customer needs” relative to “dynamic product design reviews”	126
Table 6.42: SIBE values for each strategy verses SIES value for relative functionality of ERP after improving SOA and EAI.	129



University of Moratuwa, Sri Lanka.
Electronic Theses & Dissertations
www.lib.mrt.ac.lk

LIST OF ABBREVIATIONS

ERP - Enterprise resource planning
BPM - Business process management
SCM - Supply chain management
CRM - Customer relationship management
SRM - Supplier relationship management
PLM - Product lifecycle management
ELM - Employee lifecycle management
CPM - Corporate performance management
B2C - Portal collaborative business-to-consumer
B2B - Business-to-business
B2E - Business-to-employee
EAI - Enterprise application integration
BOI - Board of investment
BOM - Bill of materials
NCR - non-conformity report
BI - Business intelligence
ROI - Return on investment



University of Moratuwa, Sri Lanka.
Electronic Theses & Dissertations
www.lib.mrt.ac.lk