TOP MANAGEMENT SUPPORT AND PROJECT TEAM FOR SYSYTEM/IT PROJECT SUCCESS

MUSTAFA OTHMAN HUSSEIN AL-SAIGH

A dissertation submitted in partial fulfillment of the requirements for the award of the degree of

Master of Science (Information Technology - Management)

Faculty of Computing
Universiti Teknologi Malaysia

I dedicated this dissertation to my beloved Mother and Father for their endless support and encouragement.

ACKNOWLEDGEMENT

IN THE NAME OF ALLAH, MOST GRACIOUS, MOST COMPASSIONATE

All praises to Almighty Allah, the Most Merciful and the Most Benevolent for granting me the strength and courage to persevere throughout this painfully wonderful and fulfilling journey. This thesis would not have completed without the direct and indirect extended to me by the parties who warrant special mention.

In particular, I wish to express my sincere appreciation to my thesis supervisor, **Dr. NOR HIDAYATI ZAKARIA** for encouragement, guidance, critics, advices, motivation and friendship. Without her continued support and interest, this thesis would not have been the same as presented here. I am also indebted to Universiti Teknologi Malaysia (UTM) for this experience in study, thanks to the staff of UTM for their endless support. Special thanks to (MALAYSIA) for this good opportunity.

I would like to thank a special thanks to all my lovely family members for their moral support that kept me strong to complete this study; **Father, Mother, Wife, Brothers and Friends.**

ABSTRACT

Although business performance has long been theoretically hypothesized to be dependent on the level of underlying Information Technology capability, there is a lack of adequate empirical studies to support this claim. In this thesis the researcher discusses how significant top management support and project team towards the success of IT project/system. Significance of IT project/system is the backbone of the organization performance. Based on a real-life case study of developer systems, a model that depicts the level significance of top management support and project team towards information systems success was conducted. To achieve this objectives, quantitative survey method were conducted with 28 developers in CICT department in Universiti Teknologi Malaysia. Data obtained is used to measure the relationship between top management support and project team towards the success of IT project/system for the organization performance. Results show possibility in business performance due to support of top management and project team in accessing information systems success. Recommendations and guideline to avoid developer resistance in systems success are also presented. An equally important future direction is a psychological understanding of the developers' perspectives, attitude strength, attitude structure, and shift resistance to change.

ABSTRAK

Walaupun prestasi sesebuah organisasi telah lama dikaitkan dengan tahap keupayaan asas teknologi maklumat, masih terdapat kekurangan kajian empirikal yang mencukupi untuk menyokong tuntutan ini. Justeru itu, tesis ini membincangkan bagaimana sokongan pihak pengurusan atasan dan pasukan projek adalah penting bagi menentukan kejayaan sesebuah projek teknologi maklumat. Bagi menyokong hipotesis ini, kaedah tinjauan kuantitatif telah dijalankan dengan (28) pembangun sistem dari. Jabatan CICT di Universiti Teknologi Malaysia. Data yang diperoleh digunakan untuk mengukur sejauh mana hubungan di antara sokongan pengurusan atasan dan pasukan projek ke arah kejayaan projek IT / sistem bagi sesebuah organisasi. Hasil kajian menunjukkan wujudnya hubungan ke atas prestasi perniagaan yang bersandarkan kepada faktor sokongan pengurusan atasan dan pasukan projek dalam menentukan kejayaan sesebuah sistem maklumat. Cadangan dan garis panduan bagi mengatasi kekurangan dan pemaju kejayaan sistem juga turut dipersembahkan.

TABLE OF CONTENTS

CHAPTER		TITLE	PAGE		
	DE	CLARATION	ii		
	DEDICATION ACKNOWLEDGMENT				
	ACKNOWLEDGMENT ABSTRACT				
	ABS	STRAK	vi		
	TABLE OF CONTENTS				
	LIS	T OF TABLES	xii		
	LIS	T OF FIGURES	xiii		
1	INT	INTRODUCTION			
	1.1	Introduction	1		
	1.2	Problem Background	2		
	1.3	Centre for Information and Communication Technology	3		
	1.4	Research Question	4		
	1.5	Research Objectives	4		
	1.6	Scope of the Research	5		
	1.7	Significance of the Research	6		
	1.8	Chapter Summary	7		
2	LIT	TERATURE REVIEW	8		
	2.1	Introduction	8		
	2.2	System Implementation	9		
		2.2.1 Prepare for System Implementation	11		
		2.2.2 Deploy System	12		

	2.2.3	Characteristics of the System/IT Project	14		
	2.2.4	Characteristics of the Organization's System Success	15		
	2.2.5	Tight project controls on schedule and scope	16		
2.3	Top N	Management Support	16		
	2.3.1	Role and Characteristics of Top Management	17		
	2.3.2	Morale from top management	18		
	2.3.3	Top Management Project Planning	19		
	2.3.4	Open communication to the top managements	19		
2.4	Project Team				
	2.4.1	Implementation team project characteristics	20		
	2.4.2	Capable and committed project team members	21		
	2.4.3	Project Team appropriate and Timely Training	21		
	2.4.4	Clear and measurable project objectives	22		
2.5	Inforn	nation system success measurement model	22		
2.6	Effect Comm	ive Communication between project team and nunity	27		
2.7	Goals and Objectives of the Systems/IT Projects				
2.8	Training and Education from Project Team				
2.9	Change Management 29				
2.10	10 Management of Risk				
2.11	1 Issues with IS Success Models and Measurement 3				
2.12	2 Choice of IS Success Constructs				
2.13	13 Success Model Completeness				
2.14	The	Conceptual Model	33		
2.15	Iden	tifying a Pool of Measures and Dimensions	34		
2.16	16 The Priori Model				
2.17	Info	rmation System Success	37		
	2.17.	l Individual Impact	38		
	2.17.2	2 Information Quality	42		
	2.17.3	3 System Quality	43		
	2.17.4	4 Organizational impact	44		

	2.18	Model Development	48	
	2.19	Chapter Summary	50	
3	ME	METHODOLOGY		
	3.1	Introduction	52	
	3.2	Research Methodology	53	
	3.3	Research Approach	56	
	3.4	Research Strategy and Design	57	
	3.5	Research Design	58	
	3.6	Data Collection and Analysis	60	
		3.6.1 Questionnaire	60	
		3.6.2 Research Quality	61	
		3.6.3 Population	61	
		3.6.4 Justifications from Developers Perspective	62	
		3.6.5 Sampling Procedure	63	
		3.6.6 Sample Size	64	
		3.6.7 Primary Data	64	
		3.6.8 Ethical Considerations	65	
	3.7	Data Analysis	65	
	3.8	Chapter Summary	66	
4	RES	SEARCH MODEL & HYPOTHESES DEVELOPMENT	67	
	4.1	Introduction	67	
	4.2	Sample of Organization	68	
		4.2.1 Center Information and Communication Technology CICT (Case Study)	68	
	4.3	Model Development	70	
		4.3.1 Top management support	61	
		4.3.2 Project Team	71	
		4.3.3 System/IT Project Success	72	
		4.3.3.1 Organizational Impact	72	
		<u> </u>		

		4.3.	.3.2 System quality	73
		4.3.	.3.3 Information quality	74
		4.3.	.3.4 Individual Impact	75
	4.4	Hypotheses	s	76
	4.5	Proposed N	Model	76
	4.6	Questionna	aire Development	77
	4.7	Chapter Su	ımmary	79
5	FIN	DING		80
	5.1	Introduction	n	80
	5.2	Data descri	iption	81
		5.2.1 Dat	ta collection	81
		5.2.2 Stat	tistical Descriptive	82
	5.3	Demograph	nic Results	82
		5.3.1 Exp	perience in General	83
		5.3.2 Exp	perience in System Development	84
	5.4	Measureme	ent Model Analysis	86
	5.5	Validity an	nd Reliability	87
		5.5.1 Cro	onbach's alpha	88
	5.6	Validity Te	est	90
		5.6.1 Cor	ntent Validity	90
		5.6.2 Ave	erage Variance Extracted	91
		5.6.3 Dis	criminant Validity	92
	5.7	Hypotheses	s Testing	93
		5.7.1 Stru	uctural Model Analysis	92
		5.7.2 Coe	efficient of Determination (R2)	94
		5.7.3 PLS	S Algorithm	95
		5.7.4 Boo	otstrapping Procedure	96
	5.8	Conclusion	1S	98
	5.9	Chapter Su	ımmary	100

6	COI	NCLUSION & RECOMMENDATIONS	102	
	6.1	Introduction	102	
	6.2	Achievement	103	
		6.2.1 Achievement 1	103	
		6.2.2 Achievement 2	104	
		6.2.3 Achievement 3	105	
	6.3	Limitation	106	
		6.3.1 Limitations in the Questionnaire Deployment	107	
		6.3.2 Limitations in the Research Findings	108	
		6.3.3 Limitations of the Respondents	109	
	6.4 6.5	Future Works and Recommendations	110	
		Conclusion	111	
	REI	FERENCES	113	
	APPENDEIX			

LIST OF TABLES

TABLE NO.	TITLE	PAGE
2.1	Empirical Studies DeLone and McLean (1992-2005)	32
2.2	Description of previous studies	44
3.1	Description of Thesis Operation	59
4.1	Questionnaires References	78
5.1	Working Experience	83
5.2	Experience in System Development	85
5.3	Cronbach's Alpha questionnaire reliability analysis	89
5.4	Composite Reliability	89
5.5	AVE (Average Extracted)	92
5.6	Square Root of AVE	93
5.7	Related to β, t-values and p-values	97

LIST OF FIGURES

FIGURE NO.	. TITLE	PAGE
2.1	System success measurement model (DeLone	
	and McLean, 1992).	23
2.2	The updated System success measurement mode	
	(DeLone and McLean, 2003).	25
2.3	The Conceptual Model (Gable, 2008)	34
2.4	The IS-Impact Measurement Model (Gable, 2008)	35
2.5	The Priori Model of Gable 2008Working Experience	37
3.1	Research Flow Chart	55
3.2	Tools of Research	56
4.1	Development Model	70
5.1	Working Experience	84
5.2	Experiences in System Development	86
5.3	Results of Structural Model	95

CHAPTER 1

PROJECT OVERVIEW

1.1 Introduction

Organizations are investing heavily in information technology (IT) systems to effectively integrate and coordinating these activities as well as shape the way they conduct their business. Success systems (IT-Projects) have taking a central position of competition ability between enterprises and organizations. However the most crucial issue is implementing the IT-Projects system well, successful implementation is the first step that leads to achieve success systems (Pan, Nunes, & Peng, 2010). The success of systems lies with usage, maintenance and intensification during the system's post-implementation and exploitation phase (Huang, 2004). Many researchers have referred to the success of systems (IT-Projects) in successive organizations in gaining benefit of implementing IT-Projects.

1.2 Problem Background

During the growth of a competitive global environment, despite the benefits that can be achieved from a successful systems (IT-Projects), there is already evidence of high failure risks in success systems (IT-Projects). Too often, project managers focus mainly on the technical and financial aspects of the implementation project, while neglecting or putting less effort on the nontechnical issues. Therefore, one of the major research issues in IT-Projects today is the study of success systems, there is considerable pressure on most organizations to make their operational, tactical, and strategic processes more efficient and effective An information system (IS) is a group of components which can increase competitiveness and gain better information for decision making. Therefore various organisations have chosen to apply this group of components to their associations (Burton-Jones et al., 2006). Consequently, the organisations decide to implement IS in order to improve the effectiveness and efficiency of the organisations. Information systems have become a major function area of business administration. The systems, nowadays, plays a vital role in the e-business and e-commerce operations, enterprise collaboration and management, and strategic success of the business (Hevner et al., 2004)...

Many companies have been implementing IS in their respective organizations and reorganising their business processes (Rajagopal, 2008). Computer-based IS mainly depend on IT; consequently, successful IS can be measured by the effectiveness of IT to support an organisation's strategies (O'Brien, 2004). The demand for efficient and effective use of IT is also gradually increasing at the present time (Beaumaster, 2002). An organisation that adopted an IT system to provide special attention to planning, acquisition, and implementation of these technologies. Those associates must be aware of the various number of issues which are a part of the ability of the organisation to achieve effective IT implementation (Beaumaster, 2002).

1.3 Centre for Information and Communication Technology

CICT Center for Information and Communication Technology one of the most important department in UTM this department is responsible about all IT-Projects and Communication technology. The success or failure of systems are related to this department so the interesting in this department is a basic need for the success of the rest of the regulations relating to UTM. All the systems in CICT need supporting from top management to be accessible for user and also project to avoid the failure implementing their systems/IT projects. The purpose of Information and Communication Technology to create to recognize faculty, Divisions and Units are continually striving to enhance the use of ICT and innovative in improving the effectiveness and quality of service to customers so one of the most critical factors for system success is project team and vision of top management about develop this department. This study also aims to improve the image and competitiveness of the Faculty, Divisions and Units in the execution of tasks and activities using ICT as well as create innovative and creative transformation (mission of project team). The aim is to see specifically how the Faculty, Division or Unit using an ICT application in detail and its effectiveness in implementing and developing their core business.

In addition the research will consider a discussion on measurement and interrelationship to be interesting and useful subject with better knowledge of the important of system success (IT-Projects) and their cause effect, managerial decision to mitigate the risks can made better fit to the internal business process of the company. There are no real problems in the application of information technology systems in CICT, but through the support of top management and the project team have better performance and more quality, and study here looking for the best solutions and the most quality for implementing system/IT project, this is the motivation that prompted the researcher to study these factors and the success rate of interest in these systems when factors. (Pan, Nunes, & Peng, 2010).

1.4 Research Question

The main purpose of this research is to help the organization to recognize and understand top management support and project team of system/IT project implementation. Identifying the factors can support decision making for system/IT project implementation and strategic management. This research will investigate these two factors and which of them are the most critical for the organizations and to find out the relationship that exist between them. The strategic questions that arise from the problem background are as follows:

- i. What is the effect of top management support towards systems/IT projects success?
- ii. What is the effect of project team towards systems/IT projects success?
- iii. How much the contribution of top management support and project team on systems/IT Projects success?

1.5 Research Objectives

Today's organizations have advance from the implementation phase to exploitation phase, the successful organizations are now looking into post Implementation. In these days has become a must implement system/IT project to get a competitive advantage (Gable, 2008). The systems/IT project investments are under increasing scrutiny and pressure to justify their value and contribution to the productivity, quality, and competitiveness of organizations. System/IT-Project Success as an increasingly importance topic that requires immediate attention from IS researchers.

The aim of this research to understand and explore how contribution top management support and project team that Company may encounter when implementing system/IT project. The research aimed to explore the impacts, probability of occurrence and frequency of identified risk events, as well as to investigate the correlations between them. This research also attempts to generate a set of meaningful findings that can be used by practitioners as an important tool for risk prevention, management and control, for strategic planning and decision making in systems/IT projects. It is expected to be of particular interest to IS researchers, practitioners and organizational user.

The objectives of this research are;

- i. To find the influence of top management support towards system/IT project success.
- ii. To find the influence of project team towards system/IT project success.
- iii. To find the level of contribution of top management support and project team on system/IT project implementation success.

1.6 Scope of the Research

This research focused on top management support and project team as these play a central role throughout the system/IT project implementation, usage and evaluation process. The system's extensiveness, design and implementation approach depend in good part on the motives leading to its adoption by the organization (Parr and Shanks, 2000). This research has extended the scope of others works who have explored the differences in the factors affecting system/IT project success, and will focus on the important of top management support and project team. The research involves actual

system/IT project members and employees at all levels within the organization to obtain accurate and constructive feedback, during an actual implementation of IT project. This research is narrowed down based on the chosen problem area the research is done from general to find out the more specific scopes for the research. The scopes of the research have been identified as follows:

- i. This research focus on CICT department that used system/IT project within Universiti Teknologi Malaysia UTM.
- ii. Responders are developers' staff from CICT department in UTM.

Emphasis was placed on CICT department precisely because it is the only section Responsible for application and systems development in the organization of scope Universiti Teknologi Malaysia. All the developers were in this department and there are no other developers in this organization. Therefore, these developers are the primary column and central in Universiti Teknologi Malaysia for development the systems in this case study. Hence, group of developers were selected as a sample of case study to be appointed by the search due to the important was mentioned above, to implement the desired research objectives.

1.7 Significance of the Research

System/IT project have continued to grow in public sector organizations. Given the significant financial investment and important risks involved, it is critical that system/IT project are properly implemented and manage to ensure successful implementation and achieve the desired goals of the adaptation of these systems.

It is important therefore, that organizational leader have appropriate information available to make intelligent, strategic decision when considering potential IT projects. It is also important that they fully understand the risk associated with the implementation of IT project. There are a lot of benefits can be achieved from CICT, especially from development department to Universiti Teknologi Malaysia. these are some benefits from this study:

- Enhance the efficiency of information and communications technology in the university community.
- Expansion of the use of information technology in all activities of the university.
- The provision of infrastructure facilities and information and communication technology are secured.
- Become a centre of reference and implementation of information and communication technology in university.
- Centre for Development of Software / Applications at the University.
- Explore new technology and implementation of information and communication technology.

1.8 Chapter Summary

This chapter provides the overall flow of the research, which consist of the problem background, the objectives, scope and the important of the research. It provides better understanding of the usages of system/IT projects strategic, contribution of top management support and project team in implementation of IT project to achieve the research objectives. The next chapter will present the literature review of the research, which include the areas of the research.

REFERENCES

- Abdinnour-Helm, S., Lengnick-Hall, M. L.and Lengnick-Hall, C. A. (2003). Preimplementation attitudes and organizational readiness for implementing an enterprise resource planning system. *European journal of operational research*, 146(2), 258-273.
- Abdinnour-Helm, S., Lengnick-Hall, M. L.and Lengnick-Hall, C. A. (2003). Preimplementation attitudes and organizational readiness for implementing an enterprise resource planning system. *European journal of operational research*, 146(2), 258-273.
- Adam, F.and O'doherty, P. (2000). Lessons from enterprise resource planning implementations in Ireland–towards smaller and shorter ERP projects. *Journal of information technology*, 15(4), 305-316.
- Adam, F.and O'doherty, P. (2000). Lessons from enterprise resource planning implementations in Ireland–towards smaller and shorter ERP projects. *Journal of information technology*, 15(4), 305-316.
- Aladwani, A.M. (2002a) An Integrated Performance Model of Information Systems Projects. *Journal of Management Information Systems*, 19 (1), 185-210.
- Austin, P. and Tu, J. V. (2004). "Temporal changes in the outcomes of acute myocardial infarction in Ontario *Journal of Personality and Social Psychology* 16(1)1257–61.
- Ayyagari, R., Grover, V., & Purvis, R. (2011). Technostress: Technological Antecedents and Implications. *Management Information Systems Quarterly*, 35(4), 831-858.
- Babbie, E. (2007). The practice of social research (11th ed.). Belmont, USA: Thomson high Education.

- Ballantine, J., Bonner, M., Levy, M., Martin, A., Munro, I., and Powell, P. L. (1996). "The 3-D Model of Information Systems Success: The Search of the Dependent Variable Continues," *Information Resources Management Journal* (9:4). 5-14.
- Baron, R. M. and Kenny A. (1986), "Moderator-Mediator Variables Distinction in Social Psychological Research: Conceptual, Strategic, and Statistical Considerations," *Journal of Personality and Social Psychology*, 51 (6), 1173-82.
- Barua, A., Kriebel, C., and Mukhopadhyay, T. (1995). "Information Technologies and Business Value: An Analytic and Empirical Investigation," Information Systems Research (6:1) 3-23.
- Beaumaster, S. (1999). *Information technology implementation issues, an analysis*.

 Unpublished manuscript, Faculty of the Virginia Polytechnic Institute and State University.
- Beaumaster, S. 2002. 'Local Government IT implementation issues: A challenge for public administration'. *Proceedings of 35th Annual Hawaii International Conference on System Sciences*, IEEE Computer Society, pp. 1725-1734.
- Benbasat, I. and R. W. Zmud (2003) "The Identity Crisis Within The IS Discipline: Defining And Communicating The Discipline's Core Properties," *MIS Quarterly*, (27)2, 183-194.
- Bhanu, M. and Kapur, D. (2004), "Indian Higher Education Reform: From Half-Baked Socialism to Half-Baked Capitalism". *Center for International Development at Harvard University*, 11(2), 88-110.
- Bhatti, T. (2005). *Critical success factors for the implementation of enterprise resource* planning (ERP): Empirical validation. Paper presented at the The Second International Conference on Innovation in Information Technology (IIT'05).
- Bingi, P., Sharma, M.K., & Godla, J.K. (1999). Critical Issues Affecting an ERP Implementation. *Information Systems Management*, 7-14.

- Bradford, M. and Florin, J. (2003), Examining the role of innovation diffusion factors on the implementation success of enterprise resource planning systems, *International Journal of Accounting Information Systems*, 205 – 225.
- Brown, C. and Vessey, I. (1999). "ERP Implementation Approaches: Toward a Contingency Framework", International Conference on Information Systems.
- Brown, K. W., Cozby, P. C., Kee, D. W.andWorden, P. E. (1999). *Research methods in human development*: Mayfield Pub.
- Bryman, A.(2008). Social research methods (3rd ed.). Oxford: Oxford University Press. Creswell, J.W. (2006). Qualitative inquiry and research design: choosing among five traditions (2nd ed.). Thousand Oaks, CA: Sage.
- Brynjolfsson, E., Hitt, L., and Yang, S. (2002). "Intangible Assets: Computers and Organizational Capital," Brooking Papers on Economic Activity, (1) 137-181.
- Buellingen, R. Franz, K. Woerter, E. (2004). "Development perspectives, firm strategies and applications in mobile commerce". *Journal of Business Research* 57 (12), 1402–1408
- Burton-Jones, A. and D. W. Straub (2006) "Reconceptualizing System Usage: An Approach and Empirical Test," *Information Systems Research* (17) 3, pp. 228-246.
- Calvin Chan & Osmond Chen, (2000). "A User-Centered Approach to Student Information Systems Design".
- Castells, M. (2001) "Universities as dynamic systems of contradictory functions" in J. Muller et. Al. (eds) *Challenges of globalisation. South African debates with Manuel Castells*, 206-223.
- Chand, D., Hachey, G., Hunton, J., Owhoso, V. and Vasudevan, S. (2007). A balanced scorecard based framework for assessing the strategic impacts of ERP systems, *Computers in Industry*, 56: 558–572.

- Chen, H. H., Chen, S. C.and Tsai, L. H. (2009). A study of successful ERP–from the organization fit perspective. *Journal of Systemics, Cybernetics and Informatics*, 7(4), 8-16.
- Chin, W. W. (1998)."Issues and opinion on structural equation modeling". *MIS Quarterly*, 22(1), 7-16.
- Chung, S. H.and Snyder, C. A. (2000). ERP adoption: a technological evolution approach. *International Journal of Agile Management Systems*, 2(1), 24-32.
- Cohen, R. J., and Swerdlik, M. E. (2009). Psychological testing and assessment (5th ed.). Boston, MA: McGraw-Hill.
- Cronbach, L. J. (1951). "Coefficient alpha and the internal structure of tests.î Psychometrika 297-334.
- DeLone, W. H., and McLean, E. R. (1992). Information systems success: The quest for the dependent variable. Information Systems Research, 3(1), 60–95.
- DeLone, W. H., and McLean, E. R. (2002). Information systems success revisited. *In Proceedings of the 35th Hawaii international conference on system sciences*, 7–10.
- DeLone, W. H., and McLean, E. R. (2003). The Delone and Mclean model of information systems success: A ten-year update. *Journal of Management Information Systems*, 19(4), 9–30.
- Doll, W. and TOorkzadeh, G. (1994) A confirmatory factor analysis of the end-user computing satisfaction instrument. *MIS Quarterly*, 18(4) 453–461.
- Donovan, S. (1999). Effects of cooperative learning on undergraduates in science, mathematics, engineering, and technology: A meta-analysis. Review of Educational Research.
- Drucker, F. (2001). "The Next Society," The Economist, http://www.economist.com/node/770819.

- Duplaga, E.A. and Astani, M. (2003) Implementing ERP in manufacturing, *Information Systems Management*, 20 (3), 68-75.
- Earl, M. and Feeny, D. 2004. "How to be a CEO for the Information Age". *Sloan Management review*, 11-23.
- Edwards, J. R., Bagozzi, R. P. (2001). "Multidimensional Constructs in Organizational Behavior Research" *Journal of Organizational and End User Computing* 4 (2), 144-192.
- Eiselen, R., Uys, T., Potgieter, N. (2005). Analysing survey data using SPSS13: A workbook. University of Johannesburg.
- Fisher, B.S., Daigle, L.E., Cullen, F.T., & Turner, M.G. (2007). "A measure of information systems effectiveness". *MIS Quarterly*, 30(1):6–38.
- Fornell C, Larcker DF. (1981)." Evaluating structural equation models with unobservable variables and measurement error" 39–50.
- Francalanci, C. (2001), Predicting the Implementation Effort on ERP Projects, Journal of Information Technology, 16(1), 33-48.
- Gable, G. G. and Sedera, D. (2010). Knowledge management competence for enterprise system success. *The Journal of Strategic Information Systems*, 19(4), 296-306.
- Gable, G., Sedera, D. and Chan, T. (2008) "Re-conceptualizing Information System Success:the IS-Impact Measurement Model" *Journal of the Association for Information Systems*, 9(7). 377-408.
- Garg, P. (2010). Critical success factors for enterprise resource planning implementation in Indian retail industry: An exploratory study. *arXiv* preprint *arXiv*:1006.5749.
- Gefen, D., and Straub, D. W. (2001). "Validation in Information Systems Research: A State-of-the-Art Assessment," *MIS Quarterly*, 25(1) 1-16.
- Glaser, B., (1999). "Keynote address for the fourth annual qualitative health research conference". Qualitative Health Research, 9(6), 836–845.

- Gliem, J., & Gliem, R. (2003). "Calculating, interpreting, and reporting Cronbach's Alpha Reliability Coefficient for Likert-type scales". *Journal of Organizational and End User Computing*, (24:2) 33-53.
- Gorla, N. (2012). "Information Systems Service Quality, Zone of Tolerance, and User Satisfaction," *Journal of Organizational and End User Computing*, (24:2) 50-73.
- Gray, C. and Larson, E. (2000). Managing Project Teams, Project Management Teams, PP. 293-329.
- Green, S. B., & Salkind, N. J. (2005). Using SPSS for Windows and Macintosh:

 Analyzing and understanding data (4th ed.). Upper Saddle River, NJ: Pearson.
- Gregor, S. (2006) "The nature of theory in information systems," *MIS Quarterly* (30)3, 611-642.
- Haines, M.N., Goodhue, D.L. (2003). "Implementation Partner Involvement and knowledge transfer in the context of ERP Implementation". *International Journal of Human computer interaction*, 16(91), 23-28.
- Haines, M.N., Goodhue, D.L. (2003). Implementation Partner Involvement and knowledge transfer in the context of ERP Implementation. *International Journal of Human computer interaction*, 16 \91\0, 23-28.
- Hair, J.F. Jr., Anderson, R.E., Tatham, R.L., & Black, W.C. (1998). Multivariate Data Analysis, (5th Edition). Upper Saddle River, NJ: Prentice Hall.
- Halim, H. A. (2009). testing the dimensionality of integrated human resource management strategy among manufacturing organizations. *International Journal of Business and Management*, 4(10), P120.
- Harrim, H., & Alkshali, S. (2008) "Employees Empowerment and Its Effect on Team Effectiveness: Field Study on Jordanian Costruction Firms". *Jordan Journal of Business Administration*, Vol.4, No.1, pp.107-117.

- Helman, T. and K. Fertalj (2003). A critique of web application generators. *Information Technology Interfaces*, 8 (11), 73-81.
- Henseler, J., Fassott, G., Dijkstra, T. K., and Wilson, B., (2009). "Analysing quadratic effects of formative constructs by means of variance-based structural equation modelling". *European Journal of Information Systems*, 21 (1), 99-112.
- Hevner, A. R., March, S. T., Park, J. and Ram, S. (2004) Design science in information system research. *MIS Quarterly*, 28 (1), 75–105.
- Hsu, H.-H., Chen, W.-H., & Hsieh, M.-J. (2006). Robustness testing of PLS, LISREL, EQS and ANN-based SEM for measuring customer satisfaction. Total Quality Management and Business Excellence, 17(3), 355–372.
- Huang, J. C., Newell, S., Poulson, B.and Pan, S. L. (2001). Enterprise ResourcePlanning Systems Implementation: A Knowledge-Focused Perspective.Warwick Business School Research Papers.
- Huang, Z. (2010). A compilation research of ERP implementation critical success factors. *Journal of Issues in Information Systems*, 11(1), 507-512.
- Hustad, E.and Olsen, D. H. (2011). Exploring the ERP pre-implementation process in a small-and-medium-sized enterprise: a case study of a Norwegian retail company.
- Ifinedo, P. (2011). "An empirical analysis of factors influencing Internet/e-business technologies adoption by SMEs in Canada". *International Journal of Information Technology & Decision Making*, 10(4), 731–766.
- Jafari, S.M., Osman, M.R., Yusuff, R.M. and Tang, S.H. (2006). ERP Systems Implementation in Malaysia: The Importance of Critical Success Factors. *International Journal of Engineering and Technology*, 3(1), 125-131.
- Jarvenpaa, S.L. & Ives, B. (1991) "Executive Involvement and Participation in the Management of Information Technology", *MIS Quarterly*, 15(2), 204-227.

- Jennex, M.E. and L. Olfman, (2002) "Assessing Knowledge Management Success / Effectiveness Models" *Proceedings of the 37th Hawaii International Conference on System Sciences*.
- Kansal, V.and Alhemoud, A. (2011). Evaluating The Antecedents And Consequences of ERP Implementation. *Review of Business Information Systems (RBIS)*, 10(2), 105-114.
- Ke, W.and Wei, K. K. (2008). Organizational culture and leadership in ERP implementation. *Decision Support Systems*, 45(2), 208-218.
- Kettinger, William J. and Choong C. Lee. (1997). "Pragmatic Perspectives on the Measurement of Information Systems Service Quality". *MIS Quarterly*, 21.2 223-240.
- Kline, N. B. (2010). "Principles and Practice of Sturutural Equation Modeling". Journal of Management Information Systems 21(1): 17-54.
- Koch, C. (2001). Enterprise Resource Planning: Information Technology as a Steamroller for Management Politics. *Journal of Organizational Change Management* 14 (1), 64-78.
- Kumar, V., Maheshwari, B.andKumar, U. (2003). An investigation of critical management issues in ERP implementation: emperical evidence from Canadian organizations. *Technovation*, 23(10), 793-807.
- Kzatz, D.A. and Thomas J.G. (2011), Strategic Planning Failure. Available at http://www.referenceforbusiness.com/management [accessed 20th August, 2011]
- Lin, W. T. and B. B. M. Shao (2000) "Relative Sizes of Information Technology Investments and Productive Efficiency: Their Linkage and Empirical Evidence," *Journal of the Association for Information Systems*.
- López-Nicolás, C., Molina-Castello, F. J. & Bouwman, H. (2008). "An assessment of advanced mobile services acceptance: Contributions from TAM and diffusion theory models". *Information & Management* 45, 359-364.

- Love, J. M., Constantine, J., (2004). "The role of Early Head Start programs in addressing the child care needs of low-income families with infants and toddlers".
- Mabert, V.A., Soni, A. and Venkataramanan, M. (2003) The impact of organization size on enterprise resource planning (ERP) implementations in the US manufacturing sector, *Omega-International Journal of Management Science*, 31 (3), 235-246.
- MacCallum, R. C. and M. W. Browne (1993) "The use of causal indicators in covariance structure models: Some practical issues.," Psychological Bulletin, 533-541.
- Marks, M. A., Sabella, M. J., Burke, C. S., & Zaccaro, S. J. (2002). The impact of cross-training on team effectiveness. *Journal of Applied Psychology*, 87, 3–13.
- Markus, M. L. Axline, S. Petrie, D. and Tanis C. (2000). Learning from Adopters' Experiences with ERP-Successes and Problems, *Journal of Information Technology*, 15, PP. 245-265.
- Martin, John and Sara, Carl (2001). "The Key to Unlocking ERP Implementation.

 Midrange Enterprise"
- McAlary S. (1999). Three Pitfalls in ERP Implementation Strategy and Leadership. P. 49.
- Melone, N. P. (1990) "A Theoretical Assessment Of The User-Satisfaction Construct," *Management Science*, (36)1. 76-91.
- Melville, N., Kraemer, K. L., and Gurbaxani, V. 2004. "Review: Information Technology and Organizational Performance: An Integrative Model of IT Business Value," *MIS Quarterly* (28:2), pp. 283-322.
- Miles, M. B. and Huberman, A. M. (1994). Qualitative Data Analysis: An Expanded Sourcebook.

- Molla, A.and Loukis, I. (2005). Success and failure of ERP technology transfer: a framework for analysing congruence of host and system cultures: University of Manchester. Institute for development policy and management (IDPM).
- Murphy, K., & Davidshofer, C. (1998). Psychological testing: Principles and applications (4th Ed). Englewood Cliffs, NJ: Prentice Hall.
- Myers, B. L., Kappelman, L. A., and Prybutok, V. R. (1997). "A Comprehensive Model for Assessing the Quality and Productivity of the Information Systems Function".
- Nah, F. F. H., Lau, J. L. S.and Kuang, J. (2003). Critical factors for successful implementation of enterprise systems. *Business process management journal*, 7(3), 285-296.
- Norris, G., J. R. Hurley, K. M. Hartley, J. R. Dunleavy and J. D. Balls (2000). 'E-Business and ERP Transforming the Enterprise'.
- Nunnally, J. (1967). Psychometric theory. New York, McGraw Hill.
- O'Brien, Mahon. (2004). Commentary on Heidegger's "The Question Concerning Technology". *Management information systems: managing information technology in the business enterprise*. 12(2), 32-36.
- O'Leary, Daniel (2000). Enterprise Resource Planning Systems Systems, Life Cycle, Electronic Commerce and Risk. Cambridge, United Kingdoms: The Cambridge University Press.
- Palaniswamy, R., Frank, T., (2000), "Enhancing manufacturing performance with ERP systems," *Information Systems Management*, 17:3, pp. 43-55.
- Parr, A. and Shanks G. (2000) A Model of ERP Project Implementation. *Journal of Information Technology* 15(2), pp 289-303.
- Pathirage, Y. Jayawardena, L. and Rajapaksha, T. (2012). "Impact of Management Support for Team Performance: A Sri Lankan Case study in Apparel Industry". *Tropical Agricultural Research*, 23(3) 228 – 236.

- Peng, G. C.and Nunes, M. B. (2010). Barriers to the successful exploitation of ERP systems in Chinese state-owned enterprises. *International Journal of Business and Systems Research*, 4(5), 596-620.
- Petter, S., D. Straub, and A. Rai (2007) "Specifying Formative Constructs in Information systems research," *MIS Quarterly*, (31)4 623-656.
- Pitt, LF. Watson RT and Kavan, CB. (1995). "A measure of information systems effectiveness". *MIS Quarterly* 19(2), 173–187.
- Plotkin, Hal. (1999) ERPs: "How to make them work". Harvard Management Update.
- Poston, R.and Grabski, S. (2001). Financial impacts of enterprise resource planning implementations. *International Journal of Accounting Information Systems*, 2(4), 271-294.
- Pree, W.: "Design Patterns for object-oriented software", Addison Wesley, 1994.
- Raghunathan, T. S. (1992). "Impact of the CEO's participation on Information System Steering Committees". " *Journal of Management Information Systems* 21(1): 83-96.
- Ragu-Nathan, T. S., & Ragu-Nathan, B. S. (2007). The Impact of Technostress on Role Stress and Productivity. *Journal of Management Information Systems*, 24(1), 301-328.
- Rajagopal, P. (2008). An innovation-diffusion view of implementation of enterprise resource planning (ERP) systems and development of a research model. *Information & Management*, 40, 87–114.
- Ringle, C. M., Sarstedt, M., Wende, S., and Will, A. (2005). SmartPLS 2.0 M3. Available at http://www.smartpls.de.
- Robey, D., Ross, J.W., and Boudreau, M.-C (2002). "Learning to Implement Enterprise Systems: An Exploratory Study of the Dialectics of Change," *Journal of Management Information Systems*, 17-46.

- Robinson, J. P., Shaver, P. R. and L. S. Wrightsman (1991). "Criteria for scale selection and evaluation". *Measures of Personality and Social Psychological Attitudes*. 1-16.
- Robson, C. (2002). Real world research: a resource for social scientists and practitioner researchers, Oxford: Willey-Blackwell.
- Rode, J., M. A. Pérez-Quiñones and M. B. Rosson (2004). "The challenges of web engineering and requirements for better tool support". *International Journal on Software Tools for Technology Transfer.* 9(4), 359-363.
- Sabherwal, R., Jeyaraj, A. andChowa, C. (2006). Information

 System Success: Individual and Organizational Determinants.

 Management Science, 52 (12), 1849-1864.
- Sammon, D.and Adam, F. (2002). *Decision making in the ERP community*. Paper presented at the Proceedings of the 10th European Conference on Information Systems.
- Sarker S., and Lee A.S. (2003), "Using a case study to test the role of three key social enablers in ERP implementation", *Information & Management*, Vol. 40, No. 8, pp.813–829.
- Saunders, M.N.K., & Lewis, P. (2011). Doing Research in Business and Management. Harlow, United Kingdom.
- Scavo, Frank (1998). Common Factors in Ultra-Rapid ERP Implementations. Systems Specialties, Inc.
- Scheuren, F. (2004). What is a Survey?
- Seale, C. (1999). Quality in qualitative research. Qualitative Inquiry, 5(4), 465-478.
- Sedera, D., Gable, G.and Chan, T. (2003). *ERP success: does organization size matter?*Paper presented at the Proceedings of the Seventh Pacific Asian Conference on Information Systems.

- Shang, S., and Seddon, P.B. (2002) "Assessing and Managing the Benefits of Enterprise Systems: the Business Manager's Perspective". *Information Systems Journal*, pp 271-299.
- Sharman, H. (1992). Bums on Seats: How to publicise you Show, A & C Black, London.
- Shin, B. (2003) "An Exploratory Investigation of System Success Factors in Data Warehousing," *Journal of the Association for Information Systems*, 141-170.
- Sobyanina, E.and Mockutė, I. (2011). *ERP post-implementation: risk assessment*. Mälardalen University.
- Sohal, A.S., MOSS, S, and NG L. (2001): Comparing IT success in manufacturing and service industries. *International Journal of Operations & Production Management*, 21(1/2): 30–45.
- Somers, M. and Nelson, K. (2001). "The Impact of Critical Success Factors across the Stages of Enterprise Resource Planning Implementations". Hawaii International Conference on System Sciences.
- Somers, T. M., Nelson, K. G. and Karimi, J. (2003) Confirmatory Factor Analysis of the End-User Computing Satisfaction Instrument: Replication within an ERP Domain, Decision Sciences, 34(3),595-621.
- Spalding N.J. (1998). Reflection in Professional Development: A Personal Experience.

 B.J. of Therapy and Rehabilitation. July 1998, Vol. 5, No. 7.
- Stratman, J.K. and Roth, A.V. (2002) Enterprise resource planning (ERP) competence constructs: Two- stage multi-item scale development and validation, Decision Sciences, 33 (4), 601-628.
- Sumner, M. (2000). Risk factors in enterprise-wide/ERP projects. *Journal of information technology*, 15(4), 317-327.
- Sun, A. Y. T., Yazdani, A.and Overend, J. D. (2005). Achievement assessment for enterprise resource planning (ERP) system implementations based on critical

- success factors (CSFs). *International Journal of Production Economics*, 98(2), 189-203.
- Sweat, J. (1999). "Learning Curve Savvy Companies Apply The Painful Lessons Learned from Implementing Enterprise Resource Planning Software to Next-Generation Applications, 8/1211999, p.44.
- Teo, T. S. H. & Ang J. S. K. (2001). "Critical Success Factors in th Alingnment of IS Plans with Business Plans" *Journal of Management Information Systems* 21(1): 17-54.
- Turton, J. W. (2010). "A managers view of critical success factors necessary for the successful implementation of ERP". University of Chester, United Kingdom.
- Umble, E. J., Haft, R. R., & Umble, M. M. (2003). Enterprise Resource Planning: Implementation Procedures and Critical Success Factors. *European Journal of Operational Research*, 146, 241–57.
- Velcu, O. (2007). "Exploring the Effects of ERP Systems on Organizational Performance Evidences from Finnish Companies". *Journal of Industrial Management and Data Systems*, 1316-1334.
- Walsham, G. (1993) "Interpreting Information Systems in Organizations", John Wiley, Chichester.
- Wang RW and Strong DM (1996) Beyond accuracy: what Wang RW and STRONG DM (1996) Beyond accuracy: what ment Information Systems 12(4), 30–34.
- Wang, E. T. G., Chia-Lin Lin, C., Jiang, J. J. and Klein, G. (2007). Improving enterprise resource planning (ERP) fit to organizational process through knowledge transfer. *International Journal of Information Management*, 27(3), 200-212.
- Watson, E., Vaught, S., Gutierrez, D.and Rinks, D. (2003). ERP implementation in state government. annals of cases on information technology applications and management in organizations, *5*, 302-318.

- Willcocks, L. and Plant, R. (2007). Critical success factors in international ERP implementations: a case research approach. *Journal of Computer Information Systems*, 47(3), 60.
- Wixom, B. H. and Todd P. A. (2005). "A theoretical integration of user satisfaction and technology acceptance". *European Journal of Information Systems*, 16(1), 85–102.
- Wong, B.and Tein, D. (2003). *Critical Success Factors for ERP Projects*. Paper presented at the Proceedings of the National Conference of the Australian Institute of Project Management.
- Worthen, B. R., Borg, W. R., & White, K. R. (1993). Measurement and evaluation in the schools. New York: Longman.
- Wright, E., Khanfar, N. M., Harrington, C., & Kizer, L. E. (2010). The lasting effects of social media trends on advertising. *Journal of Business & Economics Research*, 8 (11), 73-81.
- Yaseen, S. G. (2009). Critical factors affecting enterprise resource planning implementation: an explanatory case study. International Journal of Computer Science and Network Security, 9(4), 359-363.
 Zach, O. (2011). exploring erp system outcomes in smes: a multiple case study.
- Zhu, K., K. Kraemer, et al. (2004). "Information Technology Payoff in E-business Environments: An International Perspective on Value Creation of E-business in the Financial Services Industry." *Journal of Management Information Systems* 21(1): 17-54.