

Effect of Knowledge Management in IT Project Management
for
Project Success

KASUNTHA RANATHUNGA JAYASEKARA

149057M

Thesis submitted in partial fulfillment of the requirements for the degree Master of Business
Administration

Degree of Master of Business Administration in Information Technology

Department of Computer Science & Engineering

University of Moratuwa

Sri Lanka

February 2017

Declaration

I do here by ,certify that this dissertation doesn't incorporate without acknowledgement any material previously submitted for the degree or diploma in any university, and to the best of my knowledge and belief it does not contain any material previously published or written by another person except where due reference is made in the text.

.....

Kasuntha Ranathunga

...../...../.....

Date

The undersigned, has supervised the dissertation entitled ***“Effect of Knowledge Management in IT Project Management for Project Success”*** presented by Kasuntha Ranathunga, a candidate for the degree of Masters in Information Technology, and I do here by, certify that, in my opinion, it is worthy of submission for examination.

.....

Supervisor

...../...../.....

Date

Acknowledgment

I would like to take this opportunity to give my sincere gratitude to all who have supported me throughout my research with their patience and knowledge whilst providing me the room to work in my own way.

First and foremost I offer my heartiest thanks to my supervisor Prof. Sanath Jayasena and my research coordinator Dr. Chandana Gamage at University of Moratuwa, for giving me their immense support and guidance to complete my research successfully.

Secondly, I would like to express my gratitude to all the academic, non-academic staff at the University of Moratuwa for giving me the continuous assistance and the facilities provided in completing this research.

I would like to acknowledge all the IT professionals who were involved in this research to respond the questionnaire by spending their valuable time and experience.

A very special thanks goes to my batch mates from University of Moratuwa MBA in IT 2014 for their continuous encouragement and great support throughout this period to complete this research in high level.

Finally, I would like to express my gratitude to my family members for their love, encouragement and continuous support which strengthened me throughout this research and every moment in life.

Abstract

Knowledge management and project management are recognized as very important to gain the competitive advantage of organizations within the industry. This study empirically examines the relationship between knowledge management and project management in the project based companies within the context of the information technology industry in Sri Lanka. Most of the Information Technology (IT) projects fail due to their incapability of getting the right knowledge to the right person at the right time. Proper knowledge management will be able to address these gaps. In this case proper knowledge management techniques help project teams to share information accurately while improving project performance. Previous studies have not clearly recognized the relationship between the knowledge management techniques and the project management in project based companies for the project success.

The purpose of this research is to determine if a positive relationship exists between the knowledge management and project management. If a relationship exists, what knowledge management techniques used by the practitioners of project management are significant in terms of improving project management success?

The responses from fifty two project managers in different IT companies in Sri Lanka have been evaluated. A positivism deductive approach is used in cross-sectional time horizon and mixed approach is used to gather data.

This report explores the key knowledge management techniques used in IT project based organizations. Each of these techniques has been discussed separately and then how those factors affect the project management for project success in organizations is explained.

Key words: Knowledge management, Project management, Positivism, Deductive, Methodology, Data collection, Data analysis.

Table of Content

Declaration	ii
Acknowledgment	iii
Abstract	iv
List of Tables	ix
List of Figures	x
List of Abbreviations	x
Chapter 1 Introduction	1
1.1 Introduction.....	1
1.2 Background.....	1
1.3 Research Problem	2
1.4 Research Objectives.....	2
1.4.1 Main Objective.....	2
1.4.2 Sub Objectives	2
1.5 Research Questions.....	2
1.6 Significance of the Study	3
1.7 De-limitation.....	3
Chapter 2 Literature Review	4
2.1 Introduction.....	4
2.2 Knowledge Management	4
2.2.1 Knowledge and KM.....	4
2.2.2 Knowledge Life Cycle Model.....	9
2.2.3 Knowledge Management Techniques and Tools.....	10
2.3 Project Management	20
2.3.1 Project	20
2.3.2 Project Management	20

2.3.3 Project Management Knowledge Areas.....	21
2.3.4 Project Life Cycle	21
2.3.5 IT Project Management Success	23
2.3.6 Project Knowledge.....	23
2.3.7 Project Knowledge Management.....	25
2.3.8 General Management Knowledge and Skills.....	29
2.4 Integrating KM with PM.....	29
Chapter 3 Theoretical Framework	35
3.1 Introduction.....	35
3.2 Conceptual Framework of the Study	35
3.3 Variables	38
3.3.1 Independent Variables	38
3.3.2 Dependent Variables	39
3.4 Population and Sampling	40
3.4.1 Population of the Study.....	40
3.4.2 Sample Size of the Study	41
3.5 Hypothesis.....	41
3.6 Theories Related to Data Analysis.....	42
Chapter 4 Research Methodology.....	44
4.1 Introduction.....	44
4.2 Research Methodology	44
4.2.1 Research Philosophy	46
4.2.2 Research Approach	47
4.2.3 Research Strategy.....	47
4.2.4 Research Choice.....	47
4.2.5 Research Time Horizon	47
4.3 Data Collection	47
4.3.1 Primary Data	47
4.3.2 Secondary Data	47

4.3.3 Data Collection Techniques	47
4.3.3.1 Interview	48
4.3.3.2 Questionnaires.....	49
4.3.3.3 Questionnaire Structure	49
4.3.4 Data Collection Ethics	49
Chapter 5 Data Analysis	50
5.1 Introduction.....	50
5.2 Data Reliability	50
5.2.1 Cronbach's alpha Co-efficient for Knowledge Management People's approach	50
5.2.2 Cronbach's alpha Co-efficient for Knowledge Management Technological approach	51
5.2.3 Cronbach's alpha Co-efficient for Project Success	52
5.3 Demographic Analysis.....	52
5.3.1 Project distribution according to their category	53
5.3.2 Project distribution based on the completion duration	54
5.3.3 Project distribution based on the number of members in the team.....	55
5.4 Inferential Analysis with Pearson Correlation	55
5.4.1 Correlation between KM people's approach and Project Success.....	56
5.4.1.1 Correlation between After Action Review and Project Success.....	57
5.4.1.2 Correlation between Peer Assist and Project Success	58
5.4.1.3 Correlation between Storytelling and Project Success	59
5.4.1.4 Correlation between Brainstorming and Project Success	60
5.4.1.5 Correlation between Gone Well Not Gone Well and Project Success	61
5.4.1.6 Correlation between CoP and Project Success	62
5.4.2 Correlation between KM technology approach and Project Success	63
5.4.2.1 Correlation between Collaborative Virtual Workspace and Project Success	64
5.4.2.2 Correlation between Knowledge Bases/Banks and Project Success	65
5.4.2.3 Correlation between Blogs and Project Success	66
5.4.2.4 Correlation between Document Management Systems and Project Success	67
5.4.2.5 Correlation between Social Network Services and Project Success.....	68
5.4.2.6 Correlation between Instant Messenger and Project Success	69
5.5 Inferential Analysis with ANOVA	70

5.6 Summary of the Findings.....	72
5.7 Summary.....	74
Chapter 6 Discussion and Conclusion	75
6.1 Introduction.....	75
6.2 Discussion.....	75
6.3 Conclusion	77
6.4 Contribution to the Research Area.....	78
6.5 Recommendation	78
6.6 Future Study.....	79
References.....	80
Appendices.....	84
Appendix 1: Set of open ended questions for the experts.....	84
Appendix 2: Set of semi structured questionnaire to collect data.....	84

List of Tables

Table 2:1: KM Techniques and Tools – People Approach.....	11
Table 2:2: KM Techniques and Tools – Technology Approach.....	15
Table 2:3: KM in Project Phases	26
Table 3:1: Independent variables of the study	38
Table 3:2: Dependent variables of the study.....	39
Table 4:1: Research methodology	45
Table 5:1: Cronbach’s Alpha co-efficient for Knowledge Management People’s approach	51
Table 5:2: Cronbach’s Alpha co-efficient for Knowledge Management Technological approach.	51
Table 5:3: Cronbach’s Alpha co-efficient for Project Success.	52
Table 5:4: Correlation between KM people’s approach and Project success	56
Table 5:5: Correlation between After Action Review and Project success	57
Table 5:6: Correlation between Peer Assist and Project success.....	58
Table 5:7: Correlation between Storytelling and Project success.....	59
Table 5:8: Correlation between Brainstorming and Project success	60
Table 5:9: Correlation between Gone well/not well and Project success	61
Table 5:10: Correlation between Community of Practice and Project success	62
Table 5:11: Correlation between KM technology approach and Project success.....	63
Table 5:12: Correlation between Collaborative Virtual Workspace and Project success	64
Table 5:13: Correlation between Knowledge Bases/Banks and Project success.....	65
Table 5:14: Correlation between Blogs and Project success	66
Table 5:15: Correlation between Document Management Systems and Project success.....	67
Table 5:16: Correlation between Social Network Services and Project success	68
Table 5:17: Correlation between Instant Messenger and Project success	69
Table 5:18: ANOVA - KM people’s approach techniques and KM technology approach techniques towards the project success.....	70
Table 5:19: Correlation coefficient comparison	72
Table 5:20: ANOVA comparison	73

List of Figures

Figure 2:1: Knowledge spiral model and project activities	5
Figure 2:2: Process of KM.....	7
Figure 2:3: Time spent on organizational double-work.....	8
Figure 2:4: Knowledge life cycle model.....	9
Figure 2:5: Process groups interact in a phase or project	21
Figure 2:6: KM and PM components.....	27
Figure 2:7: Knowledge workers and knowledge spread.....	28
Figure 3:1: Framework of the KM and PM integration model.....	35
Figure 4:1: Research methodology	45
Figure 4:2: Research process based on onion	46
Figure 5:1: Project distribution according to their category	53
Figure 5:2: Project distribution based on the completion duration.....	54
Figure 5:3: Project distribution based on the number of members in the team	55

List of Abbreviations

KM - Knowledge Management

PM – Project Management

IT - Information Technology

CoP- Community of Practice

SPPS - Statistical Package for the Social Sciences