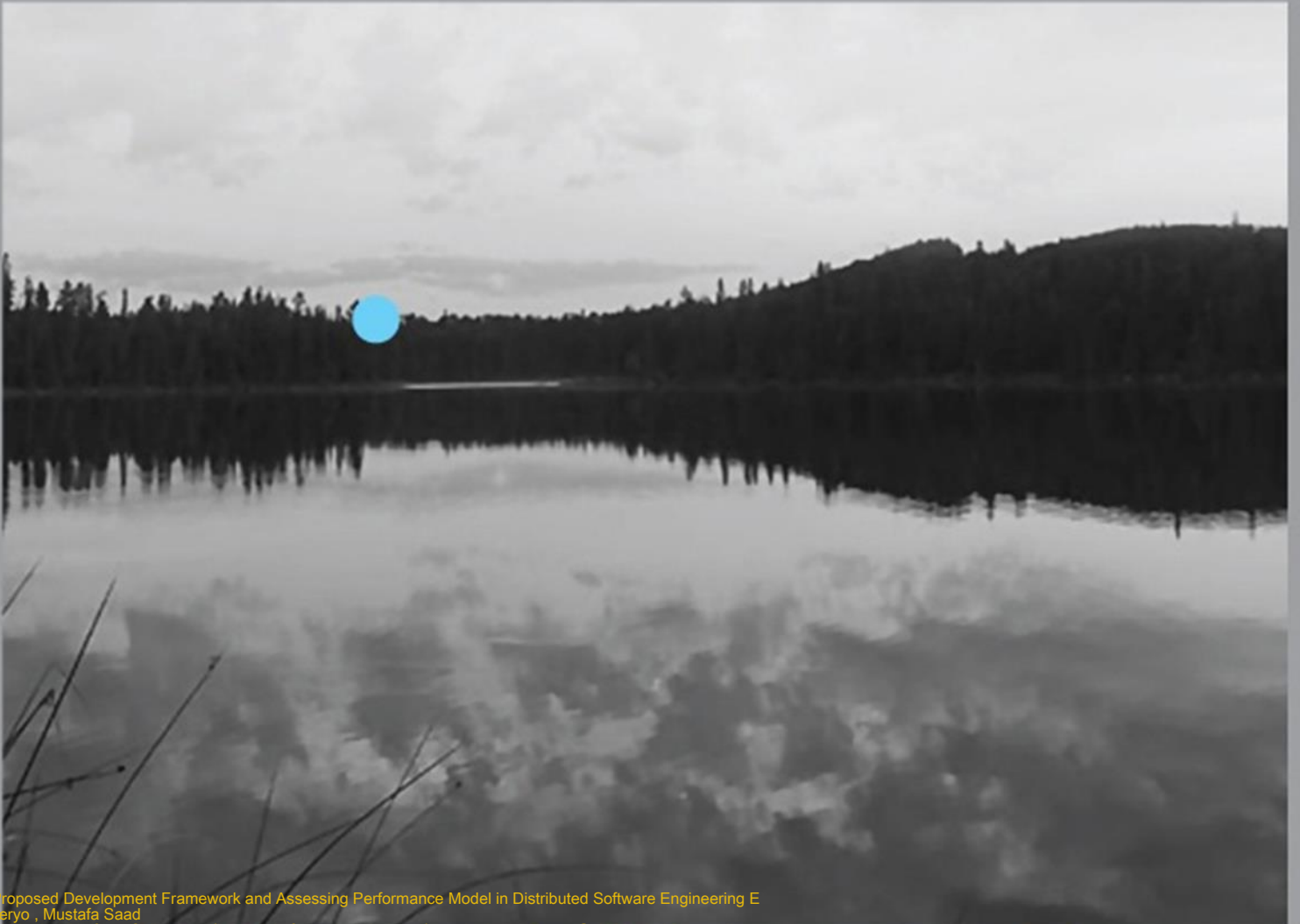




المنهل
ALMANHAL

نبع المعرفة

THE SOURCE OF KNOWLEDGE



Proposed Development Framework and Assessing Performance Model in Distributed Software Engineering Environment

نموذج مقترح لتطوير وتقييم الأداء في بيئة هندسة البرمجيات الموزعة

Prepared By:

Mustafa Saad Jeryo

Supervised by:

Dr. Akram Othman AL- Mashaykhi

**This thesis is submitted in partial fulfillment of the Requirements
for the Degree of Master in Computer Science .**

Department of Computer Science
College of Computer Sciences and Informatics
Amman Arab university
2013

نموذج مقترح لتطوير وتقييم الأداء في بيئة هندسة البرمجيات الموزعة

إعداد

مصطفى سعد كاظم جريو

إشراف

الدكتور أكرم عثمان المشايخي

قدمت هذه الرسالة لقسم الحاسوب ، كلية العلوم الحاسوبية والمعلوماتية في جامعة عمان العربية ،
لاستكمال متطلبات الحصول على درجة الماجستير في علم الحاسوب .

قسم علم الحاسوب

كلية العلوم الحاسوبية والمعلوماتية

جامعة عمان العربية

2013

Authorization

I'm Mustafa Saad Jeryo , authorize Amman Arab University the right to provide copies of the dissertation to libraries , institutes , agencies or individual when necessary.




Name : Mustafa Saad Jeryo

Signature : 

Date : 11.12.2013

The Discussion Committee Decision

This dissertation entitled " **Proposed Development Framework and Assessing Performance Model in Distributed Software Engineering Environment** " was discussed and passed on November 26, 2013.

Discussion Committee Member	Title	Signature
Dr. Osama Al- Musleh	Chair	
Dr. Akram Al- Mashaikhi	Member and Supervisor	
Dr. Mohamed Nassar	Member	

DEDICATION

This dissertation is dedicated to my dear uncle Prof .Basim Jrew ,
my beloved wife , my baby , my father , my mother , my sisters ,
and my friend .

ACKNOWLEDGEMENTS

All praise is due to Allah for the bless that he gave .Without whose help, I would not have reached this far .

First and foremost , I am heartily thankful to my supervisor , Assistant Prof Dr. Akram Othman AL- Mashaykhi , whose encouragement , guidance and support from the initial to the final level enabled me to develop an understanding of the subject. I am very lucky to have him as a supervisor as he is an experience lecturer .

I would like to thank the member of the assessment committee Dr. Osama Al- Musleh , and Dr Mohamed Nassar .

Special thanks to my dear uncle Prof Dr. Basim Jrew for his cooperation and guidance during my study .

Special thanks to my lovely wife Zainab Al-Hamadany ,my pretty daughter Fatima , my Father , Mother and Sisters for their prayers and for their loves , support and continuous encouragement during the period of my study .

Finally ,I would really like to extend my deep gratitude and sincere thanks to all my friends and colleagues who were a great help in the completion of this work .

TABLE OF CONTENTS

<i>Content</i>		<i>Pages</i>
Dedication		III
Acknowledgment		IV
List of Tables		VII
List of Figures		VIII
Appreviations		IX
English Abstract		X
Arabic Abstract		XII
<i>CHAPTER ONE : INTRODUCTION</i>		
1.1	Overview	1
1.2	Distributed team for Global Software Development (GSD)	2
1.3	Management Of Distributed Team	4
1.4	Requirement Engineering In Globally Distributed Environment	5
1.5	Using Scrum in Global Distributed Software	6
1.6	The Problem Statement	8
1.7	Research Methodology	10
1.8	Thesis Organization	11
<i>CHAPTER TWO : BACKGROUND AND RELATED WORKS</i>		
2.1	Distributed Software Engineering development	12
2.2	Distributed Software Engineering problems	15
2.3	Team Management And Tools Communication In Distributed Environment	19
2.3.1	Team Management	19
2.3.2	Communication Tools In Distributed Environment	24
2.3.2.1	Synchronous Communication Tools	24

	2.3.2.2	Asynchronous Communication Tools	27
	2.3.2.3	Knowledge Transfer Tools	31
2.4		Requirement Management In global Software development	33
2.5		Requirement Challenges In global Software development	35
2.6		Application Lifecycle Management (ALM)	37
<i>CHAPTER THREE : GLOBAL SOFTWARE DEVELOPMENT MODEL AND TOOLS</i>			
3.1		virtual teams	40
3.2		Characteristics of virtual team	41
3.3		Barriers and Challenges for Virtual Team	42
3.4		Benefits of Virtual Team	45
3.5		G.S.D Global Software Development	47
3.6		Characteristics of G.S.D	48
3.7		Barriers and Challenges for G.S.D	49
	3.7.1	Technical issues	49
	3.7.2	Non Technical issues	50
3.8		overview of idSpace platform	51
	3.8.1	The idSpace environment	52
	3.8.2	Approach Chosen for the idSpace Project	52
	3.8.3	Use idSpace to Evaluation plan & planning	53
3.9		overview of wikis	54
	3.9.1	Wikis and Collaborative Learning	55
	3.9.2	How Wikis Can Assist In The Software Development Process	56
	3.9.3	Key Wiki Features For Software Engineering	57
	3.9.4	Advantages Of Wikis	58
	3.9.5	Disadvantages Of Wikis	59
	3.9.6	PB Works : Online Collaboration Space	61
3.10		overview of IBM Smart Cloud	62
	3.10.1	Characteristic of IBM Smart Cloud	62

CHAPTER FOUR : PROPOSED GSD FRAMEWORK		
4.1	Introduction	64
4.2	Original Model for Assessing the Performance of GSD	67
4.2.1	Predictors Variable	68
4.2.2	Outcome Variable	70
4.3	Cooperation, collaboration and coordination model (CCCM)	72
4.4	Satisfaction, recognition and reward model (SRRM)	73
4.5	Value Creation Model (VCM): through Disruptive Technology (Innovation)	74
CHAPTER FIVE : CONCLUSIONS AND FUTURE WORK		
5.1	Introduction	76
5.2	Conclusion	76
5.3	Future Work	78

LIST OF TABLES

Table Number	Table Name	Page
Table (2.1)	Comparing traits and aspects of the traditional team versus the distributed team	23
Table (2.2)	Communication tools: synchronous	25
Table (2.3)	Communication tools: asynchronous	28
Table (2.4)	Communication tools: knowledge sharing and training	32
Table (3.1)	Some of the main advantages associated with virtual teaming	45
Table (3.2)	Some of the main disadvantages associated with virtual teaming	46
Table (4.1)	description the proposed models and explain the advantages that can be added to the assessing the performance of GSD	75