Adopting Design Thinking Practices to Satisfy Customer Expectations in Agile Practices: A Case from Sri Lankan Software Development Industry

W.M.D. Ruchira Prasad

(169124K)

Degree of Master of Business Administration in Information Technology

Department of Computer Science and Engineering

University of Moratuwa

Sri Lanka

May 2018

DECLARATION

I declare that this is my own work and this thesis does not incorporate without acknowledgement any material previously submitted for a Degree or Diploma in any other University or institute of higher learning and to the best of my knowledge and belief it does not contain any material previously published or written by another person except where the acknowledgement is made in the text.

Also, I hereby grant to University of Moratuwa the non-exclusive right to reproduce and distribute my thesis/dissertation, in whole or in part in print, electronic or other medium. I retain the right to use this content in whole or part in future works (such as articles or books).

W.M.D. Ruchira Prasad		
(Signature of the candidate)	Date:	
The above candidate has carried out research for	or the Masters thesis under my	
supervision.		
Dr. Indika Perera	Date	

Signature of the Supervisor

COPYRIGHT STATEMENT

I hereby grant the University of Moratuwa the right to archive and to make available my thesis or dissertation in whole or part in the University Libraries in all forms of media, subject to the provisions of the current copyright act of Sri Lanka. I retain all proprietary rights, such as patent rights. I also retain the right to use in future works (such as articles or books) all or part of this thesis or dissertation.

ABSTRACT

While application of Agile principles leads to better project success, some projects are still failing due to lack of understanding of exact client requirements. Agile teams have recently started adopting Design Thinking (DT) to better understand what is in customers' mind. In this research, we explore DT practices in Agile teams using inductive reasoning. The research first formulated a conceptual framework based on a literature review. Based on this, conducted a set of interviews where the researcher interviewed ten professionals, including project managers, business analysts, tech leads, and architects of different IT service organizations. Interview findings were then analyzed using the Straussian grounded theory. Customer journey, story mapping, prototypes, POC, UX, and scenarios were identified as the most suitable methods to identify real need of the customer. Moreover, practicing human-centered approach through workshops, discussions, team communication, and end-user interaction through UAT were also identified to be effective. Based on these findings, this research further derived a model to achieve customer satisfaction through DT in agile-base projects. The proposed model categorizes best practices into five categories such as customer real need identification, transforming customer real need into pilot solutions, visualizing pilot solution for customer feedback, idea generation for pilot solution, and brainstorming.

Keywords: agile practices; design thinking; design thinking practices; ground theory

ACKNOWLEDGEMENT

I wish to express my sincere gratitude to all those who helped me in successfully completing my research study on "Design Thinking Practices to Satisfy Customer Expectations in Agile Practices".

First and foremost, I wish to thank my research supervisor Dr. Indika Perera, Senior Lecturer of the Department of Computer Science and Engineering, University of Moratuwa, for the continuous support, encouragement and attention extended to me in realizing the research objectives.

I wish to convey my special gratitude to respondents of the software development companies who gave me their precious time and valuable insights in making this research a reality. Furthermore, I extend my earnest thanks to MBA research coordinator Dr. Chandana Gamage and Ms. Jeeva Padmini for the guidance and resources provided in bringing this study a success.

Finally, I wish to convey my heartfelt thanks to all those who helped me in many ways for bringing this study a success.

TABLE OF CONTENTS

DEC	LAR	ATION	I
COP	YRIG	HT STATEMENT	II
ABS	TRAC	CT	. III
Ack	NOW	VLEDGEMENT	.IV
Тав	LE O	F CONTENTS	V
List	OF I	FIGURES	VII
List	OF 7	Tables	VIII
List	OF A	Abbreviations	.IX
1.	INT	RODUCTION	1
	1.1.	Background	1
	1.2.	Motivation	2
	1.3.	Research Scope	4
	1.4.	Problem Statement	5
	1.5.	Research Objectives	6
	1.6.	Research Significance	6
	1.7.	Outline	7
2.	LIT	ERATURE REVIEW	8
	2.1.		
	2.1.	Design Thinking Elements	16
2.	3.	Design Thinking Vs Engineering Thinking	20
2.	4.	The Role of Customer Expectations	20
2.	5.	Agile	21
2.	6.	Synthesis of Design Thinking and Scrum	23
2.	7.	IT Maturity in Sri Lanka	24
2.	8.	Summary	24
3.	RES	SEARCH METHODOLOGY	26
	3.1.	Research Approach and Method	26
	3.2.	Population and Sample Selection	30
	3.3.	Data Collection	31
	3.4.	Process of Data Collection	31
	3.5.	Grounded theory approach	32
	3.6.	Summary	33

4.	DAT	A ANALYSIS	35
	4.1.	Data Preparation for Analysis	35
	4.2.	Data Analysis	35
	4.3.	Summary	57
5.	RECO	OMMENDATIONS AND CONCLUSION	58
	5.1	Conclusion	58
	5.2	Observations, findings and recommendations	60
	5.3	Research limitations	66
	5.4	Future work	67
App	ENDIX	A: Inteview questions	71
App	ENDIX	B: REVISED INTERVIEW QUESTIONS	74
App	ENDIX	C: Memo writing of grounded theory	77
APF	ENDIX	D: CODING BASED ON GROUNDED THEORY	79

LIST OF FIGURES

Figure 2.1 Design Thinking Stages	10
Figure 3.1 Research Methodology	28
Figure 3.2 Conceptual framework	29
Figure 3.3 Population and sampling	30
Figure 4.1 Usage of agile methodologies	36
Figure 4.2 Dimensions related to human-centered approach	38
Figure 4.3 Dimensions related to thinking by doing	42
Figure 4.4 Dimensions related to Visualizing	46
Figure 4.5 Dimensions related to Synthesis of divergent and convergent	50
Figure 4.6 Dimensions related to Collaborative work style	53
Figure 5.1 Framework to enhance customer satisfaction using DT practices in agile practices	62

LIST OF TABLES

Table 2.1 DT Categories and Elements	16
Table 3.1 Design Thinking Categories and Elements	29
Table 4.1 Profiles of interviewed	35
Table 4.2 pain points in customer satisfaction and ways to improve	37
Table 4.3 Open and Axial cording for human-centered approach	41
Table 4.4 Open and Axial cording for thinking by doing DT practice	45
Table 4.5 Open and Axial cording for Visualizing	49
Table 4.6 Open and Axial cording for Synthesis of Divergent and Convergent	52
Table 4.7 Open and Axial cording for Collaborative work style	54
Table 5.1 Observations identified when conducting interviews	60
Table 5.2 Best practices to satisfy customer expectations	61
Table 5.3 DT practices and factors	64

LIST OF ABBREVIATIONS

ASD Adaptive Software Development

DSDM Dynamic systems development method

DT Design Thinking

ET Engineering Thinking

FDD Feature-Driven Development

HCA Human Centered Approach

XP Extreme Programing