UNIVERSITI TEKNOLOGI MARA

RISK MANAGEMENT OF E-KEHAKIMAN INFORMATION SYSTEM USING FAILURE MODE AND EFFECTS ANALYSIS

ZAIM BIN ZAKI

IT Project submitted in partial fulfilment of the requirements for the degree of

Master of Science (Information Technology)

Faculty of Computer and Mathematical Sciences

July 2012

ABSTRACT

Risks to information system are growing concern in Malaysian judiciary. Some risks are caused by preventable events. Identifying potential risks and preventing them would mitigate the risk and hence enhance the information system safety. E-Kehakiman information system is an inherent part of the electronic services from the judiciary to the public and thus it is imperative that any potential risks are avoided or mitigate before it can harm e-Kehakiman. A thorough literature review indicated that no risk assessment projects currently exist for any judiciary information systems. In order to assess the risks associated with e-Kehakiman, this project has identified potential risks and mitigation plan for all the identified risks. The project involved (i) identifying the risk and categorized the risk (ii) rank all the risks and (iii) develop risk register. A thorough understanding of e-Kehakiman is important to identify each potential risks. Therefore, data gathering through interview, discussion and observation are done to collect precise information from ICT personnel regarding e-Kehakiman. Failure Mode Effect Analysis (FMEA) was used to rank the potential risk. And the results from the studies are explained in detail. Potential risks are categorized in six categories such as environmental and natural threats, poor hardware management and configuration, poor software development, installation, configuration and installation, network and telecommunication problems, personal flaws or outsider regulations or non ICT related human threats and ineffective document management for security purposes. The assessment attempts to identify and list the potential risks that might shut down e-Kehakiman operation. Accordingly, this project aims to develop risk register documentation; e-Kehakiman Risk Register and Mitigation Plan (e-KRRMP) for the safety and dependability of e-Kehakiman information system. At the end of the project, the e-KRRMP will be produced in the form of report. The e-KRRMP will act as basis risk management documentation for judiciary.

ACKNOWLEDGEMENT

IN THE NAME OF ALLAH THE MOST GRACIOUS AND THE MOST MERCIFUL

Let my gratitude first goes to Allah Subhanahu Wata'ala for allowing and giving me the opportunity and strength to finish this project as well as this course.

At this moment of accomplishment, first of all I would like to extend my heartfelt gratitude and appreciation to my supervisor, Datin Associate Professor Dr. Noor Habibah Haji Arshad for her invaluable guidance, support, understanding, patience, and most importantly, her friendship during my graduate studies throughout the course of this project. I am also extremely indebted to my guide Dr Fariza Hanis Abdul Razak for providing necessary resources to accomplish my research work. I am very much thankful to her for giving me ideas on how to approach this project during Research Methodology class.

I gratefully acknowledge my wife for her understanding, encouragement and personal attention which have provided good and smooth basis for my graduate tenure. My special thanks are due to my father and my mother for their untiring support and unconditional love. I would also like to extend huge, warm thanks to my brothers who always giving me extra activities beside my project.

I am indebted to some of my good friends and for their valuable help and support.

Finally, I would like to extend my gratitude to all the participants in this project especially En. Mahassan bin Isa (PKPMP) as the head ICT Department of Mahkamah Persekutuan Malaysia and e-Kehakiman team members.

LIST OF CONTENTS

STUDENT'S DECLARATION	i
ABSTRACT	ii
ACKNOWLEDGEMENT	iii
TABLE OF CONTENTS	iv
LIST OF TABLES	viii
LIST OF FIGURES	ix
ABBREVIATION	X

CHAPTER ONE INTRODUCTION

1.1	Research Background				1
1.2	Research Problem				2
1.3	Research Question				3
1.4	Research Objectives				4
1.5	Significance of Research				5
1.6	Scope	of	the	Research	6
1.7	Research Limitation				6
1.8	Overview	of	the	Research	7

CHAPTER TWO CRITICAL ANALYSIS ON RISK MANAGEMENT FOR e-KEHAKIMAN INFORMATION SYSTEM

2.1	Introduction				9	
2.2	Risk Defined					10
2.3	The	Importance	of	Risk	Management	11
2.4	Risk Management in ICT Environment				12	
2.5 Risk Management Process					14	
	2.5.1	Risk Identificat	tion			15
	2.5.2	Risk Analysis				16

	2.5.3	Risk Response Planning	17
	2.5.4	Monitoring and Control	17
2.6	Overview e-Courts System		
	2.6.1	e-Kehakiman Information System	19
	2.6.2	e-Kehakiman Workflow	21
		2.6.2.1 e-Kehakiman Users	21
		2.6.2.2 e-Kehakiman System Structure	22
	2.6.3	e-Kehakiman Network Architecture	24
2.7	Failure	Mode and Effects Analysis	26
	2.7.1	FMEA Advantage	28
	2.7.2	FMEA Process'	29
2.8	Summa	ıry	34

CHAPTER THREE RESEARCH METHODOLOGY AND APPROACH

3.1	Introduction			
3.2	Research Method			
3.3	Research Approach			
	3.3.1	Preliminary Study of E-Kehakiman	37	
	3.3.2	Study of Risk Analysis Methodology an FMEA	nd 38	
	3.3.3	Data Gathering	39	
	3.3.4	Risk Analysis	40	
	3.3.5	Documentation	41	
3.4	Summa	ry	44	

CHAPTER FOUR RESULTS ANALYSIS AND DISCUSSION

4.1	Introdu	ction	45
4.2	Risk Management and Analysis		
4.3	Practica	al and Concrete Risk Assessment Method	48
	4.3.1	Risk Assessment	48
	4.3.2	Evaluation of Potential Risk Element for	49
		Risk Identification and Level	