

**UNIVERSITI TEKNOLOGI MARA**

**INFORMATION SECURITY RISK  
FACTORS AND MANAGEMENT  
FRAMEWORK FOR ICT  
OUTSOURCING**

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Thesis submitted in fulfilment  
of the requirements for the degree of  
**Doctor of Philosophy**

**Faculty of Computer and Mathematical Sciences**

**September 2013**

## AUTHOR'S DECLARATION

I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the result of my own work, unless otherwise indicated or acknowledged as referenced work. This thesis has not been submitted to any other academic institution or non-academic institution for any other degree or qualification.

I, hereby, acknowledge that I have been supplied with the Academic Rules and Regulations for Post Graduate, Universiti Teknologi MARA, regulating the conduct of my study and research.

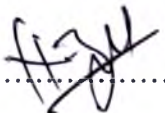
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## ABSTRACT

Information Communication Technology (ICT) services have become increasingly important in today's business environment with most private and government agencies without sufficient resources and expertise outsourcing their ICT projects to vendors. However, this strategy could invite potentially damaging information security risks (ISRs). Subsequently, a dedicated framework for information security risk management for ICT outsourcing activities needs to be in place to address and manage its related risk factors. The research focuses on managing Information Security Risks (ISRs) in ICT outsourcing projects in a Malaysian environment. The mixed research method, combining the quantitative and qualitative was employed to achieve the research objectives. 110 respondents participated in a survey while focus groups from eight organizations were interviewed. From the quantitative study, the critical information security risks in ICT outsourcing project were identified and ranked. Furthermore, through an exploratory factor analysis, two additional critical Information Security Risk (ISR) factors were discovered, being information security management defects and the challenges of managing unexpected change of service providers. Results show that organizations practiced Information Security Risk-Identification; Information Security Risk-Analysis; Information Security Risk-Treatment Plan; Information Security Risk-Treatment Plan Implementation; Information Security Risk-Monitoring; and Information Security Risk-Control. However, there was divergence in the key activities practiced due to several factors. The findings were then used as a basis for the framework development. The framework proposed step-by-step processes, activities and guidelines to be taken in managing Information Security Risk (ISR). The case study results discovered organizations had excluded some of the processes and activities due to financial, resources and time constraints. However, the framework confirmatory done through expert-judgement proves that the framework had thoroughly assessed information security risk management from an outsourcing perspective and is applicable to ICT projects implemented in Malaysia. Fundamentally, the development of the framework will enable organizations to identify ISR factors and to urgently address them so that the full benefits of ICT outsourcing may be reaped.

## ACKNOWLEDGEMENTS



By the name of Allah, the Most Gracious and Merciful

Praise to Allah the Almighty for giving me the time and strength to complete this thesis. I hope this effort will contribute towards enhancement of knowledge and will benefit others in the future.

First and foremost I would like to express my sincere gratitude to my main supervisor, Assoc. Prof. Datin Dr. Noor Habibah Hj. Arshad for her endless support, guidance and patience. Her role in launching and completing this thesis has been central. Her encouragement has led to the publication of nine research articles and journals during period of my study. A great honour and sincere thanks extended to my co-supervisor Prof. Dr. Azlinah Mohamed for her supportive suggestions and continuous encouragement and support.

I would also like to thank other academic staff of the Faculty of Computer and Mathematical Sciences who gave me a sincere feedbacks, comments and suggestion and motivation for the success of my study. Special thanks also to Institute of Graduates Studies UiTM (IPSis) for providing me with the necessary facilities to drive my success during my study in UiTM.

To my sponsor, Ministry of Science, Technology and Innovation (MOSTI) Malaysia, thank you for the financial assistance rendered throughout the research period.

I wish to thank all parties who directly involved toward the success of the study. Special thanks to Dato' Dr. Nor Aliah Mohd Zahri, Deputy Chief Director (ICT), Pn. Norhalina Abdul, Deputy Director (eKL Division), Dr. Suhazimah (Chief Information Security Consultant, Hjh. Norini (Chief IT Project Management Consultant) and other MAMPU officer for their support during expert-judgement review and validating of the framework. Also thank to all eight organizations participated in focus group interview, MAMPU (Malaysian Administrative Modernization & Planning Management Unit, CSM (CyberSecurity Malaysia), IMPACT (International Multilateral Partnership Against Cyber Treats, MIDA (Malaysian Industrial Development Authority, ICT Department), MATRADE (Malaysia External Trade Development Corporation, ICT Department), Selangor State ICT Centre, UiTM (Universiti Teknologi MARA, ICT Security Division), MOE (Ministry of Education, Information Management Division) and respondents for the survey. My special appreciation also give to three professional who responsible to validate the appropriateness of questionnaire as an instrument for primary data collection.

Last but not least, millions thanks my dearest wife Maznah Hassan, my beloved children: Nik Nurin Natasha and Nik Akief Azraf and my dearly loved parent: Hj. Khaidir Othman and Hjh. Sharifah Ruhana Syed Ahmad for their prayers, continuous love, encouragement, patience, inspiration and support during the course of this thesis. This achievement in my life was the most wonderful and precious gift from god. Alhamdulillah.

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