INFORMATION SECURITY RISK ASSESSMENT OF E-LEARNING SYSTEMS: A CASE STUDY OF GLOBAL OPEN ACCESS LEARNING SYSTEM IN UNIVERSITI SAINS ISLAM MALAYSIA

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AUTHOR DECLARATION

I hereby declare that the work in this thesis is my own, except for quotations and summaries which have been duly acknowledged.

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ACKNOWLEDGEMENTS

I am very glad to write this page with great thanks to Allah Almighty, who gave me ability to complete my master degree in Computer Science of Information Security and Assurance.

This master's thesis was written in 2014 at Faculty of Science and Technology at Islamic Science University of Malaysia.

First of all I wish to express my sincere gratitude to my supervisor Dr. Fauziah Abdul Wahid for her great support through doing this thesis. I have got from her, motivations and a lot of useful feedback. I wish her a great success in her academic career even in her different life's aspects.

It was also an honor to be able to study Information Security and Assurance at USIM University. I want to especially thank Prof. Dr. Kamaruzzaman Seman, Dr. Najwa Hayaati Alwi, Prof. Emeritus Dr. Jalani Sukaimi, Dr. Madihah Binti Mohd Saudi, Dr. Mohammad Nasrin, Dr. Kamarudin Saadan , Dr. Madihah Mohd. Saudi, Dr. Nurlida Basir, Prof. Dr. Norita Md. Norwawi, Dr. Mohammed Zalisham, for teaching me and providing me a lot of support in the field of information security.

I wish to express my debt to all USIM's staff and all my sincere colleagues in FST for the useful discussion we had during our study.

With my sincere thanks for Cultural Attaché Office - Embassy of the Libyan in KL.

Finally, I dedicate this work to my sincere parents, all my family members, my wife, my sons, all my brothers , sisters and my friends, for their support to me. Without forget my country Libya.

ABSTRAK

Kajian ini menyiasat masalah risiko keselamatan maklumat yang berkaitan dengan sistem E-Pembelajaran "Global Open Access Learning System" (G.O.A.L.S) di Universiti Sains Islam Malaysia (USIM). Untuk mengecilkan skop kajian, kakitangan daripada sistem GOALS disasarkan sebagai populasi kajian ini. Risiko keselamatan maklumat GOALS akan diramal dan dikelaskan berdasarkan borang soal selidik berstruktur yang senarai itemnya diperolehi melalui satu kajian menyepadukan keselamatan maklumat dalam persekitaran E-Pembelajaran yang melibatkan tiga perkara mengenai kategori risiko keselamatan maklumat umum iaitu; (1) pembebasan maklumat tanpa kebenaran, (2) pengubahsuaian maklumat tanpa kebenaran, dan (3) penafian penggunaan sumber tanpa kebenaran. Sementara itu, data yang diperolehi daripada responden telah melalui penilaian risiko yang terdiri daripada empat langkah iaitu; (1) Menentukan ancaman keselamatan maklumat, (2) Penilaian risiko, (3) Cadangkan remedi bagi ancaman keselamatan maklumat, dan (4) Mengkaji penilaian. Hasil kajian menunjukkan bahawa ancaman teknologi adalah jenis ancaman keselamatan maklumat yang dihadapi oleh GOALS di USIM. Ia melibatkan gangguan untuk mengakses sistem oleh pensyarah dan pelajar kerana kelajuan jalur lebar yang lemah, masalah server dan sebab-sebab lain. Kemudian, ia juga melibatkan pemintasan kepada sistem yang melumpuhkan atau memutuskan sambungan pensyarah atau pelajar apabila mereka memuat naik atau memuat turun fail dalam sistem, dan juga apabila pelajar menduduki kuiz atau ujian. Kawalan akses menggunakan firewall adalah dicadangkan sebagai remedi bagi ancaman keselamatan maklumat yang dihadapi oleh GOALS di USIM. Firewall merupakan gabungan sistem peralatan dan program keselamatan terjamin untuk mengelakkan akses yang tidak dibenarkan kepada sistem korporat dari luar organisasi.

ABSTRACT

This study investigates the problem of information security risk associated with E-Learning Systems of Global Open Access Learning System (G.O.A.L.S.) in Universiti Sains Islam Malaysia (USIM). To narrow down the scope of the study, staffs from GOALS system are targeted for the population of this study. The information security risks of GOALS will be predicted and classified on a well structured based-questionnaire that was based on items derived from the study integrating information security in an eLearning environment that involves three items on general information security risks categories which are; (1) Unauthorized release of information, (2) Unauthorized modification of information, and (3) Unauthorized denial of resource use. Meanwhile, data obtained from respondents went through risk assessment that consists of four steps that are; (1) Determine information security threats, (2) Risk evaluation, (3) Propose remedies for information security threats, and (4) Review the assessment. Results showed that Technological threats is the type of information security threats faced by GOALS in USIM. It involves interruption to access the system by lecturers and students due to poor bandwidth, server problem and other reason. Then, it also involves interception to the system that disable or disconnect lecturers or students when they upload or download files in the system, and also when student conduct quiz or test. Access control using firewall is proposed as remedies for information security threats faced by GOALS in USIM. A firewall is a blend of equipment and programming security system secured to avert unapproved access to a corporate system from outside the organization.

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