

A FRAMEWORK FOR E-COMMERCE:
A CASE STUDY FOR MODENAS

ZAILANI BIN ABDULLAH

MASTER OF SCIENCE
KOLEJ UNIVERSITI SAINS DAN TEKNOLOGI MALAYSIA

2003

**A FRAMEWORK FOR E-COMMERCE: A CASE STUDY
FOR MODENAS**

ZAILANI BIN ABDULLAH

electronic commerce

HF 15 48. 224 F 7

**MASTER OF SCIENCE
KOLEJ UNIVERSITI SAINS DAN TEKNOLOGI MALAYSIA**

2003

5072 Dissertation (M.Sc.) - KUTEM, 2003

A FRAMEWORK FOR E-COMMERCE: A CASE STUDY FOR MODENAS

The work is dedicated to my family, who provided me the strength to carry on during
my last two years. Especially, to my parents and family, who with their love and
support have encouraged me throughout my academic studies.

ZAILANI BIN ABDULLAH

**Thesis Submitted in Fulfilment of the Requirement for the
Degree of Master of Science in the Faculty of Science and Technology
Kolej Universiti Sains dan Teknologi Malaysia**

April 2003

DEDICATION

This work is dedicated first to God, who provided me the strength to carry on during these last two years. Secondly, to my parents and family, who with their love and support have encouraged me throughout my graduate studies.

April 2011

Chairperson : Associate Professor Ed Yaris Ph.D., Ph.D.

Member : Associate Professor Marcelo Mota Silva, Ph.D.

Faculty : Science and Technology

This thesis describes the setting up of an IT infrastructure for supporting the development of web-based educational systems. The complete infrastructure is based on Microsoft and Linux. Network Storage (MDS-NAS) is an MDS-based Enterprise Web-based System (EWS). The main objectives of EWS are to improve the business model through deploying web-based systems and to reduce development effort for an e-learning system. The main functions here are to make electronically stored documents and images available via the Internet.

The architecture used in this research is based on Enterprise File System (EFS). EFS uses both Electronic Data Interchange (EDI) technology and Internet Protocol to integrate all processes associated with EWS. Research on

Abstract of thesis presented to the Senate of Kolej Universiti Sains dan Teknologi
Malaysia in fulfilment of the requirement for the Degree of Master of Science.

A FRAMEWORK FOR E-COMMERCE: A CASE STUDY FOR MODENAS

ZAILANI BIN ABDULLAH

April 2003

Chairperson : Associate Professor Md Yazid Mohd Saman, Ph.D.

Member : Associate Professor Mustafa Mat Deris, Ph.D.

Faculty : Science and Technology

This thesis describes the setting up of an IT infrastructure for encouraging the development of web-based e-commerce systems. This complete framework is known in Motosikal dan Enjin Nasional Sdn Bhd (MODENAS) as MODENAS Enterprise Web-based Systems (MEWS). The main objectives of MEWS are to improve the business model through deploying e-commerce systems and to initiate future development efforts for an e-procurement system. The main functions here are to enable electronically Excise 7 submissions and manage payment collections via the Internet.

The e-commerce system involved in this framework is named Electronic Excise System (EES). EES uses both Electronic Data Interchange (EDI) technology and Internet facilities to manage all processes associated with Excise 7. Reduction of

manpower and operational costs are the major contributions in the deployment of EES.

The research methodology is derived after designing the entire framework of web-based infrastructure and also developing the e-commerce systems. The framework in building up this e-commerce systems (EES) will cover the sending and receiving of files in the format of UN/EDIFACT. The data extracted from this file format is used to produce the Excise Receipt Release. Then these documents are sent to associate dealers via e-mail or electronic fax facilities.

This e-commerce system is categorized as a web-based system, and runs on any Internet browser such as Internet Explorer (IE) and Netscape Navigator. The development technology used in this system is Active Server Pages (ASP). TCP/IP (Transmission Control Protocol / Internet Protocol) is the basic communication language or protocol of the Internet used in this system.

This thesis also evaluates the effectiveness of using these e-commerce systems by performing three series of analysis including the Cost Benefit Analysis, System Performance and the Customer Satisfaction. The thesis clearly shows that there is significant impact on the business process by deploying e-commerce systems. By adopting the MEWS framework, it has helped MODENAS transform from its low performing systems to a more efficient and cost-effective e-commerce system.

Abstrak tesis yang dikemukakan kepada Senat Kolej Universiti Sains dan Teknologi Malaysia sebagai memenuhi keperluan untuk ijazah Master Sains.

**RANGKA KERJA SISTEM E-DAGANG: SATU KAJIAN KES
UNTUK MODENAS**

ZAILANI BIN ABDULLAH

April 2003

Pengerusi : Profesor Madya Md Yazid Mohd Saman, Ph.D.

Ahli : Profesor Madya Mustafa Mat Deris, Ph.D.

Fakulti : Sains dan Teknologi

Tesis ini menerangkan pembinaan infrastruktur Teknologi Maklumat (IT) bagi menggalakkan pembangunan sistem-sistem berasaskan web. Rangka kerja yang lengkap ini dikenali sebagai Sistem Enterprise MODENAS Berasaskan Web (MEWS). Objektif utama pembinaan MEWS adalah untuk mempertingkatkan model bisnes melalui penggunaan sistem e-dagang dan menggalakkan pembangunan sistem e-pembelian untuk masa hadapan. Fungsi utama MEWS ini ialah bagi membolehkan penghantaran eksais 7 secara elektronik dan menguruskan kutipan pembayaran melalui Internet.

Sistem e-dagang yang terlibat di dalam rangka kerja ini dikenali sebagai Sistem Eksais Elektronik (EES). EES menggunakan teknologi pertukaran data secara elektronik (EDI) dan kemudahan Internet bagi mengendalikan proses-proses yang

terlibat di Eksais 7. Pengurangan tenaga kerja dan kos operasi adalah kesan yang besar diperolehi apabila menggunakan EES.

Kaedah kajian dimulakan daripada merekabentuk keseluruhan rangka kerja bagi infrastruktur berasaskan web dan membangunkan sistem e-dagang. Rangka kerja di dalam sistem e-dagang ini akan meliputi penghantaran atau penerimaan fail di dalam format UN/EDIFACT. Data yang diekstrak keluar dari format fail ini akan digunakan untuk menghasilkan Resit Pelepasan Eksais. Dokumen ini kemudiannya dihantar kepada penjual motor melalui e-mail ataupun melalui kemudahan fak.

E-dagang ini dikategorikan sebagai sistem berasaskan web dan boleh digunakan pada sebarang pelayar Internet seperti Internet Explorer (IE) dan Netscape Navigator. Teknologi yang digunakan bagi pembangunan sistem ialah Active Server Pages (ASP). Protokol komunikasi, Protokol Kawalan Penghantaran / Protokol Internet (TCP/IP) digunakan dalam sistem ini.

Tesis ini juga menilai keberkesanan penggunaan sistem e-dagang dengan menjalankan beberapa siri analisa yang terdiri daripada Analisa Keberuntungan Kos, Prestasi Sistem dan Kepuasan Pelanggan. Tesis ini secara jelas menunjukkan bahawa penggunaan sistem e-dagang telah memberikan impak yang signifikan terhadap proses bisnes. Pengadaptasian rangka kerja MEWS akan membantu MODENAS untuk mengubah sistemnya yang berprestasi rendah kepada sistem e-dagang yang lebih efisien dan mempunyai keberkesanan-kos.