

# E-commerce Catalogue Application For EON (Edaran Otomobil Nasional)

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## ABSTRACT (BAHASA MALAYSIA)

Projek ini bertujuan untuk membangunkan satu prototaip bagi aplikasi katalog e-dagang untuk EON (EDARAN OTOMOBIL NASIONAL). Laman EON menyediakan servis menempah kenderaan dan membuat tempahan kenderaan mengikut pesanan secara talian kepada pelanggan. Kenderaan yang terdapat pada laman ini adalah Proton Waja, Proton Perdana V6, Proton Wira Sedan dan Proton Iswara. Servis yang lain terdiri daripada penempahan masa untuk servis kereta secara talian, maklumat tentang kenderaan seperti harga, spesifikasi model, gambar-gambar kenderaan dan lain-lain, hubungan ke laman yang lain seperti institusi kewangan, syarikat insuran dan agen kereta terpakai Proton. Terdapat juga maklumat tentang cawangan jualan EON dan pusat servis EON di seluruh Malaysia. Terdapat empat modul utama bagi modul perniagaan laman EON iaitu modul mendapatkan maklumat, modul tempahan dan membuat tempahan mengikut pesanan secara talian, modul pesanan masa secara talian dan modul pengiklanan. Projek ini dibangunkan berdasarkan metodologi *Web Page Development Methodology* (WPD). Akhir sekali, projek ini membincangkan tentang kelemahan, kekangan dan cadangan untuk masa depan.

## **ABSTRACT (ENGLISH)**

The purpose of this project is to develop a prototype e-commerce catalogue application for EON (*EDARAN OTOMOBIL NASIONAL*). The EON web page provides on-line customization and ordering of cars services to customers. The cars available are Proton Waja, Proton Perdana V6, Proton Wira Sedan and Proton Iswara. Other services include on-line booking of time to service cars, information about the cars such as prices, model specifications, pictures of cars etc, links to other homepages such as financial institutions, insurance companies and second hand Proton cars dealers. There is also information about the EON sales branches and EON services centers throughout Malaysia. The business module of EON web page consists of four main functional modules. They are the view information module, online customization and ordering module, on-line booking module and advertisement module. This project uses the Web Page Development Methodology (WPD) as the development methodology. Finally, this project discusses some flaws, constraints and recommendations for future development.

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## CHAPTER 1

### INTRODUCTION

There are many definitions about e-commerce that have been found in the Internet. This is due to the different view given by different people or organizations based on different perspectives. E-commerce definition can be categorized into three types that is the definition of e-commerce from the perspective of the public or society, business and government or public sectors.

From the perspectives of the public or society, e-commerce is defined as, using the Internet to learn more about a product before driving to the store to purchase it, placing an order on-line and having the product physically shipped to the front door, ordering and receiving software, music or a video without ever leaving the house, participating in degree program from a college hundreds of miles away, or renewing a driver's license at a kiosk on the corner.

**([http://www.cspp.org/projects/cspp\\_gec/index2.html](http://www.cspp.org/projects/cspp_gec/index2.html))**

From the perspective of the business sectors, e-commerce is defined as, providing company and product information, and technical assistance on-line

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## BIBLIOGRAPHY

### JOURNALS

(Bloch, Pigneur & Steiner, 1996) Bloch, M. Pigneur, Y. & Steiner, T. 1996.

**The IT-enabled Extended Enterprise: Application In The Tourism Industry.** Information And Communication Technologies In Tourism,

(Deloitte & Touche Survey, 2000) Vargas, Melody Treece. 2000. **Internet Sales And Predictions.** About.com, Inc.

(Hoffman, Novak dan Chatterjee, 2000) Hoffman, Donna L, Novak, Thomas P dan Chatterjee, Patrali. 2000 **Commercial Scenarios For The Web: Opportunities And Challenges.** Research Program On Marketing In Computer-Mediated Environments.

(Hom, James, 1996) Hom, James, 1996 **Prototyping.**

(Margherio, 2000) Margherio, Lynn. 2000. **The Emerging Digital Economy.**



(Mesenbourg, 2000) Mesenbourg, Thomas L. 2000. **Measuring Electronic Business: Definitions, Underlying Concepts, And Measurements Plans.** Bureau Of The Census.

(Microsoft: E-commerce Definition, 1999) Berman, Mark., Glenn, Scott., Samsi, Caesar., Kapczynski, Mark, Kingery, Lori dan Agarwal, Mukesh, 1999. **Microsoft Commerce Solutions.**

(Muhamad Bin Ali, 1998) Muhamad Bin Ali, 1998. **MBA Web Page Development Methodology.**

## **BOOKS**

Rockwell, Browning. 1998. *Internet World: Using The Web To Compete In A Global Marketplace*. Wiley Computer Publishing. Canada.

Eager, Bill and McCall, Cathy. 1999. *The Complete Idiot's Guide TO Online Marketing*. QUE Corporation. United States Of America.

Janal, Daniel S. 1995. *Online Marketing Handbook*. Van Nostrand Reinhold. United States Of America.

## **NEWSPAPER CLIPPINGS**

**One New Proton Model A Year**, The Star (8 February 2001)

**Telekom Boss Sees Potential In E-commerce**, The Star (27 March 1999)

**Pasaran E-dagang Negara Melebihi RM3.8 bilion**, Utusan (25 March 1999)

## **OTHER WEB SITES**

<http://www.sunmicrosystems.com>

<http://www.teennet.com.my>

[http://www.cspp.org/projects/cspp\\_gcc/index2.html](http://www.cspp.org/projects/cspp_gcc/index2.html)

<http://www.autobytel.com>

<http://www.carpaint.com>

<http://www.carsmart.com>

<http://www.greenlight.com>

<http://www.gomez.com>

## **ANNUAL REPORTS**

**EON 1999 Annual Report**

**Proton 1999 Annual Report**