

**DOCUMENT MANAGEMENT SYSTEM PORTAL (E-TANAH)**

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BACHELOR OF SCIENCE (Hons.) IN  
DATA COMMUNICATION AND NETWORKING

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FACULTY OF INFORMATION TECHNOLOGY AND QUANTITATIVE SCIENCE  
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SHAH ALAM  
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## **DECLARATION**

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

In the event that my thesis be found to violate the conditions mentioned above, I voluntarily waive the right of conferment of my degree and agree be subjected to the disciplinary rules and regulations of MARA University of Technology.

November, 2007

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## **ABSTRACT**

Document management system is the automated control of electronic documents- page images, spreadsheets, word processing documents, and complex, compound documents - through their entire life cycle within an organization, from initial creation to final archiving, it allows organizations to exert greater control over the production, storage, and distribution of documents, yielding greater efficiencies in the ability to reuse information, to control a document through a workflow process, and to reduce product cycle times. The purpose of this study is intended to develop a Document Management System Portal for Gombak Land and Registry Office that is called E-Tanah. E-Tanah Portal uses Liferay Portal as the software because of its reliability and cost effective tools. Overall, this portal helps to improve customer satisfaction and benefit the organization in managing a better document management system solution for a better transaction in the Gombak Land and Registry Office.

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## **ABBREVIATION AND ACRONYMS**

DMS	Document Management System
CMS	Content Management System
HTML	Hyper Text Markup Language
HTTP	Hyper Text Transfer Language
LAN	Local Area Network
PC	Personal Computer
WWW	World Wide Web
WI-FI	Wireless Fidelity
WLAN	Wireless Local Area Network

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# CHAPTER 1

## INTRODUCTION

### 1.1 Introduction

Document Management System (DMS) as the branch of Content Management System (CMS) gained importance during the Web explosion in the mid-1990s. However, the concept of utilizing content management solutions to manage Land and Registry Office as a Portal has only starting to emerge. More and more organization is coming to the same conclusion: that Document Management Portal needs to be manage throughout the document life cycle, that static HTML pages are time consuming to maintain, and that a lot of Document Management Portal can be re-design effectively. Additionally, rising demands from user for customized Web functions, as well as from the Land and Registry staff for easier and more streamlined internal workflows, are all calling for more effective solutions to Web document management. Document management solutions therefore seek to make content more usable to user community and to streamline the process of creation and publication of Land and Registry documents, thereby reducing the time and cost of document management.

Document Management can simply be defined as a process of collecting, organizing, categorizing and structuring information resources of any type and format so they can be saved, retrieved, published, updated and re-purposed in any way desirable.

The ultimate goal of publishing a Document Management Portal through the use of a Content Management System is to automate the entire process of writing and publishing content by integrated easy-to-use Web authoring tools with a large database of information resources, while ensuring that the Portal users receive well managed and current information with a consistent look and feel. These databases are designed to allow easier management and retrieval of the resources and incorporation into a variety of Web presentations.

## **1.2 Statement of the Problem**

Currently, all affairs in Land and Registry Office still use traditional methods and take a long time and detrimental capital human cost. All the transaction in Land and Registry Office will be dealt according to order where it need once through office clerk before document or data that achievable. The clerks have to search the document in the safe room and get approval senior officer before it can be used and presented. This increases human capital cost and also time because a transaction have to go through a number of process before it can be settled.

Land and Registry Office are facing the situation where demand for dynamic access and online delivery of information is growing rapidly. In mane of these organizations the Web content is created by a roaster of administration staff, including IT professionals and interns. As a result, the question on how to streamline the workflow and publish easily and consistently has become a critical issue. The Webmaster model is still employed by many organizations as a primary means to manage Web site, but has been proven inefficient in an environment where team of developers and editors contribute to the websites. The changing nature of Web authorship and user demands is necessitating change in how Land and Registry Office manage their Web sites.

With the implementation of Document Management System Portal, all the documents, files and data will be integrated into a system that will manage documents without hassle. The portal itself will give the administrator and the user itself the benefit of managing their documents from initial archiving to the collection process.

## **1.3 Objective of the Research**

The Document Management Portal is the automated control of electronic documents consists of various document formats – throughout the lifecycle of the document within the organization. The process takes place from the creation to the archiving of the documents. The objective of this project is to

- To study the requirement of E-Tanah Portal
- To design a Document Management System Portal called **E-Tanah** that uses **Liferay Portal**.
- To give clients alternatives to access info about **E-Tanah** by delivering broadcasting in the application.

#### **1.4 Scope of the Research**

Any organization can get benefit form this project because its application is applicable in any infrastructure. However this project is intended for Gombak Land and Registry Office because of its reliability and functions as a Portal Module to place data and documents for **E-Tanah**. The authority and staff of the Gombak Land and Registry Office that has the authority to access the Portal and enabled user to use the portal for efficiency and reliability.

#### **1.5 Significance of the Research**

By doing this project, it will provide several benefits to the organization. It also can help in many services such as in business, education, increasing productivity, reducing costs and improving customer satisfaction Below is the list of benefits for the organization that implement this application.

The implementation of the Portal can create a more productive and ideal workforce for the land administration and management services in the Peninsular Malaysia. The document management will be better because no more black and white are used as the medium for transaction or so called paperless transaction. The portal can be used as a medium for user to get the information and documents needed to ensure the transaction on Gombak Land and Registry Office will be efficient. The portal also gives the management a better solution for a document management system.

With better management of documents comes the better management of time because there will be a better workflow between the customer and the officer involved. This means that all transaction can be done instantly without delays.

## **CHAPTER 2**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

Before proceeding into further advanced topic, the review of literature works in various topic performed in the scope of the undertaken thesis project. It is essential to review of literature as it is a background study about knowledge and information gained to develop this project. The objective of literature review is to integrate the whole by planning steps and mechanism to approach the review in systematic way.

Reference, related articles, and example of previous similar thesis have been searched, analyze and evaluate. Often the results from literature review are thorough and reliable. Research had been done to discover and understand new concepts such as the advance of web authoring tools, client-server architecture, Database Management System (DBMS), technology for database connection and programming language.

#### **2.2 Definition of Document Management System**

There are several definition for Document Management System, they are:

“Document Management System: A proprietary electronic system that scans stores and retrieves documents received or created by an organization. There is a distinction between this and an Electronic Records Management System (q.v.)”[1]

“Document Management System: Typically makes use of a backend database for storing and managing resources.”[2]



“Document Management System: Originally, a document management system was a computer program (or set of programs) used to track and store images of paper documents. More recently, the term has been used to distinguish between imaging and records management systems that specialize in paper capture and records respectively. Document management systems commonly provide check-in, check-out, storage and retrieval of electronic documents often in the form of word processor files and the like.”[3]

“Document Management System: Handles documents by electronically storing, organizing, indexing and filing. They can be retrieved when required, without any loss of time. It uses imaging technology to enable access to the unstructured data, it brings all documents to your desktop and enables you to work with them, eliminating the need for paper-based documents and it is a powerful document archival system, which ensures safety of documents, faster access to them and huge cost savings.”[4]

From all the definition above, we can simplify that a Document Management System is a process of documenting a document to a proper location and storage. Document management systems commonly provide storage, versioning, metadata, security, as well as indexing and retrieval capabilities. It is done so that it will be easier for the organization to retrieve and use the data efficiently and effectively. It reduces time, faster access and saves human cost. Because of this characteristic, Document Management System must also have a good security system and easy interface level so that it is safe and environment friendly to use.

### **2.3 Definition of content management system**

There are several definition for Document Management System, they are:

“A **Content Management System (CMS)** is a software system used for content management. Content management systems are deployed primarily for interactive use by a potentially large number of contributors. The content managed includes computer files, image media, audio files, electronic documents and web content. The idea behind a CMS is to make these files available inter-office, as well as over the web. A Content Management System would most often be used

as an archive as well. Many companies use a CMS to store files in a non-proprietary form. Companies use a CMS to share files with ease, as most systems use server-based software, even further broadening file availability.”[5]

“Content Management System a system used to organize and facilitate digital content. Originally as simple as a rolodex or encyclopedia, today’s content management systems are elaborate software/database applications designed to store and process large amounts of complex information.”[6]

“A content management system (CMS) is a system used to manage the content of a web site. A CMS allows the content manager or author to manage the creation, modification, and removal of content from a Web site without needing the expertise of a Webmaster.”[7]

From all the definition above, we can simplify that a Content Management System is a process of managing a website. The content managed includes computer files, image media, audio files, electronic documents and web content. It is easy to use and have a lot of in stored document management system that allows greater document capturing, searching and storing. Furthermore content management allows the manager or author to create, modify and remove the web content without needing webmasters expertise.

## **2.4 Introduction to Portal Application**

The main foundation for the web based portal application is World Wide Web (WWW). This foundation offer all web based functionality thus making application more reliable and portable. The application can be run anytime and anywhere. World Wide Web also provides cross-platform function that will enable user to input data in real time situation. All update can be done quickly and efficiently.

The only software needed by client side to access and execute portal application is the web browser. Examples of web browser are:-

- Microsoft Internet Explorer
- Mozilla Firefox
- Opera
- Apple Safari

All operating system nowadays are bundled with web browsers, so there is no problem in getting the software.

Web application provides a rich and interactive environment, Key features of a portal application are centrally located application database and document information is update in real time where the application can be accessed remotely:-

The advantages of web application are:-

- Applications are resident in the server.
- All data input in the system is done in real time.
- Data is available in real time.
- It allows users to log onto the system from anywhere in the world as long as they have computer, internet connection and a web browser.
- System administration can performs remotely.
- Web based solutions are based on the web principle of open architecture which eliminates the integration problem.
- Distributed architecture provides for stable system with features such as data mining and redundant servers, eliminating any type of system downtime.

## **2.5 Scope of Document Management System**

The scope of DMS includes combinations of DMS system and tools or application. A fully featured DMS portal includes the process from content inception to publication, in a system that allows a web administrator to streamline workflows and to enable all content contributors to easily edit, update and publish Web content without in-depth knowledge of HTML. Many organization have utilize DMS portal application to create or maintain portions of their Web

content, such as portal guides or FAQ, online electronic resource list and also the staff name and directories.

Boiko (2001) categorizes DMS Portal into four levels they are:

- Nominal DMS Portal systems are tools like Microsoft's Notepad, Front Page and Macromedia Dreamweaver. These tools provide basic Document management mechanisms such as template to all authors to create standard layouts across websites and link managers to verify that all links are working properly and publication managers allows Web managers to upload newly created or modify pages to Web servers. These tools are suited for creating and managing small and single websites.
- Database-driven or dynamic websites, in a strict technical sense they are not DMS but rather a website application. A dynamic web is a "system for producing web pages 'on the fly' as users request them" (Boiko, 2001). Usually, the application contains a data source stored on a web server. The data source can be built using a relational database or XML structure, or other structure constructed by scripting language such as Javascript. The data source contains the content in response of user's queries when a user clicks on a link.
- Full DMS system functions throughout the process from document collection to publication, and manage content contributors and workflow. A full DMS system contains a relational database serving as a repository of all content from text, HTML files, graphics to style sheets, a live data source generated by the DMS for the dynamic parts of the website.
- Enterprise DMS encompass the entire content creation and management for the organization, not just the website.

A full picture of a DMS Portal contains a complex mix of technologies. Repositories, process and quality control, all which need to work together. Technically integration across these areas is a key for a successful implementation of DMS portal.

## 2.6 Needs and Benefits of Implementing DMS Portal Solutions

Organisations are seeking to manage their Web content for a number of reasons, some of which reflect standard business practices and some of which are unique. DMS portals are to get a handle on the increasing local content, the number of sources of information provided by organisation staff is increasing. As a result, more staff is included as contributors, many with non-technical backgrounds. Administrators also have expectations that more organisation services be Web enabled, resulting in more access and information services going online. Some of these services are handled organisation automation software, but increasingly Web sites are designed to integrate these services into a one-stop-portal-like environment.

Organisation users are becoming more demanding in their information needs and demanding higher levels of personalisation based on their experiences with commercial sites such as those hosted by online booksellers. Expectations are that entire organisation services should be represented in the Web site. Content often requires re-purposing for different audiences or different uses such as handhelds. Additionally, organisations are beginning to focus on content that is unique to the online environment including online news, digital collection, live interaction, and tutorial delivery. Processes and tools must therefore be developed to publish organisation events, happenings, policies and other activities to the organisation Web site (Clay, 2003).

A Web site grows in size and complexity. Web administrators find it often grows “beyond the ability to manage it as a collection of static HTML pages” (Guenther, 2001a). Other aspects surrounding Web development also come into play. In addition to more organisation staff in Web content creation, Guenther summarises the factors that contribute to the rising demand for a DMS portal solution. More functionality is required to serve Web users and internal Web developers, and standards need to be implemented for a more consistent look and feel (Guenther, 2001a). Some of the pressing needs that are emerging are as follows:

- The ability to personalise or customise content for different user groups
- The ability to streamline workflow and reduce workload stemming from tedious and repetitive tasks
- The ability to achieve quality control
- The ability to reduce cost of managing the organisation's Web
- The ability to re-purpose, or reuse, content in multiple information sets, to deliver the content to both organisation internet an intranet, and for other publications

Hackos (2002) indicates that “content management is no longer an option, given the complexity of information access and retrieval”. To meet the above-stated needs, content must be organised in a content management system or application to ensure that it is managed effectively, retrieved easily, and delivered in different formats.

## **2.7 Content Creation, Updating, Delivery and Reuse**

In many organisations, the need for DMS portal lies in the areas of subject guides or pathfinders, lists of electronic resources, organisation news, organisation personnel rosters, and more. For example, the process of creating or updating guides or pathfinders can be tedious, repetitive, and labour intensive, and it requires staff to be familiar, or even proficient with HTML coding. A well-designed DMS portal can resolve this issue by providing non-technical staff with an online form or template for content input and update. The content only needs to be input or updated once, and it can be propagated to as many subject lists as needed. Content is stored in a database, where each piece of information is describe and tagged with appropriate metadata. Once the content resides in a well-organised database, it can be efficiently retrieved and delivered to either a static Web display or a dynamic display through live searches or pre-defined lists such as information guides.

The differences between a static Web site and a database-driven or dynamic Web site lies in how the data is stored and written. On a static Web site, the content on each individual page has to be entered manually. The content of the page does not change unless the page is edited or updated. Therefore, content and presentation in a static Web site forms an inseparable unit. There

are both benefits and drawbacks to static Web site. Undoubtedly, static Web sites loads quickly and are also inexpensive to run. However there is a prominent drawback: all pages are written in HTML, so that only staff with HTML skills can create, modify, or update pages, which is often a labour-intensive task.

By contrast, content on a database-driven or dynamic site is stored in a database (e.g. Access, SQL, Oracle, MySQL, or home-grown). When the content in the database is modified or updated, the content on the Web pages is changed accordingly. This feature empowers staff without HTML skills to create and update the Web content. As Brown and Candreva (2002) point out: “This puts the power of content generation into the hands of the experts, while the burden of the page layout, design and coding, lies with technology specialists”. Guenther (2001a) considers that the heart of most content management systems is the ease which participants can add content to a Web site. Feature bound in DMS portal or applications “take to the technical burden off the contributors and allow them to participate without having to know HTML”.

Using a DMS portal or similar application can simplify the content creation updating process and reduce the number of people involved in HTML coding, thereby dramatically reducing the number of files to maintain, and allow staff to concentrate on content delivery and instruction. More importantly, it provides users with the most updated and accurate information.

In static HTML format, content cannot be reused or re-purposed for other uses, such as for wireless handhelds. With a properly implemented DMS portal, it can be ensured that the information content is written once, and can be published and updated everywhere, and re-purposed for different user groups and different electronic devices.

## **2.8 Webmaster Model No Longer Viable**

The traditional Webmaster approach has proven inefficient because this model lacks the flexibility and scalability needed to effectively manage the complexity and volume of organisation Web content. This factor has been clear, as many organisations conceptualise or re-conceptualise and move to DMS portal solution. In many organisations today, the publishing of

content to the organisation Web site follows the same model as in early days: Web authors submit pages to the Webmaster who publish them to the live site. In that model the Webmaster then “became responsible for soliciting content, ensuring stylistic conformity, and handling other coordination tasks” (Antelman, 1999). In most cases, organisation Webmasters are working overtime and taking extra responsibilities. While they are dreaming about instant updates and simultaneous changes for all pages, in reality they have no extra time to educate themselves or investigate new technologies. Such a situation clearly hinders the development of new and advanced functionalities as users have expected, often relieving the Webmaster or Web editor of having to manually check new and updated pages.

## **2.9 Look and Feel**

Implementing database-driven solution allows the separation of content from presentation and provides more display flexibility. The strength of the Web is its ability to display data and engage the user, while the main characteristic of the database is to store data. The benefit of a database solution then is to let each do the job they are best at. The main benefit of this arrangement to a contributing staff is that, in simple terms, “it allows one to focus on inputting rather than formatting” (Westman, 2002). Managing content allows for greater control of the site, resulting in greater consistency in look and feel. The look of the site can be change more easily without requiring overall reformatting of the content. For example, one change to the calendar updates all instances of the calendar in schedules and posted hours. The organisation of the Web site and the navigation structure can be designed to accurately reflect user needs.

## **2.10 Workflow Management and Quality Control**

The demands from external users for more features, and from staff for reducing workload, lead many libraries to consider streamlining the Web development process. In many organisations, content for the Web site is contributed by a variety of staff, ranging from professionals and paraprofessionals, to assistant and interns. With so many participants involved, the process of content creation, editing, reviewing approval, and publishing can be disorganised or chaotic. To