

**MALAYSIAN SCHOLARLY E-JOURNALS: FOCUS ON EJUM,  
A JOURNAL MANAGEMENT SYSTEM**

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**ABSTRACT**

*Presents an overview of the various Malaysian scholarly electronic journals available on the Internet and describes the issues involved in setting up a journal hosting system which currently publishes the Malaysian Journal of Library & Information Science (MJLIS) and Malaysian Journal of Computer Science (MJCS). Both journals are accessible via the Internet in 1999 with its print equivalent still being published and distributed.*

**Keywords**

Electronic journal ; E-journal ; Scholarly electronic journal ; Malaysia ; MJLIS, MJCS, EJUM.

**INTRODUCTION**

The creation of a complex electronic communication system by the Internet and other global computer networks has significantly changed the way scholars and researchers formally or informally exchanged information. What was once in the print format is now readily available in an electronic format that is easily accessible via the Internet. Popularly known as the electronic journal or the e-journal, this concept was first introduced by Lancaster (1978) as early as the mid-1970's. He attributed its existence to the increase in costs of traditional publishing, decrease in budgets of libraries and the ability to access digitized information stores online cheaply and efficiently.

Edzan (1996) defined e-journal as a regularly issued publication that is available in electronic form, with or without its print equivalent and is accessed online. Within this paper, the definition stills holds true. Any journal produced, published, distributed and received via an electronic medium is considered an e-journal (Zainab et al., 2000). The 1990s saw an increasing acceptance of the e-journals for communicating research results. E-journals began on an experimental basis in 1976 (Turoff and Hitzl, 1982). It is estimated that there are now over 10,000 electronic journals (Bonac, 1998).

The Internet has made it possible and viable to sustain networked e-journals and an increasing number of commercial publishers are also venturing into this new mode of delivering journal (Hitchcock, Carr and Hall 1996; Highwire, 1999). The first peer reviewed e-journal was *Online Journal of Current Clinical Trials* (Keyhani, 1993) and the number has increased to over two thousand by 1997. Table 1 indicates the estimated number of e-journals based on figures collected from the *Directory of Electronic Journals, Newsletters and Academic Discussion Lists* (published in 1991 to 1996) (McEldowney, 1995; Ooi, 2000). The figures in the Table indicate a steady increase with no signs of leveling off. The figures in 1995 indicate an increase of about seven times more than the figures stated in 1991.

Table 1: E-journals and Communications (1991-1997)

Types of Publication	1991	1992	1993	1994	1995	1996	1997
Journals	27	36	45	181	306	1093	2459
Newsletters	110	97	195	262	369	596	955
Total	110	133	240	443	675	1689	3414

Mogge (1999), the editor of the *Directory of Electronic Journals, Newsletters and Academic Discussion Lists*, provided the following subject distribution of e-journals listed in the directory: 28% in the social sciences, 21% life sciences, 15% technology, 14% recreation/general interests and arts and humanities respectively; and 8% physical sciences. Hitchcock and Hall (1996) focussed on science, technology and medical (STM) journals only and identified 115 titles that fits the description of being scholarly and peer-reviewed. This differ from the figures obtained by Harter and Kim (1996) who identified 131 STM e-journals and the subject distribution of the journals are: 28 in the sciences, 34 in the social sciences, 31 humanities and professional subjects respectively and 7 of the titles cannot be subject-categorised. Out of the 131 STM e-journals, only 77 were considered scholarly and peer reviewed.

Several attempts have been made to categorized the types of electronic journals. Harter and Kim (1996) proposed seven modes of e-journals: (a) e-journal that replaces the print version; (b) e-journal that co-exists with its print counterpart with the same or different pricing arrangements; (c) an e-journal version only that can supply print copies of individual articles on demand (e.g. *Chicago Journal of Theoretical Computer Science*); (d) e-journal that is made available immediately after the print version is published; (e) e-journal that is published several months after the print version (e.g. *Slavic Review*); (f) print version of a journal is published several months after the electronic version; and (g) web pages that inform the

existence of journals giving information and abstracts on the contents of print issues without access to the full-text version of the journal.

The Coalition for Networked Information or CNI (Bailey, 1994) have developed seven economic models for networked information in order to ensure that there is a proper structure for scholarly network-based electronic publishing. These CNI Models consist of:

- (a) Benchmark print-based model, that uses data obtained from the various activities of print publishers as baseline data for comparison with the activities of the newer electronic information models;
- (b) Acquisition-on-demand model, where scholarly articles would be made available on the network file servers at a price. Users would then retrieve the desired articles and they would have to pay for every article retrieved;
- (c) National site license model where publishers are allowed to license their electronic information to major redistributors for usage. This would enable an author's work to be widely distributed, publishers would have a larger readership for their journals, libraries would incur lower unit costs and users are able to have access to more information;
- (d) Discipline-specific literature base model that involves the development of a comprehensive electronic information system for each major academic discipline;
- (e) Augmented print model where publishers market print and electronic products based on user information needs. Thus, the publishers involved should have a mechanism to gauge information needs of their users in order to fulfill their information needs.
- (f) Distributed information model where publishers would provide diverse electronic products on a government-subsidized network. Therefore, the publishers are made to compete with each other for customers; and
- (g) Corporation for scholarly publishing model where the Corporation for Scholarly Publishing, or, CSP would have to be established. The CSP would distribute federal funds to non-commercial publishers as a means for them to support scholarly electronic publishing programs. The federal funds would be supplemented with funds obtained from corporate and private donors.

*EJUM (Electronic Journal of the University of Malaya)* is an online journal management system developed at the Faculty of Computer Science and Information Technology, which currently hosts two journals: the *Malaysian Journal of Computer Science* and the *Malaysian Journal of Library & Information Science*. This article aims to describe the systems design and features provided by EJUM and compares this to current e-journals available in Malaysia.

## MALAYSIAN SCHOLARLY ELECTRONIC JOURNALS

In Malaysia, the number of journals being published electronically is increasing at a very slow pace. There are few Malaysian e-journals that truly fits the mould of a scholarly journal. Initially, Roosfa (1999) identified only six such journals – the *Malaysian Journal of Computer Science*, *Jurnal Dewan Bahasa, Akademika*, *Current Law Journal*, *Jurnal Kejuruteraan* and *Buletin Akademik Kognitif*. However, to date, as mentioned earlier, the number has increased slowly but steadily (Table 1). Only journals that provide access to full-text articles are included. The Table indicates eleven titles that provide full-text, free access and downloads. Most of the e-journals provide access to full-text of articles. Clicking on the titles displayed on contents pages, will normally provide access to full-text of articles. Only the *Malaysian Journal of Computer Science* and *Malaysian Journal of Library & Information Science* allow more complex search features and this will be described in the following section. There are a number of Malaysian scholarly journals, which has announced their publications by displaying html pages on the contents of selected issues, but do not provide full-text access. Examples of such journals are *Kajian Malaysia = Journal of Malaysian Studies* and *The Malaysian Journal of Distance Education= Jurnal Pendidikan Jarak Jauh Malaysia*, both published by Universiti Sains Malaysia and *Jurnal Arkeologi Malaysia* published by Universiti Kebangsaan Malaysia.

Table 1: Malaysian Electronic Journals on the Net

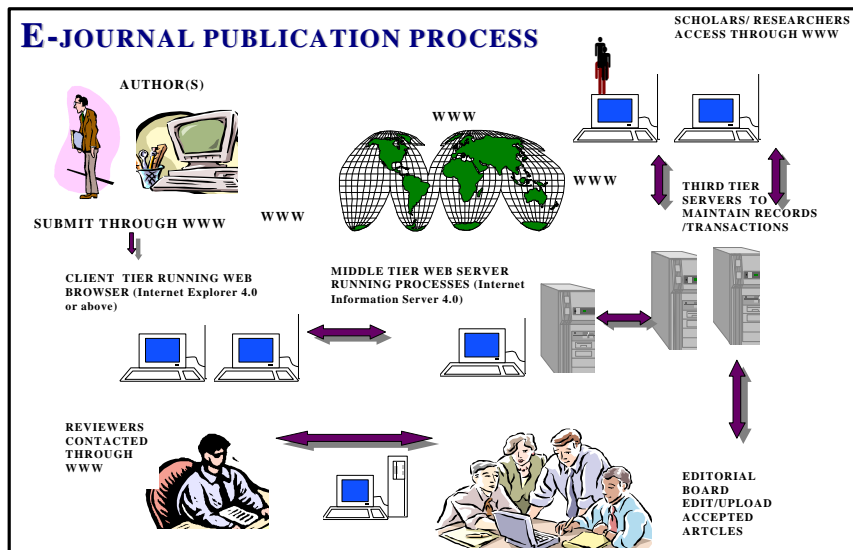
Journal Title	URL/Publisher/Field	Features
<i>Akademika</i>	<a href="http://www.penerbit.ukm.my/jademik.htm">http://www.penerbit.ukm.my/jademik.htm</a> Publisher: Penerbit Universiti Kebangsaan; Field: Social sciences and humanities.	Full-text & free; Frequency: June & December; Bilingual; Electronic version: 1999
<i>Annals of Dentistry</i>	<a href="http://nts.mdc.um.edu.my/journal/Home.asp">http://nts.mdc.um.edu.my/journal/Home.asp</a> Publisher: Dental Faculty, University of Malaya Field: Dentistry; Oral sciences	Full-text & free after online registration. Vol.6 is available online
<i>Buletin Akademik Kognitif</i>	<a href="http://www.upsi.edu.my/fspm/buletin_akademik_kognitifakulti.htm">http://www.upsi.edu.my/fspm/buletin_akademik_kognitifakulti.htm</a> Publisher: Faculty of Cognitive Science and Human Development, Universiti Pendidikan Sultan Idris.	Full-text & free
<i>Current Law Journal</i> or <i>CLJ-Online</i>	<a href="http://www.cljlaw.com">http://www.cljlaw.com</a> Publisher: Current Law Journal Field: Law	Full-text for subscribers
<i>Electronic Journal on Information Systems in Developing Countries</i>	<a href="http://www.unimas.my/fit/roger/EJISDC">http://www.unimas.my/fit/roger/EJISDC</a> Publisher: University Malaysia Sarawak, City University of Hong Kong, Erasmus University of Rotterdam & Delft University of Technology. Field: Information systems; Computer Sciences.	Full-text & free; Frequency: Vol.1 – 3, 2000

e-THOUGHT	<a href="http://phuakl.tripod.com/eTHOUGHT/eTHOUGHT1.htm">http://phuakl.tripod.com/eTHOUGHT/eTHOUGHT1.htm</a> Field: Current issues pertaining to Malaysia & international affairs.	Full-text & free; Available Vol. 1 (Oct-Dec 2000) and Vol.2 (Jan-March 2001)
Jurnal Dewan Bahasa	<a href="http://dbp.gov.my/dbp98/majalah/bahasa98/j898fra.htm">http://dbp.gov.my/dbp98/majalah/bahasa98/j898fra.htm</a> Publisher: Dewan Bahasa dan Pustaka. Field: Malay Language and Literature	Full-text for subscribers; Frequency: monthly; Electronic version: since January 1998.
Jurnal Kejuruteraan	<a href="http://www.engukm.my/reading/jurnal.jurnal.htm">http://www.engukm.my/reading/jurnal.jurnal.htm</a> Publisher: Faculty of Engineering, Universiti Kebangsaan Malaysia. Field: Engineering	Full-text & free; Bilingual; Frequency: Annual; Electronic version appeared in 1998.
Jurnal Teknologi	<a href="http://www.utm.my/penerbit/jurnal.htm">http://www.utm.my/penerbit/jurnal.htm</a> Publisher: Universiti Teknologi Malaysia/ Field: Information Technology.	Full-text for subscribers; Frequency: semi-annual
Malaysian Journal of Computer Science	<a href="http://www.fsktm.um.edu.my">http://www.fsktm.um.edu.my</a> Publisher: Faculty of Computer Science and Information Technology, University of Malaya. Field: Computer science and information technology	Full-text & free; English; Frequency: June & December
Malaysian Journal of Library & Information Science	<a href="http://www.fsktm.um.edu.my">http://www.fsktm.um.edu.my</a> Publisher: Faculty of Computer Science and Information Technology, University of Malaya. Field: Information and Library Science	Full-text & free; English; Frequency: July & December
Medical Journal of Malaysia	<a href="http://www.mma.org.my/info/mmj.htm">http://www.mma.org.my/info/mmj.htm</a> Publisher: Malaysian Medical Association. Field: Medical sciences.	Full-text & free; Frequency: Quarterly; 1999 and 2000 issues are online

## ELECTRONIC JOURNAL OF THE UNIVERSITY OF MALAYA

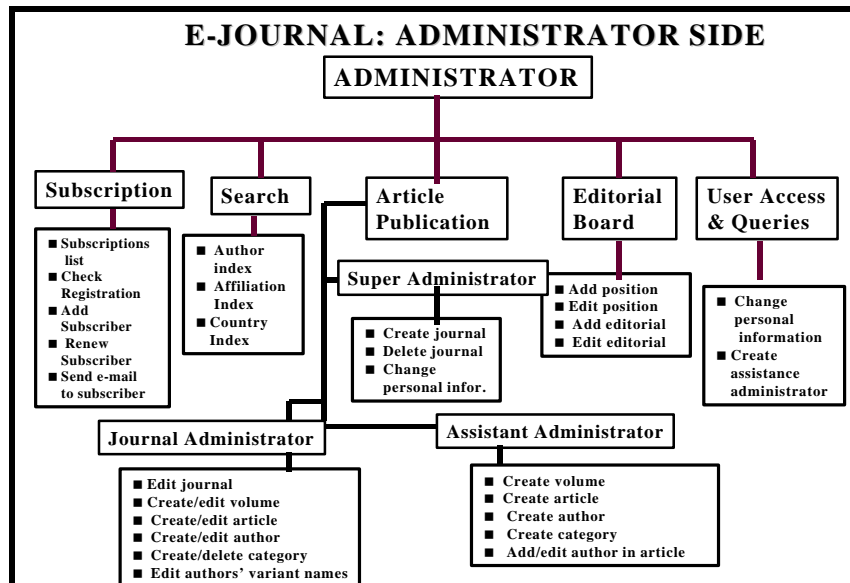
*EJUM* or *Electronic Journal of the University of Malaya* is an Internet-based journal management system that uses the three-tier client-server architecture (Figure 1). The client tier comprises computers with Internet Explorer (4.0 or above). User interfaces are provided for clients to process their application and manipulate their data. The Adobe Acrobat Reader is required to view and print articles retrieved online as all the articles are delivered in the PDF format. The middle tier consists of Internet Information Server 4.0 as the web server. All application programs reside in the middle-tier (web server). The web server processes the request from the client and then returns required result in web page format. It will process any data request by linking to a database server (such as authenticating and validating users that login into the system). It is also linked to Microsoft Transaction Server, especially when clients are uploading files to the web server. The third tier consists of the Microsoft SQL Server 7.0 as the database server and Microsoft Transaction maintains the data records. Every query requested from the web server is first authenticated and the results are passed back to the web server.

Figure 1: The Three-Tier System Used and New Publication Process



EJUM is developed using the “Bottom-up Approach”. In this approach, a system is divided into different modules and sub-modules. This approach ensures that every module is developed and tested for correctness and accuracy (Figure 2).

Figure 2: EJUM's Features on the Administrator's Side



The system provides for three types of administrators: (a) Super administrator; (b) Journal administrator; and (c) Assistant administrator. Each type of administrator is given different authorization facilities as well as a different menu that displays options.

**(a) The Super Administrator**

The description of the Super Administrator’s menu is given in Table 2.

Table 2: Super Administrator Menu

Modules	Menu Items	Sub-Menu Items	Description
Article Publication	Add Journal		Lets super administrator to create new journal
	Delete Journal		Lets super administrator to delete journal
User Access & Queries	Change My Information		Assists super administrator to change his personal information such as password, e-mail and name
	Sign Out		Lets super administrator sign out

**(b) Journal Administrator**

The journal administrator’s module facilitates the management of article submission and uploading into the system. The functions and description of the Journal Administrator’s menu is given in Table 3.

Table 3: Journal Administrator’s Menu

Modules	Menu Items	Sub-Menu Items	Description
Article Publication	Journal		Allows administrators to update journal information
	Volume	Create New Volume	Allows administrators to create new Volume
		Edit Existing Volume	Allows administrators to update /delete existing volume
	Article	Create New Article	Allows administrators to create new article
		Edit Existing Article	Allows administrators to update /delete existing article
		Edit Authors In Existing Article	<ul style="list-style-type: none"> <li>Allows administrators to add /update /delete authors in the existing article.</li> <li>Allows administrator to generate abstract in HTML format</li> </ul>
		Article List	Displays all article’s titles and article’s ID group by volumes
	Category	Category Records & Create New Category	<ul style="list-style-type: none"> <li>Displays all categories</li> <li>Allows administrators to create new category</li> </ul>
		Deletes Existing Category	Allows administrator to delete existing category
	Author	Creates New Author	Allows administrator to create new author

Modules	Menu Items	Sub-Menu Items	Description
Journal Articles	Author	Edit Existing Author	Allows administrator to update/ delete existing author's record
		Edit Variant Author Name	Allows administrator to add/ delete variant names of author
Search Engine	Search	Author Indexing	Lists author's information according to first character of the author's name
		Affiliation Indexing	Lists author's information according to first character of author's affiliation status
		Country Indexing	Lists author's information according to first character of the country the author comes from
User Access & Queries	Assistant Administrator	Create New Assistance Administrator	Allows administrator to create new assistance administrator to assist him/her
		Edit Existing Assistance Administrator	<ul style="list-style-type: none"> <li>Allows administrator to update personal information of assistance administrators</li> <li>Allows administrator to delete record of assistance administrator</li> </ul>
	Sign Out		Lets administrator sign out
Subscription	Subscription		<ul style="list-style-type: none"> <li>Lists all registrations on-line</li> <li>Adds subscriber</li> <li>Sends feedback to those who register via e-mail</li> </ul>
	Subscription List		Lists all subscribers information
Editorial	Editorial	Position Listing	<ul style="list-style-type: none"> <li>Lists all positions in editorial board</li> <li>Add/edit/delete a position in editorial board</li> </ul>
		Add & Delete Editorial Board	<ul style="list-style-type: none"> <li>Add /delete editorial members</li> </ul>

### (c) Assistant Administrator

Table 4 is the menu for Assistant Administrators and describes the functions of support staff in the editorial process. Assistant administrators are not allowed to make any deletions to data entered. That function has been given to the journal administrators or super administrators.

Table 4: Assistant Administrator's Menu

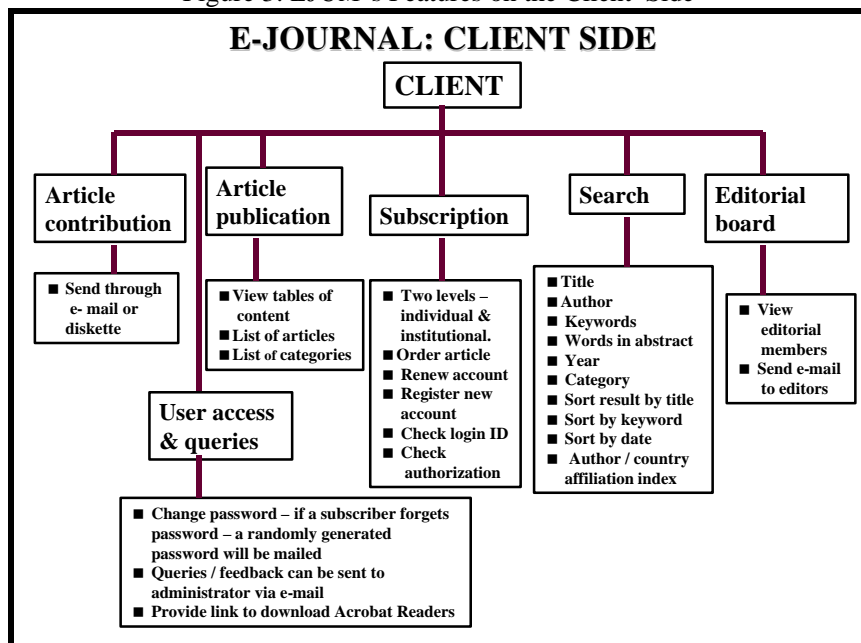
Module	Menu Item	Sub-Menu Item	Description
Article Publication	Adds Volume		Allows assistance administrators to create new volume
	Adds Article		Allows assistance administrators to create new article



	Main Menu	Sub-Menu Items	Description
	Adds Author to Article		<ul style="list-style-type: none"> <li>Allows assistance administrators to add authors in the existing article.</li> <li>Allows assistance administrator to generate abstract in HTML format</li> </ul>
	Addd Category		<ul style="list-style-type: none"> <li>Displays all categories</li> <li>Allow administrators to create new category</li> </ul>
	Add Author		Allows administrator to create new author
Search Engine	Search	Author Indexing	Lists author's information according to first character of the author's name or variant name
		Affiliation Indexing	Lists author's information according to first character of the affiliation name
		Country Indexing	Lists author's information according to first character of the country where the author comes from
User Access & Queries	Sign Out		Lets administrator sign out

The client side comprises 6 modules (Figure 2). The client module focuses on providing support for users' browsing and retrieval options.

Figure 3: EJUM's Features on the Client Side



The six modules comprise (a) article publication; (b) search facilities; (c) User access and queries; (d) Subscription; (e) Article contribution; and (f) Editorial board. The description of each menu and sub-menu is given in Table 5.

Table 5: The Client Menu

Modules	Menu Item	Sub-Menu Item	Description
Article Publication	EJUM		Returns to the default page of EJUM. Client chooses the journal they intent to view
	Home (Return to the main page of the selected journal)	Category Collection	<ul style="list-style-type: none"> <li>Lists all categories under the selected journal.</li> <li>Group articles according to category, followed by volume</li> </ul>
		Volume Listing	Group articles according to volume
	Volume		Volume listing, all articles are grouped according to the volume
Search Engine	Search	Author Indexing	Lists author's information according to first character of the author's name or variant name
		Affiliation Indexing	Lists author's information according to first character of his affiliation status
		Country Indexing	Lists author's information according to first character of the country where the author comes from
		Search Engine	Search either the selected journal or all journals under EJUM
User Access & Queries	Sign In		Lets subscriber login
	Sign Out		Lets subscriber logout
	Administrator		Creates a link for administrator to go to administrator side
Subscription	Subscription	I want to know how to subscribe	Displays the subscription information
		I want to subscribe right now	Lets user register a new account on-line
		I want to change my personal details	Lets subscribers change personal details (address, email, password and others) on-line
		I want to renew my account right now	Lets user renew account on-line. Subscribers may register for the years they wish to have access rights to full text articles
		I want to know how to renew my account	Gives guideline to subscribers to renew account
	Order An Article		Prepares form for user to buy an article and send the articles through e-mail, fax or post
Articles Contribution	Contribution		Gives information for people who want to contribute their articles
Editorial	Editorial		Displays people behind the journal

## **THE JOURNALS HOSTED BY EJUM**

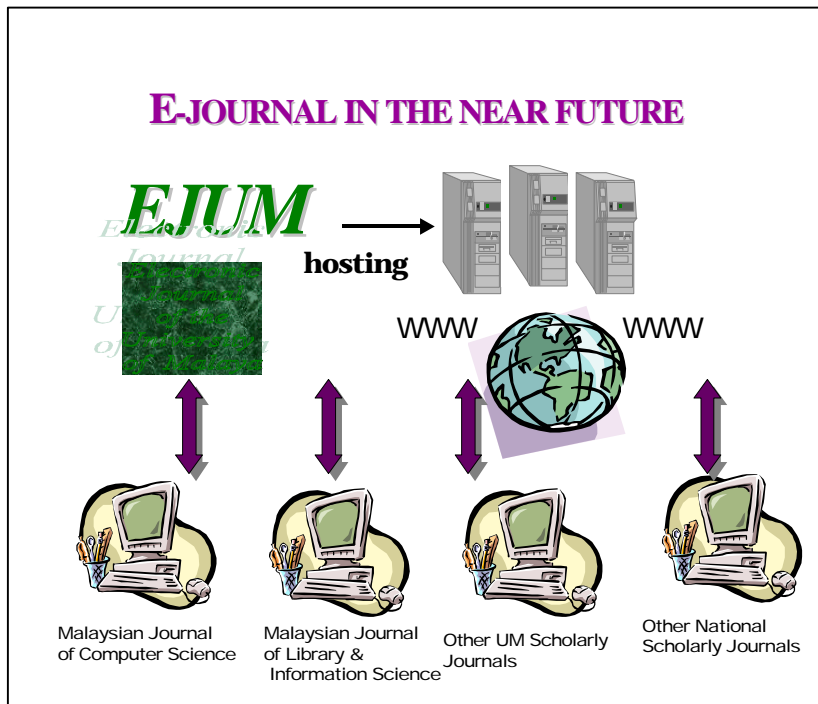
Currently EJUM hosts two journals - the *Malaysian Journal of Computer Science(MJCS)* and *Malaysian Journal of Library and Information Science (MJLIS)*. The Faculty of Computer Science and Information Technology began publishing the first issue of *MJCS* in 1985. One issue per year was published till 1989 (volume 5) and between the years 1990 to 1992, *MJCS* “hibernated” until its revival in 1993 (volume 6). In volume 8, 1995, *MJCS* was published twice a year in June and December. *MJCS* first offered its journal online in 1996 and can truly be regarded as the first full-fledged electronic journal in Malaysia (Ling, Mashkuri and Phang, 1996). *MJCS* is being indexed by *INSPEC* database. The *Malaysian Journal of Library & Information Science* began its publication in 1996. Two issues are published each year (July and December) and its latest issue is volume 5, number 2, 2000. The online version was offered in 1999 and covers all ten issues (1996-2000). The *MJLIS* is being indexed by *LisaPlus* and *Library Literature*. At present, both print and online versions are offered, with the online version preceding the print version.

The online version offers several advantages (Chan, 1999).

- (1) *Improvement in the speed of the publishing and disseminating process* - *EJUM* helps administrators to manage journals time-effectively and with less manpower. Administrators manage their journals on-line and does not need to go to the web-server remotely. Administrators may upload full-text articles on-line to the web server. Besides, abstract of articles are auto-generated. E-mail will be sent to subscribers when they complete the registration form. In addition, administrators are divided into different groups with different levels of authorization.
- (2) *Greater accessibility to the users* - *EJUM* provides a search engine that can search all journals it hosts or one specific journal, depending on the options chosen by the user. Users can also search under the author’s name, his affiliation, keywords, and limit the search to a specific year or range of years.
- (3) *Enhancement of illustrations within text.*
- (4) *Implementation of variations in journal subscription*
- (5) *Prospect of hosting other journals-* *EJUM* can host a number of journals. The Super Administrator would create the new journal ID for access authorization. Uploading of articles into the host system can be carried out from the client side anywhere. *EJUM* plans to host other University of Malaya scholarly journals at the initial stage and other Malaysian scholarly journals subsequently (Figure 3).

- (6) *EJUM is user-friendly* - When a process is unsuccessful, a user friendly error message will alert the administrator. When an administrator inserts a duplicate record into a table, a message “Duplicate records exist!” will display in the message box. This system also tries to reduce the total number of errors. Article ID, volume ID and other primary keys in tables are auto-generated by the system.

Figure 3: EJUM in the Near Future



However, there are a number of factors that have to be seriously considered before making available only the electronic version of both journals

1. *The acceptance of electronic journals by contributors and users* – it cannot be ascertain for sure the level of acceptance of the online version by both its contributors and users. Studies conducted by Collins and Berge (1994), Harter and Kim (1996) and Rusch-Feja (1999) showed different acceptance trends. The first two studies indicated low usage of online journals and the latter study reported otherwise.
2. *Subscription rates* – the question of limited free access, years for which subscription should be imposed, levels of free access should be addressed

before the editorial board can fully implement subscription and subscribers' access levels.

3. *Question of offering the journal through well-established publishers* – currently the editorial members of both journals are so-called “academic volunteers” comprising of lecturers the Faculty. The issue of establishing a proper managerial system to manage the electronic and/or print equivalent should be seriously considered. The editorial should be seriously considering any one of the CNI models (Bailey, 1994) as a basis for network-based electronic publishing.

## **CONCLUSION**

The number of Malaysian electronic scholarly journals on the Internet is small but is gradually increasing. Most of these journals are either publications of academic institutions or professional bodies. With the government's recent efforts to create a knowledge-based economy, there should be a marked increased in these numbers.

Currently, the print version of both *MJCS* and *MLIS* are still being published and sent out to subscribers, whilst the electronic version is accessible via the Faculty's website at <http://www.fsktm.um.edu.my> gratis. However, the online version precedes the print version since the publication and distribution process of the print version takes a longer time. The transition from print to electronic has been an easy one as both journals are published at a Faculty that has the capacity to implement such a system. Electronic delivery of scholarly communications is seen to be a logical step and in line with the government's aspiration of promoting a paperless and content-rich knowledge-based society. But the level of acceptance and usage has to be gauged from time to time.

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