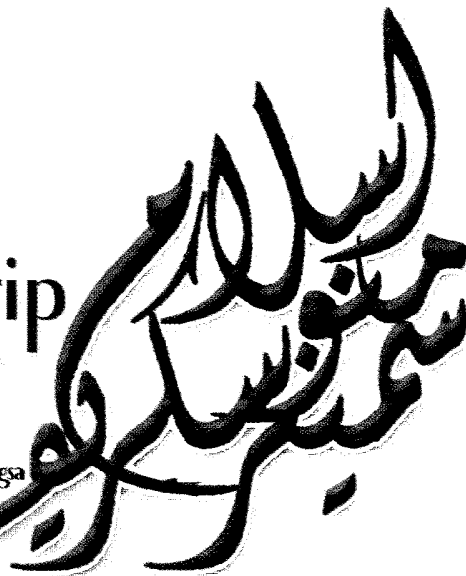




# Seminar Manuskrip Islam

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Pusat Persidangan Antarabangsa  
Negara Brunei Darussalam



Tema  
**MANUSKRIP ISLAM:  
KEPENTINGAN DAN PENYEBARAN**

*Peranan Perpustakaan Digital Dalam  
Penyebaran Manuskrip Islam Lama*

Oleh:  
*Dr. Haji Suhaimi Bin Haji Abdul Karim*

*Anjuran:*

Jabatan Perdana Menteri  
Negara Brunei Darussalam

*Kelolaan:*

Jabatan Mufti Kerajaan  
Jabatan Perdana Menteri

*Tempat:*

Dewan Persidangan Utama  
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*Pada:*

## The Role of Digital Library in the Dissemination of old Islamic Manuscripts

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*Digital library extends the breadth and scale of scholarly and cultural evidence and supports innovative research and lifelong learning. To do this, it mediates between diverse and distributed information resources on the one hand and changing range of user communities on the other. On this capacity, it establishes "a digital library service environment" – that is, a networked online information space in which users can discover, locate, acquire access to and, increasingly, use information. Although access path will vary depending on the resource in question, the digital library service environment makes no distinctions among information format. Books, journals, paper based archives, video, film, sound recordings are as visible in the digital library service environment as are online catalogs, finding aids, abstracting and indexing services, e-journal and e-print services, digitized collections, geographic information systems, internet resources, and other electronic holdings<sup>1</sup>.*

### 1. Introduction

The Muslims *ummah* and their Islamic civilization has been a major contributor to world's knowledge in a variety of fields and specializations particularly in Science, Arts, Architecture, Mathematics, and Medicine. It has been recognized that Islamic manuscripts form one of the great intellectual and artistic patrimonies of mankind. Their importance has been recognized not only in the Muslim but also in Europe and America where private and public institutions have been collecting them for at least four centuries. Heritage institutions and academic libraries in the west such as in the British Library and Oxford Bodleian Library in United Kingdom, Koninklijke Bibliotheek, National Library of the Netherlands, the Royal Library of Belgium, and the Library of Congress, United States are vigorously enriching their library collections with these information in order to understand, preserve and capture the history, technology, social science, politics and the thinking of the time. In fact Islamic manuscript collections form the precious and important holdings of the heritage institutions of these nations.

Technological advances in information communication technology in particular relating information storage, retrieval and dissemination of information have impacted the way

we learn, teach, seek and disseminate knowledge, and also to fulfill our hobbies and spiritual requirements. At present a great number of the world's knowledge is being organized in domain-specific compartments and stored in digital form, accessible over the Internet. The World Wide Web is rapidly becoming a medium of choice for presenting certain types of knowledge or information and they can be more than a catalogue of information. At the same time digital library technology has advanced tremendously and it can make available information of various types, formats and languages over a digital network with great accuracy and efficiency. There is an enormous growth of interest in the construction of digital library systems throughout the world, and not just in mainly English speaking areas. Countries in Asia, Africa, and Middle East, Australasia are now actively involved in building up their own large distributed organized repositories of knowledge. Digitized manuscripts detailing physical descriptions are among the characteristics of digital libraries of today. Digital transformation of old manuscripts are done for preservation and for improved access; to make valuable materials more readily accessible to more people with fewer administrative, physical and accidental barriers to each user. What is done now with the help of technology goes far beyond the current practices of providing access and the capability to manipulate these fragile resources is beyond what is current possible with original printed material. Progress towards improved accessibility may be expected to open pathways to deliberate and inadvertent abuse of privileges granted.

## **2. Digital Library Concept**

The basic concept underlying the modern digital library was first envisioned by Dr. Vannevar Bush of the US office of Scientific Research and Development in 1945. Memex. Bush is most famous for his Memex, publicised in the aforementioned article in *Atlantic Monthly* (1945) and most readily available in Nyce and Kahn. He envisaged this devised being use by individuals as a sort of mechanized private file and library. It would be able to store large amounts of books, pictures, periodicals, newspapers, correspondence, and so on, with material being indexed for easy retrieval<sup>2</sup>

The term *digital library* has been used interchangeably with other terms such as hybrid library, electronic library, e-library, virtual library, online library, networked library, hybrid library, library without walls and so forth. In some cases it is used by other disciplines other than what we understood in ways that are very interesting, but have no relationship to libraries and librarians. Numerous definitions had been used and they vary considerably with regard to their proximity to the concept of a traditional library. The term “digital library” is also used to describe any multi-media management system holding digitized information, but this does not mean it will deliver true library application functionality. According to Halliday<sup>3</sup>

*“The term digital library is used less precisely and may refer to anything from a limited list of hotlinks to the entire content of the Internet”.*

It is usually associated with a mechanism that enables users to retrieve text, image and 3D objects that are stored in computer files and enable access using here have been so. A digital library is understood to have the information stored predominantly in electronic or digital medium such as digital books, scanned images, graphics, textual numeric data, film, audio and clips<sup>4</sup>.

Digital Library as quoted by Borgman are;

- *“set of electronic resources and associated technical capabilities for creating, searching and using information. In the sense they are an extension and enhancements of information storage and retrieval systems that manipulate digital data in any medium (text image, sound, static or dynamic images) and exist in distributed networks”*
- *“..constructed – collected and organized – by (and for) a community of users, and their functional capabilities support the information needs and uses of that community. They are a component of communities in which individual and groups interact with each other, using data, information and knowledge resources and systems”<sup>5</sup>*

One of the more comprehensive (and more quoted) definitions was put forward by Gapen, who defined digital libraries as:

*“...the concept of remote access to the contents and services of libraries and other information resources, combining an on-site collection of current and heavily used materials in both print and electronic form, with an electronic network which provides access to, and delivery from, external worldwide library and commercial information and knowledge sources. In essence, the user is provided the effect of a library which is a synergy created by bringing together technologically the resources of many, many libraries and information services.”*<sup>6</sup>

The term “digital library” is also often used to describe any multi-media management system holding digitized information, but this does not mean it will deliver true library application functionality. Thus, these digital library components must also be tailored to capture, encode, and deliver information according to the standard practices adopted by the library industry. Because of the rapid pace of technological change, some standards are concrete and others are emerging.

Digital library is seen by Lynch<sup>7</sup>:

*“ as the systems that make digital collection come alive, make them usefully accessible, that make them useful for accomplishing work, and that connect them with communities.”*

Sun Microsystems<sup>8</sup> defines a digital library as:

*“the electronic extension of functions users typically perform and the resources they access in a traditional library”*

## **2.1 Components of Digital Library**

The main components considered essential to the formation of digital libraries as are as follows:

- **The Internet and Intranets Facilities:** Development of Library Internet and /or Intranet Sites

- **Integrated Access to Resources:** Single workstation access to resources; use of OPAC/Library portal as a gateway: Inclusion of external holdings on local OPAC or via portal service
- **Digitisation of materials:** Digitisation Projects
- **Electronic Publications:** Electronic Journals; Electronic full-text
- **Electronic Document Delivery:** Commercial and library-to-library electronic document delivery,
- **Resource Sharing:** Access to resources over ownership
- **Cooperative activities:** Cooperative purchasing or development of resources
- **End user services:** End-user access to online resources; Internet Training for Clients; Information Searching Skills Training for Clients: End user electronic requesting<sup>9</sup>
- **Digital Policies:** Access, Intellectual Property Rights and Digital Preservation Policies
- **Greater Integration** with Parent Organization or campus-wide information system;
- **Connection with the Internet; World Wide Web**

With digital libraries, an individual can:

- Gain access to the holdings of libraries worldwide through automated catalogs. Locate both physical and digitized versions of scholarly articles and books (including manuscripts, rare books).
- Optimize searches; simultaneously search the Internet, commercial databases, and library collections.
- Save search results and conducts additional processing to narrow or qualify results.
- From search results, click through to access the digitized content or locate additional items of interest.

It has been widely recognised that a major portion of library activities are technology-supported and have been for years. The Internet has had an incredible impact to the

overall management of libraries and information dissemination worldwide. Electronic information services now offered by libraries are beyond bibliographic records and the kinds of information that are offered by digital libraries through our desktop are increasingly sophisticated day by day.

### **3. What is Digitisation**

Digitisation as mentioned above, has become one of the key activities in libraries and leads us to understand that it is mainly for the purpose producing numerous large digital collections of materials and databases which are open to exploration and presentation of different directions. Digitization of heritage material such as old manuscripts now not only focus on creating large amounts of digital content and providing some fairly simple access tools to material but to learning materials, to the need to package raw content for collections up in various ways such as learning experiences or curated exhibition or interpretation or analysis.

#### **3.1 Why To Digitise?**

Digitization or digital conversion of library and archival materials has advanced at a tremendous pace during past few years. Libraries have discovered that digital surrogates have certain advantages in offering enhanced access to rare and unique items. Gallop advocates:

*“And while digitization utilizes the newest technology, it does not replace or negate the need for traditional library and scholarly skills: the resulting images need to be described, related, contextualized, explained, identified and scoped, if the project is to achieve its aims”<sup>10</sup>*

The advantages offered by digitization can be generalized under the headings of increasing access, preservation and meeting strategic goals or raising the profile of an institution. For some libraries it is merely with the intention of bringing cultural contents to cyberspace and spread the history it. Allowing increase access to the object is the most cited advantage of digitization. According to Canadian Heritage Information Network<sup>11</sup>

*“Digital technology have helped Institution’s goal either highlighting particular aspects of local history or reaching national and international audience. Collections that were once too remote to be viewed are now accessible; objects that were once too fragile to be handled or exhibited can now be seen by broad audiences. By making it possible to bring together diverse materials or collections from scattered locations for comparison and research, digital technology can be a powerful teaching aid, especially when institutions work together to create a critical mass of complementary material”*

While Lee<sup>12</sup> advocates:

*“An electronic facsimile of a page, for example, can be theoretically copied and distributed ad infinitum without any degradation in quality (if correct standards are maintained). More importantly, a single copy can be mounted on a server, this can be viewed and downloaded by large number of users, simultaneously, and from any location in the world (assuming appropriate access restrictions and server technology”*

The second advantage of digitization is that it liberates the document from the constraints of traditional methods of access methods. If a manuscript is digitized, for example, traditionally users may only be allowed access to the original item if they show proof that they are genuine researchers with good and validated reasons. Most importantly they would have to physically go to the manuscript itself, which involve travel time and money. But if the digital facsimile was mounted on the webpage and made freely available, everyone can look at the image from the comfort of their own home.

One of the main virtues of digital imaging is its ability to make collections vastly more accessible. Digital technology helps achieve institutional goals, whether highlighting particular aspects of local history or reaching a national or international audience. Collections that were once too remote to be viewed are now accessible; objects that were once too fragile to be handled or exhibited can now be seen by broad audiences. By making it possible to bring together diverse materials or collections from scattered locations for comparison and research, digital technology can be a powerful teaching aid,



especially when institutions work together to create a critical mass of complementary material.

Renoult <sup>13</sup> also pointed out:

*“The digitization of manuscripts in image and text modes under the guidance of researchers is making important contributions to scientific knowledge. We know for example that this type of research has enabled the recovery of fragments from the pre-Socratic philosophers, which had previously been thought to be lost, and our knowledge of medieval corpus has widened. Closer to the present, erudite work on the texts of Rabeliaus, Voltaire or William Blake, making use of digital resources, has thrown new light on the works of literature and enabled the transformation of the notion of scholastic text editions”*

Digitisation can also aid collections management by increasing all staff members' or users awareness of the content of their collections, especially if images are linked to the collection management system and networked through the organisation. Sometimes merely selecting objects for digitization provides an additional opportunity to establish and record the condition of artifacts. Digitization also provides an incentive to improve documentation, especially if companion records are to be made public along with the digitized images: The need for standards and enhanced information soon becomes obvious. The funding cuts of the last decade and the need to generate new revenues has caused public programming to overshadow collections management activities

Digital technology can also make available powerful teaching materials for students who would not otherwise have access to them. Among the most valuable types of materials to digitize from a classroom perspective are those from the special collections of research institutions, including rare books, manuscripts, musical scores and performances, photographs and graphic materials, and moving images. Often these items are extremely rare, fragile, or, in fact, unique, and gaining access to them is very difficult. Digitizing these types of primary source materials offers teachers at all levels previously unheard-of opportunities to expose their students to the raw materials of history. The richness of

special collections as research tools lies in part in the representation of an event or phenomenon in many different formats.

### **3.2 Why Digitise Manuscripts.**

Manuscript literally means “handwritten” it designates a book or treatise written by hand, that is, not printed by means of a printing press. According to the Oxford English Dictionary Online a manuscript:

*“A book, document, etc., written by hand, esp. one written before the general adoption of printing in a country, a hand written copy of an ancient text”<sup>14</sup>*

There are several reasons for choosing to digitize manuscripts or other related heritage information instead of conventional books:

- Typically, manuscripts are unique sources of information, so it is more of a service to scholars to put them on the Web than to digitize items, which existed in multiple copies. Printed works often exist in a library near a scholar; manuscripts are usually only in one place.
- Manuscripts are often fragile, oversized, or otherwise in need of particular care, and as unique items they are irreplaceable, so that replacing their use with the use of some digital surrogate helps with preservation. It can also become much faster to look at them digitally than to browse materials which must be handled slowly and carefully to avoid deterioration.
- Old manuscripts present fewer copyright problems than conventional materials. A library may have obtained a large amount of material, all of which is controlled by one copyright holder, and been able to obtain permission for the use of the complete collections.

## **4. Digital Library and Digital Manuscripts Collections**

There are a number of digital library initiatives currently taking place or planned by heritage institutions around the world pertaining to the Islamic heritage collection. These

initiatives are making available important and precious via the Internet, or Intranet networks and via other digital medium (such as CD ROM, DVD ROM, etc). Among the Project identified in context of this paper are as follows:

- Afghanistan Digital Library
- International Islamic Digital Library
- British Library
- Chester Beatty Library
- Al Azhar Online
- Islamic Medical Manuscript at National Library Medicine
- Virtual Library Systems Of Brunei Darussalam (VILIS) Brunei
- E-Library@ubd
- Baitulhikmah Project

#### **4.1 Afghanistan Digital Library**

The Afghanistan Digital library project is undertaken in conjunction with New York University Libraries, New York Department of Middle Eastern Studies, the Center for Near Eastern Studies, and the Center for International Cooperation in aid of the reconstruction effort now underway in that country. The aim is not simply to restore the availability of books that may have been destroyed or dispersed from libraries in Afghanistan in the course of twenty-five years of civil war. Copies of Afghan publications predating 1930 are extremely rare, and the project will also make hitherto inaccessible materials universally available in electronic form to anyone with serious interest in the country's history and culture.

In the pilot phase of the project, as many of the forty three books known to have been published between 1871 and 1900 will be digitized and uploaded on to the website. The site offers the listing of the manuscripts to be available. However only five books have so far been made available in digitized format. It can be downloaded and freely available to researchers. The eventual aim of the project is to digitized a catalogue and make available *Dari* (Persian) and Pashto books published in Afghanistan between 1871 (the earliest known date of published work) and 1930.

The bibliographic records contain a full image of the extraordinary calligraphy on the title page, as well as the opportunity to view the full-text digital preservation of the work. The full text provides a searchable interface of the MARC cataloging record, thumbnail images of the text, and archival-quality screen images of each page. The system interface is mainly in English. This digital library can be accessed at <http://dlib.nyu.edu/divlib/bobst/adl/>

#### **4.2 International Islamic Digital Library**

The International Islamic Digital Library has been established to serve as a source of information on Islam and Muslims. As a knowledge portal, it has been designed to achieve in phases the following objectives:

- To provide information on Islam and Muslims around the world
- To act as a referral centre to direct information enquiries on Islam to the appropriate sources of information
- To promote sharing and exchange of knowledge among scholars of Islam and those interested in Islam and the Muslim way of life
- To provide access to information in a variety of formats and languages from any part of the world
- To act as an authoritative, comprehensive and reliable source of information on Islam to enable the world to understand Islam better.

The expected benefits of this are as follows

- Convergence of information on Islam - gateway of resources on Islam via a common interface
- Powerful education tool - to inform, educate and provide reliable information on Islam
- Preservation - collecting and preserving the wealth of very rich tradition, heritage and unique and complete way of life

- Global accessibility - accessible to the global community through a common interface
- Synergistic collaboration - galvanise meaningful cooperation among institutions, libraries and individuals at national, regional and international levels
- Encourage and promote e-learning and e-commerce.

This portal is attractively designed rich with Islamic graphic background containing several full text sources of information namely digitize books, manuscripts, theses, rare and Islamic material, journal articles and conference papers. The database is easily searchable using a standard library systems solution through Author, Title, Subject, Publisher and Call Number. Full bibliographical details of the resources are available including its locations. The site can be accessed at <http://www.iidl.net/>

#### 4.3 British Library

The British Library Arabic Manuscripts is considered to be the most significance collection in Europe and North America. BL are in possession of more than 14, 000 codices, and containing more than 25,000 works in its collection. “Its riches are renowned. Among its many illuminated and illustrated treasures, for example, is one of the earliest manuscripts dating from eight century AD; the unique seven volume *Mamluk Quran*, written completely in gold for Sultan Baybars II in Cairo; an early fourteenth century copy of al Qazwaini Wonders of Creation (‘Ajaib al Makhluqat), and a fourteenth century manual of horsemanship (*kitab nihayat al –su’l wal-umniyah fi ‘ilm al furusiyah*”<sup>15</sup>.

Several digitisation works have been undertaken as part of the Library’s efforts to make available more widely the historic material over its wider digital library system and also in other digital media. These are mainly focus on its iconic collection which are divided under several different categories. Gallop<sup>16</sup> provides an extensive overview of these projects which are summarized as below.

- *International Duhaung* project which contain manuscripts and printed documents from Dunhaung in China and Central Asia,

- *Electronic Beowulf* is a digitisation of an English Literary masterpiece,
- *Turning the Pages* uses computer animation, high quality digitised images and touch screen technology to stimulate the action of the turning pages. One of the key collection that is included in this project is 14<sup>th</sup> Century al Quran of Sultan Baybars II of Egypt, the earliest dated al Quran of Mamluk period, and was produced in Cairo between 1304 – 1306 AD (705 in the Hijri era). The calligrapher is Muhammad bin al-Wahid; this Qur'an is the only known surviving example of his work. The Qur'an was produced in seven volumes, and is written throughout entirely in gold *Thuluth* script. The illumination was the work of a team of three illuminators, headed by Abu Bakr, known as Sandal, one of the master illuminators of the Mamluk age. The images are accompanied by recitation of the illustrated verses by Sheikh Ashraf Salah, an Imam at the London Central Mosque in Regents Park.
- *Digitisation project with National Library Board of Singapore* which digitized 38 items in the British Library relating to Singapore history. Among the highlights are the surviving issue of Jawi Peranakan; the first edition of hikayat Abdullah.
- *Malay Concordances Project* is based on scanning of malay texts with optical character recognition software, and ability to perform complex word searches on large body of textual material. This project is joint effort by the Australian National University (ANU) in Canberra and British Library. It is a corpus of digitized texts of some classical works comprising over 1.7 million words, including sejarah Melayu, Hikayat Hang Tuah, Hikayat Raja Pasai, Hikayat Aceh and Hikayat Banjar, Hikayat Abdullah and Kisah Pelayaran Abdullah. It is mounted on the ANU website (<http://WWW.anu.edu.au/asianstudies/mmp/mcp.html>).

#### 4.4 Chester Beatty Library

The Chester Beatty Library, one of Ireland's National Cultural Institutions, was created by Sir Alfred Chester Beatty and bequeathed by him to a trust for the benefit of the public.

The Library is both an art museum and library, housing an outstanding collection of Islamic manuscripts, Chinese, Japanese, Indian and other Oriental art. Early papyri, including some of the earliest texts of Christian manuscripts, western prints and printed books complete what is one of the richest collections of its kind in the world. The Islamic The Islamic Collections include mainly Persian, Turkish and Arabic manuscripts, most of which are adorned with exquisite illustrations, illuminations and fine bindings. They deal with a wide-range of subjects and, along with a breathtaking array of single-page Mughal paintings and a superb collection of beautifully calligraphed and decorated copies of the Holy Qur'an, they mark the Library as one of the main centres for the study of Islamic culture and the arts of the Islamic book. Only a limited number of images are available on this site. It can be accessed at <http://www.cbl.ie>.

#### **4.5 Islamic Medical Manuscript at National Library Medicine**

This portal provides information about Islamic medicine and science during the Middle Ages and the important role it played in the history of Europe. This site, with its biographies, colorful images, and extensive historical accounts of medieval medicine and science is designed for students and everyone interested in the history of Islamic and European culture. The site includes an extensive glossary of medical, scientific, and book-production terminology linked to the text. It also site provides a catalogue raisonné (including images) from the 300 or so Persian and Arabic manuscripts in the National Library of Medicine. Most of these manuscripts deal with medieval medicine and science and were written for learned physicians and scientists. Some of the manuscripts are richly illuminated and illustrated.

This site is being constructed in segments. The site provides a brief introduction to the history of Islamic medicine and its role in European history. The Catalogue features detailed but readable essays about each manuscripts, plus illustrations, biographical material, and other bits of contextual information. The most pleasing is the glossary, which provides in depth explanations of terms relating to the manuscript development as well as Islamic medicine and folklore. User can find biographies of important Islamic physicians, surgeons, and scholars, as well as suggestions for further research, choose by

choosing Bio-Bibliographies. The site can be accessed at <http://www.nlm.nih.gov/hmd/arabic/>

#### **4.6 Alazhar Online**

The Alazharonline is the the latest initiative of the al Azhar University, Egypt, Arab world's most esteemed religious educational institution to keep up with the times. Al Azhar Online ([www.alazharonline.org](http://www.alazharonline.org)), which will enable access to some of the world's oldest and rarest Islamic manuscripts and provide direct access to Islamic culture and heritage from the world's oldest university and religious institution. The launch is next April, and the project slogan is, "Bringing Islamic Civilisation to the World".

The portal was funded by General Sheikh Mohammed bin Rashid Al Maktoum, Dubai Crown Prince and UAE Minister of Defence, following his visit to Al Azhar in April 2000 when the Grand Imam of Al Azhar, Dr Mohammed Tantawi, proposed the idea of preserving Al Azhar library's priceless manuscripts and books. The US \$5 million project, which will be run by [www.sheikhmohammed.co.ae](http://www.sheikhmohammed.co.ae) until the end of 2004 when Al Azhar University is scheduled to take over, features the digital conversion of over 42,000 manuscripts dating back over 1,400 years, including 9,000 that are the only existing copies in the world. "Project employees are keen to point out that so far they have digitalised 125,000 books and 42,000 priceless manuscripts. Nine thousand of these manuscripts, which date back 1,400 years, are unique specimens, i.e. no other copies exist. These works have been classified under 63 subject titles and from April onwards can be accessed via a database of titles. "This amount of manuscripts is not to be found at any other institution except Al-Azhar"<sup>17</sup>

The portal will include extensive information on the history and institutions of Al-Azhar, transcripts of sermons by the Grand Imam of Al-Azhar, a virtual tour of the institution and sections on Islamic law, culture and history. Advertising by Islamic banks is also expected to generate additional income for Al-Azhar.



The Web site will enable Islamic scholars to access information without having to make the long trip to Cairo to perform onsite research. As of April they will be able to access the information they need at the touch of a computer button.

The portal will also include extensive information on the history and institutions of Al-Azhar, transcripts of sermons by the Grand Imam of Al-Azhar, a virtual tour of the institution and sections on Islamic law, culture and history. Advertising by Islamic banks is also expected to generate additional income for Al-Azhar.

The three phases of the project are as follows: first the scanning of the manuscripts with publication and display on the Web site; second the establishment of a *fatwa* and e-mail system allowing Al-Azhar scholars throughout the world to interact and enabling Muslims from any part of the world to request *fatwas*. The third phase will involve setting up a network to link various Al-Azhar institutions, as well as the library. This final stage is aimed at improving administration of Al-Azhar on a global level.

#### **4.7 Virtual Library Systems Of Brunei Darussalam (VILIS) Brunei**

VILIS Brunei is a national digital library Initiative to be spearheaded by the Ministry Of Education inconjunction with the needs of other heritage and information institutions in the country. VILIS Brunei is meant to serve the informational needs of the “teaching” and “learning” communities in Brunei Darussalam. It is a digital library offering various services that are beyond library catalogues and bibliographic information. It provides access to specialized information services including the provisions hardware and software, subscription to electronic databases, online reference enquiries, interlibrary loan, digitization of library materials including manuscripts, and also electronic publishing. One of the vital components of VILIS is the capability to create, search, use, store, and preserve local publications and information of national and international interests accessible on subscriptions or pay per view basis. In this sense, they are an extension and enhancement of information storage and retrieval that manipulate digital information in any medium (text, image, sound, static or dynamic images) and exists in digital networks.

VILIS Brunei is a project spearheaded by the Ministry of Education Brunei Darussalam to the e-government committee with the aims to facilitate and make available relevant and adequate electronic information resources to all sectors of learning and teaching community in Brunei Darussalam, in an equitable, cooperative and cost effective manner; facilitates access and enhance the information resources strength to support research and information needs of the learning and teaching, and the overall objectives of the national education system of Brunei Darussalam.

To achieve the above aims the following objectives are stated:

- To establish adequate and efficient electronic information resource services (including reference and information delivery) to support the informational needs of academic institutions while at the same time supporting members of professional community in Brunei Darussalam.
- To provide adequate bibliographic, textual, directories and other information sources required by administrators, academician and students of academic institutions and members of professional community in Brunei Darussalam
- To establish “a one stop” information resources services of academic and educational value to schools and higher education institution in Brunei Darussalam.
- To enrich the national online resources with locally produced digital content
- To strengthen the existing rapport in terms of information sharing among information and heritage institutions including academic and schools libraries.

#### **4.8 e-library@ubd**

The project is drawn in line with the current need for technological advances and for efficient storage and retrieval mechanism required by the UBD library, and at the same time initiating a robust digital library and content digitization initiative for the purpose of enriching university digital resources of manuscripts, conference papers, publications and at the same time undertake preserving it in an electronic form.

#### **4.9 Baitulhikmah Digital Library**

This is a development of an Islamic Digital library project initiated by the State Mufti Library, Prime Minister's office. It comprises of a building of an Islamic Library Portal, content development including the creation of a digital surrogate of the organization's precious manuscript collections and the implementation of an integrated library management system for the library. The project is funded under a government special funding outside the e-government project.

#### **5. Building a Digital Library**

Building a sustainable digital library project is a complex task involving careful forethought and planning to assure data integrity and acceptable of quality. There are several key factors that need to take into consideration when embarking on a digital library initiative, namely:

- Careful Planning
- Architectural and System Requirements
- Legal and copyright Issues
- Standards and Guidelines
- Collection Development
- User Communities
- Sustaining Access through Digital Preservation
- Economics of Digital Library
- Security and Data Integrity
- Occupational Health & Safety

These had been mentioned by several authors in the digital library arena<sup>18 19</sup>.

#### **Conclusion**

The benefits establishing digital library can be enormous but so too can be the cost. Proponents of the Islamic digital library need to take advantage of the economics opportunity of the digital age, and most importantly the opportunities to propagate and promote Islamic legacy, understanding, development and advancements of Islamic thinking. Careful forethought, planning, leadership, adequate resources and awareness towards key issues to be address, are among the recipe for its successful implementation

of a universal digital knowledge repositories system. It should be on the basis of achieving end users expectation and satisfaction in terms of various factors namely contents and coverage, technology and sustainability of the information systems. Hence, the system should be design with high quality representation, intellectual integration, greater flexibility and adaptability to the surrounding environment .

The digital transformation of Islamic heritage resources will undoubtedly aid preservation of the heritage, promote its understanding, stimulate research, enhance learning, and provide alternative enjoyment and experiences and contribute to the development to the development of a culturally rich information network. All these activities provide material, which can be manipulated, selected and compared, sorted in ways which would not be possible with either the originals or other non-digital surrogates.

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