

Digital Libraries as Development Catalysts in the Arab World

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1- Introduction:

Digital libraries are an essential part of the information infrastructure of the 21st century. They have revolutionized the way of storing, retrieving and expanding information and knowledge in developed countries. With their multiple features, Digital Libraries promise new societal benefits, giving to people access to a diverse source of knowledge at any time from anyplace in the world. Some Arab countries recognized the key development factor of Digital Libraries and started to adopt the new technologies of Digital Libraries and succeeded in implementing them in their traditional library systems. However, these initiatives remain sporadic, with a very weak impact on the social system of Arab countries. Indeed, for the Arab communities to reap the benefits of Digital Libraries as a major source of international development, they will have to integrate the development of DL as a strategic factor in their Information Technology and Development strategy.

2- Definition and Historical development of Digital Libraries:

The concept of Digital Library has been evolving since the inception of the Internet. As the World Wide Web became a universal mean for wide areas interconnection to information, Digital Libraries emerged as the best way to allow organized collection of information that can be retrieved remotely through online networks¹. The term Digital Library, also called Virtual Library or Electronic Library, integrates two different concepts: Digital, which refers to information presented in a digital format, and library, which refers to the total mechanisms of traditional libraries for obtaining access to, storing, organizing and delivering information. Digital Libraries help users take advantage from the Information Communication Technologies to have access to integrated electronic resources that include databases, books, electronic journals, multimedia files and everything that can be digital and stored.

The development of Digital Libraries is recent and has been retarded because of the world's inability and resistance to move away from the print technologies. However, the hypertext capabilities of the Internet and its client-server architecture acted as a catalyst for the growth of Digital Libraries. They offered relevant mechanisms for linking related documents and transmitting data in a form that is searchable and deliverable across the Internet, whereas documents were able to be located in many different places, and yet be searchable through a single mechanism. Many of today's digital library accomplishments can be directly traced to early Digital Libraries Initiative (DLI) funding. The years 1994-1998 saw a rapid development and growth of Digital Library Research thanks to the establishment of the US National Science Foundation's (NSF) Digital

¹ Paper presented by Wainwright, Eric "Digital Libraries: Some Implications for Government and Education from the Australian Development Experience". Singapore, 1996.

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Library Initiative, in conjunction with NASA and the Advanced Research Project Agency (ARPA) that was funded at \$6 million per year and encouraged the development of 6 projects²: Carnegie-Mellon University. Infomedia Digital Library Video; Stanford University; UC, Berkley; UC, Santa Barbara. The Alexandria Project; University of Illinois; and Digital Library Initiative, University of Michigan. These six university-led consortia conducted R&D in applying advanced computing and networking capabilities to make large distributed electronic collections accessible, interoperable, and usable³. Later, Europe has also undertaken major investments and research in Digital Library Development, with the EU having developed two major programs: Telematic for library programs and the Info 2000 programmes concentrating on multimedia, while The United Kingdom developed the Electronic Library Program.

While the developed countries are increasing their efforts for the development of more comprehensive and effective Digital Libraries, Arab countries are still struggling with basic Information technology and Information infrastructures in addition to restrictive government policies. However, major Information Technology developments have been registered in various Arab countries, which created a favourable landscape for the emergence of unique Digital Library initiatives in the Arab world.

3- Current Information Technology Landscape in the Arab World:

Arab countries have registered in the last decades an increase in Internet connectivity followed by a widespread presence on the net through numerous Arabic electronic newspapers. Moreover, governments who have recognized the strategic impact of the Internet for development decreased from their restrictive policies on Internet access and are increasingly tolerating freer expression environment on the net.

1- Internet Growth in Arab Countries:

The increase in Internet connectivity in the Arab world created a favourable environment for Digital Library initiatives to take place. According to Human Rights Watch, Internet penetration in the Middle East and North African (MENA) region is growing rapidly after a slow and cautious start during the mid 1990's. This is mainly due to the influence of pro-internet forces within Arab governments, academic institutions, and research communities that recognized the role of the internet as a business and development factor⁴. Today, most of the countries within the MENA region have some form of international connectivity, Cyber cafés, or personal connections while countries like

² Gobinda G. Chowdhury, Digital Divide: How Can Digital Libraries Bridge the Gap”, Graduate School of Informatics, Department of Computer and Information Sciences, University of Strathclyde, Glasgow, UK. [Electronic Version] available at : http://www.cis.strath.ac.uk/research/publications/papers/strath_cis_publication_334.pdf

³ President Advisory Technology Committee “Digital Libraries: Universal Access to Human Knowledge” Panel on Digital Libraries, February 2001. [Electronic Version] available at <http://www.visions2020.gov/Reports/PITAC/dl-9feb01.pdf>

⁴ Human Rights Watch, “The Internet in the Mideast and North Africa: Free Expression and Censorship-The Internet in the Mideast and North Africa: A cautious Start”. June 1999 [Electronic Version] www.hrw.org/hrw/advocacy/internet/mena/

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Jordan and the UAE heavily invested in the development of infrastructures to enable efficient electronic economies in the Middle East⁵. As an example, the Jordan college town Yarmouk has been registered in the Guinness book of record as having the highest density of Internet Cafés per square mile in the world⁶ while United Arab Emirates is considered to be the most wired state in the Arab World, with numerous cyber cafés, and the largest number of corporate websites⁷. Information technology is gradually integrated in the daily personal and professional lives of Arab people with a percent increase in online subscription that reached 140% in Saudi Arabia during 1999, more than 70% in Lebanon and Syria, and by more than 40% in Egypt⁸.

2- Decrease of restrictive government policies on the Internet:

One of the direct impacts of the Internet on restrictive governments such as the ones that rule Arab countries is that they are more tolerant on the Internet and use less restrictive policies than what is imposed on print mediums⁹. Today, all Arab countries have recognized the strategic importance of Internet and ensured in their countries some form of Internet connections. Some are widely controlled by local governments while other benefit from a freer online expression environment (Morocco, Algeria, and Egypt)¹⁰. In addition to that, Arab administrations started to increasingly diffuse government information on the net, which represent an unprecedented move for Arab Governments that used to be very secretive and reluctant concerning the diffusion of internal information.

3- Proliferation of Arab electronic newspapers on the net:

During the last half decade, scholars have observed the presence of huge amounts of Arab-oriented material on the Internet¹¹. This active presence is mainly due to the proliferation of Arab electronic newspapers that have a wide presence in the net, with each major Arab publication having its own electronic version accessible via Internet. The development of Internet usage in Arab countries encouraged Arab newspapers to launch their online edition and expand their audiences inside and outside their physical coverage area. The first Arab electronic newspaper to appear on the web was “Alkhaleej”, a United Arab Emirates Arabic newspaper launched during 1995. Since then, practically every Arab newspaper has launched its online version online to respond

⁵ Anderson, Jon “The Internet and the Middle East: Commerce Brings Region On-Line”, Research on Communication and IT in the Middle East, Arab Information Project, Middle East Executive Reports. Vol. 20, N° 12, December 1997.

⁶ (Ramzi Nasser, Kamal Abouchedid, “Problems and the epistemology of Electronic Publishing in the Arab World”, First

Monday, Peer reviewed Journal on the Internet, 2001, pg12)

⁷ Human Rights Watch, The Internet in the Mideast and North Africa: Free Censorship- United Arab Emirates, 1999 [Electronic Version] www.hrw.org/hrw/advocacy/internet/mena/

⁸ AlShehri Fayeze, Gunter Barrie, “The Market for electronic publishers in the Arab World” Aslib Proceedings. Bradford: 2002. Vol. 54, Iss.1; pg.56, 15 pages

⁹ HRW

¹⁰ Human Rights Watch, “The Internet in the Mideast and North Africa: Free Expression and Censorship-The Internet in the

Mideast and North Africa: A cautious Start”. June 1999 [Electronic Version]

www.hrw.org/hrw/advocacy/internet/mena/

¹¹ Alterman, Jon B, “ Philosophy, Religion, and Science: Islam in the Digital Age: E-Jihad, online fatwa and cyber Islamic

environments”. The Middle East Journal, Washington, spring 2004, Vol. 58 Iss2, pg 322, 2pgs).

to the need of a new global Arab audience¹². However, most of these newspapers are facts focused and tend to lack the intellectual and academic approach that would help them to become a more reliable and credible sources for future referral in Digital Libraries.

4- Constraints for the Development of Digital Libraries in the Arab World:

Most Arab countries suffer from lack of Information Technology Infrastructure and lack the financial resources to integrate the new concepts and services of digital libraries in their short and long term strategies for development. However, such constraints can be easily overcome as computers are increasingly becoming accessible as low end machines are essentially free and find their ways to developing countries. 1998 World Bank Survey of developing countries found 3 to 30 PCs per 1,000 peoples; Growth is predicted at 20%, while Internet connections are predicted to increase through Global satellite information¹³.

Another predominant obstacle for the establishment of Digital libraries in the Arab World are the lack of common bibliographic standards among Arab countries, difficulty to read Arabic in the internet, in addition to high illiteracy rates and the absence of qualified and trained personnel to develop digital library networks and train local users to take advantage from the multiple facilities offered by DL.

5- Advantage of Digital Libraries in the Arab World:

Digital libraries are a key technology for Arab countries. They can assist human and intellectual development and help Arab countries develop their agonizing scholar publishing industry. Digital Libraries offer low publishing cost and effective distribution mediums for Arab intellectuals who can use the e-print technologies offered by DL to overcome the high costs of scholarly publication in Arab countries and launch on the web their work that can be stored, archived and available for international distribution. For instance, Digital Libraries represent for authors the fastest and cheapest way to publish their work and expose it to global audiences, making their voice heard in the cluster of information and intellectuals thoughts that inhabit the net.

Digital Libraries contribute to the centralization of electronic newspapers. Hence, the widespread Arab e-publication and e-journals that are present on the web can be archived and integrated into databases that will facilitate their location on the web. This can encourage Arabic newspapers to create more credible contents based on meaningful analysis and examination that address the particular and complex issues of Arab economic, social, cultural and political environments. International audiences interested by the Middle East and North Africa issues can have then access to fresh and unbiased perspectives that actually reflect the opinion of indigenous population without including

¹² (AlShehri 2000)

¹³ Witten, H Ian; Loots Michel; Trujillo, F Maria; Bainbridge, David; "The Promise of Digital Libraries in Developing Countries". The Electronic Library. Oxford: 2002. Vol.20. Iss.1; pg.7, 7pgs

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any western bias. Such actions can in turn contribute to the creation of healthier social dynamisms among Arab communities while preventing through the equal exchange of knowledge the radicalization and extremism of Arab identities. Local Information collections and distribution to international audiences can truly describe and reflect local conditions, while providing new material for socio-cultural studies, fostering cultural exchange while retaining diversity, and increasing international understandings.

On the other hand, Arab countries have been recognized to have a rich and deeply rooted oral culture that didn't find in books a way to translate its richness and inherent complexities. With Digital Libraries, they have in hand the perfect medium to preserve and generate international awareness on their ancestral histories and cultures. Information about Arab culture can be recorded in digital library collections in various forms: Oral history in form of narrations and interviews, Artefacts and calligraphy art in the form of images and descriptions, songs in the form of audio recordings, Music transcriptions, and lyrics, Arab dances and ceremonies in the form of videos, audio written synopses and interpretations. Multimedia digital libraries not only allow such information to be preserved, but it also make them integrated, recorded, browsed, and searched, within a uniform user interface, allowing their dissemination and distribution to worldwide audiences.

As far as education is concerned, Digital Libraries increase the level of education through knowledge and technology transfer. Locally-produced collection of information and DL application in culture preservation can help teachers to prepare for educational material that addresses specific local concerns. The interactive forms of knowledge offered by digital libraries can also help teachers and educators to have a more meaningful teaching experience with their students. The use at an early stage of DL by the new generations of Arab people who are integrating Internet in their daily life can help them get more opened to the diversity of the world and prevent them from falling between the hands of radical and extremist movements that threaten the stability of the Arab world as well as the international community. By having access to a universal knowledge and by contributing to that knowledge and gaining recognition for it through digital libraries, the cultural gap between Arabs and the West could be reduced while cultural diversity and mutual understanding could finally become a reality.

6- Digital Libraries Initiatives in the Arab World:

In light of all the advantages that DL can offer to the Arab world, some Arab countries managed to overcome major infrastructure and illiteracy constraints to launch an Arab version of Digital Libraries that play the role of an Arab window on the world as well as a world's window on the Arab diverse and complex community systems. The main countries that distinguished themselves in this initiative are Saudi Arabia with the King Fahd University of Petroleum and Minerals, the Library Alexandria of Egypt, while Morocco through Akhawayn university of Ifrane is starting to make timid moves toward the creation of a Digital Library infrastructure.

1- Bibliotheca Alexandrina, Egypt:

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The Bibliotheca Alexandrina represents the most ambitious initiative from an Arab country to launch a Digital Library. BA was built under the site of the mythic Library Alexandrina, the first universal library in history that came into being during the 4th century before B.C. The new BA, as the image of its precursor that was one of the leading intellectual centres of the world, tries to embrace the latest new technologies to reap the countless benefits of digital libraries while bringing to the Arab world as well as to the international communities, an Arab version of universal human knowledge.

BA was built under the patronage of the President of the Arab Republic of Egypt Husni Mubarak and of the First Lady of Egypt, Suzan Mubarak, also the chairman of the library, with the support of UNESCO that aims to provide a universal appeal to legitimize the existence the library. BA is meant to become a leading institution of the digital age and a centre for learning, tolerance and understanding in the Arab world. In addition to being a Digital Library, BA is before all a physical library that holds millions of books and ancient manuscripts, a centre for the Internet and its archive, six specialized libraries for audio-visual materials, Microforms, rare books in addition to various other special collections. Museums and planetariums are also available in BA as well as seven research institutes covering manuscripts, documentation for the preservation of cultural heritage, calligraphy and writing, Information sciences, Mediterranean and Alexandrian Studies, Arts Centres, Scientific research and Discussion forums¹⁴. Among the most significant BA Digital Library Initiatives:

The Digital Modern History of Egypt:

The Bibliotheca Alexandrina has started to launch the project of a digital library of the modern history of Egypt. It integrates the collection of specialized libraries, such as that of Gamal Abdel Nasser, Anwar El Sadat and eminent Egyptian authors and historians as well as contents related to diverse subjects from all over the world. The objective is to scan, catalog, index and achieve the “Optical Character Recognition” of its collection and present it in a searchable form to its users. This project will benefit from the efforts done on the Million Book project.

The Million Book Project:

The Million Book Project is a joint initiative between BA and more than 20 international technology institutions from the USA, China and India. BA wants to become one of the first Digital Libraries that contribute to worldwide access to valuable knowledge by offering users the ability to use the Internet to search through the vast collection of its digitized pre-selected books. The choice of books to be scanned will depend on various factors (out of print, non-copyrighted and government documentations, books or science and technology dissertations)¹⁵

Electronic Publishing Project:

This project aims at creating a new business model for the development of electronic publishing formats and print on demand facilities. In partnership with one of the leading publishing company of Egypt and the Arab World, Dar El Shourouk, BA tries to create a

¹⁴ The Bibliotheca Alexandrina, Overview [Electronic Version] www.bibalex.org/English/Overview/overview.htm

¹⁵ Million Book: [Electronic Version] <http://www.bibalex.org/English/researchers/isis/millionbooks.htm>

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new prototype of print on demand format and then try to generalize this concept to other institutions in the Arab publishing industry.

The Alexandria Library Scholars Cooperative (ALSC):

This project is conducted in a joint venture between the Art Science Laboratory Research (ASLR) project and Bibliotheca Alexandrina. The goal of this partnership is “disseminating human knowledge worldwide and facilitating communication between scholars” by implementing new software technologies¹⁶. This project will allow Arab and international scholars all over the world to exchange ideas, lectures and research material while being offered with digital facilities to store and organize their works.

The Beacon for Freedom of Expression Database:

This initiative is unique of its kind especially when it comes from a country that has a long standing reputation of restrictive human rights policies and severe censorship history. In recognition of the impact of information and education to the development of human rights, BA hosted the Norwegian produced database, The Beacon for Freedom of Expression Database centralizes the bibliographical information on the writings of censored authors and researchers throughout history as well as more than 50,000 bibliographical entries concerning publications on freedom of expression and censorship issues, including censored newspapers and books in Arab countries and in Egypt¹⁷. At present, the BFED includes a small number of books censored in Arab –speaking countries in addition to 10 years file of censored articles and journals¹⁸.

Many other additional facilities are integrated by the BA Digital Library initiative. Projects specifically targeted to children include the Wall Project, with computer facilities offered to teach children how to have access and take advantage of the interactivity of the digital files specially designed for them, My book project where children are acquainted with the digital production of e-books, in addition to many other facilities that teach digital library systems and expand the digital literacy rates among the Egyptian population.

2- King Fahd University of Petroleum Industry - Saudi Arabia:

The King Fahd University of Petroleum and Minerals is one the first Libraries in the Middle East that integrated the new technologies to create its own digital library for its student community. The KFUPM is committed to offer effective literature and information support to the academic and research community through a wide variety of resources, including digital library systems. Indeed, with the support of university administration and Saudi Arabia Government, the library has launched an ambitious project in order to transform into a digital library where online resources are constantly available in convenient formats to its student and academic community. The electronic collection, that includes databases, multimedia encyclopaedias, and web resources are

¹⁶ The Alexandria Library Scholars Cooperative (ALSC) [Electronic Version]
<http://www.bibalex.org/English/researchers/isis/alsc.htm>

¹⁷ <http://www.beaconforfreedom.org/>

¹⁸ In Focus, Documenting Censorship in Arab Countries, Nov 08- 04 [Electronic Version]
<http://www.beaconforfreedom.org/news/archive/article.html?id=40>

increasing on a daily basis. The electronic database offer access to more than 25,000 journals, including 7,700 full text journals. The library also offers online access to more than 600 international databases through DIALOG search services. In addition to that, KFUPM offers various technology facilities such as on-line and CD-ROM searching of bibliographic, full image, multimedia and numerical databases, as well as virtual audio-visual services¹⁹.

3- Al Akhawayn University of Ifrane - Morocco:

Morocco is starting to identify Digital Libraries as “a national challenge and as an area with wide repercussion on the well-being of citizens”²⁰. Al Akhawayn University of Ifrane is acting as the pioneer for the establishment of Digital Library initiatives in the country. Its library is taking the lead to digitize its information and is planning to integrate the latest Digital Library technologies to ensure a worldwide distribution of its electronic documents throughout the World Wide Web. The AUI library includes an Information Multimedia Centre that uses cutting-edge PCs and iMACs connected to the Internet to access educational, reference software and online databases. AUI library also include in its electronic resources an excellent up-to-date collection in the areas of computer science, history, economy, sociology, reference, religion and other subject matters and has electronic access to millions of volumes and documents through the Internet²¹.

7- Conclusion:

Digital Libraries can have an unprecedented impact in developing countries and can definitely act as a catalyst of development in the Arab world. However, for such a revolution to occur, basic information technology should be implemented and Internet access should be democratized and made accessible to the lowest ladders of societies from which social and political turmoil tend to emerge. Some Arab countries have managed to overcome major infrastructure constraints and have already launched their Digital Libraries. However, such initiatives remain sporadic and irrelevant when compared to the huge information gap from which still suffer the majority of Arab people. Ambitious programs such as Bibliotheca Alexandrina are important for the Arab world and for the diversity of human knowledge, but one should wonder why such huge amounts of money are spent on one individual project while those resources could have been used to create more modest ventures that could be accessible to the greatest number of populations. Moreover, initiatives such as the ones implemented in Saudi Arabia and in Morocco remain accessible to the elite that are already technology driven, which increases the internal technological gap between the different social ladders in Arab countries. For a major Intellectual and technological revolution to occur, more Arab countries should take the lead and work in implementing and increasing the number of

¹⁹ <http://www.kfupm.edu.sa/library/>

²⁰ Workshop on the Design and Implementation of Digital Libraries, Sponsored by Al Akhawayn University of Ifrane and DELOS Network of Excellence on Digital Libraries, November 8-9 2001 [Electronic Version] available at : www.iei.pi.cnr.it/DELOS/delos2/International/morocco.htm

²¹ <http://www.alakhawayn.ma/library/>

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Digital Libraries in their territories. Only perseverance and strategic long term visions from Arab governments could help in the emergence of Digital Libraries that can dramatically improve the lives of citizens and help Arab communities to overcome their long lasting social, political and cultural identity crisis.

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