

# Library of Congress Outreach to the Developing World: The World Digital Library Initiative

Justin Thorp  
Library of Congress  
101 Independence Ave. SE  
Washington, D.C. 20540-9510 USA  
+1 (202)707-9541  
[juth@loc.gov](mailto:juth@loc.gov)

## Abstract

The World Digital Library (<http://www.worlddigitallibrary.org>) is an initiative of the Library of Congress, UNESCO, and several partner institutions to create and provide high-quality digital content on a worldwide basis. A key element of the initiative will be to help bridge the digital divide between developing and developed countries. Library of Congress and partner institution researchers will be exploring the use of mobile technology to deliver web content throughout the developing world. By utilizing the mobile platform and rethinking how we approach digital libraries, we hope to give more people access to a wealth of historical and cultural information in a way that will help to educate and empower them for the future.

## Categories and Subject Descriptors

H.5.4 [Hypertext/Hypermedia]: User Issues

## General Terms

Economics, Human Factors

## Keywords

Library, Digital, Mobile, Developing, Countries

## 1. Introduction

There is a strong history of the World Wide Web being used as a platform for digital libraries to disseminate cultural and historical information to people across the world. While there are many digital library initiatives that exist today, most have been charged with serving the needs of a specific region of the developed world.

From the beginning, the World Digital Library (WDL) initiative has made it a priority to make content accessible to a worldwide audience, including developing nations. US Librarian of Congress Dr. James Billington proposed WDL in a speech to the U.S. National Commission for UNESCO in June 2005. WDL will digitize treasures from cultures around the world and make them accessible online. The Web site's content is intended to help foster cross-cultural understanding and foster new cross-national and cultural communities [3]. In addition, developing countries will benefit from the improved access to global resources that the World Digital Library could provide.

The question is what should this type of digital library look like? What would be the most effective means of getting its content to people in the developing world? Answering these questions

depends first on having an understanding of the environment that users live in.

## 2. State of the Developing World

WDL must take into consideration the real digital divide in today's world. People in the developing world do not have access to computers and Internet in the same way that those in the developed world do. According to a report by the group African Internet Connectivity, in 2002 there were 816 million people in Africa. Only 1 in 160 uses the Internet; 1 in 130 has a Personal Computer (PC). [8]

There are many reasons for this state of affairs, including heavy-handed government regulation and/or ownership of the telecommunications industry that result in a lack of competition and disincentives to innovate that would help people; lack of infrastructure and infrastructure security; and the cost and complexity that prohibit the mass adoption of computers in populations at low income and education levels[1].

There must be other ways to reach the people. Google CEO Eric Schmidt recently wrote a piece for the *Financial Times*, in which he claimed that "mobile is going to be the next big Internet phenomenon. It holds the key to greater access for everyone - with all the benefits that entails." According to Google's head of European development Anil Hansjee, "We want to enter Africa, not through fixed-line Internet access but through mobile access." [6]

Mobile is quickly being adopted throughout the developing world. Nathan Eagle of the MIT Design Laboratory recently reported, for example, that "in June of 1999, Kenya had 15,000 mobile phone subscribers. By the end of 2004 the country had 3.4 million subscribers, and in the last 18 months this number has grown to over 5.6 million, despite the fact that only 200,000 Kenyan households have electricity." It was recently reported that major African mobile provider Celtel has invested \$1.4 billion in the mobile infrastructure of Nigeria. [9] A recent policy paper from Vodaphone reports that there are 52 million mobile users on the continent of Africa. Nor is Africa the only part of the developing world that has seen the strong adoption of mobile phones. According to CNET News, Motorola reported that cell phone penetration in Latin America would rise to 50 percent by the end of 2006, up from 43 percent in 2005. [6] China's Ministry of Information Industry recently reported that Chinese mobile users are set to exceed 520 million in 2007. [4]

### 3. Current Mobile Web Use Cases

A mobile phone is a very different platform from the typical desktop computer. It thus is important for the World Digital Library project partners to look at the players in the mobile space and to understand what has worked for them. Experience of what has worked must inform how the World Digital Library approaches the Mobile web.

Mobile services that enhance the lives of the users, such as news, banking, and information about farming and the location of medical services have gained some of the greatest acceptance. According to an October 2002 BBC report, for example, farmers in Senegal are using their mobile phones to learn the price at which their goods are being sold in the markets. This allows them, when selling goods the middlemen, to make better decisions about pricing their products. Short Message Service (SMS) is a common means for this to be done. [5] News is also very popular. An August 2006 BBC article reported that "61% of the BBC's international Wap users came from Nigeria and 19% from South Africa." [2]

To compete effectively for the time and attention of users on this platform, WDL will have to be relevant, educational, and even inspiring. It will need to host a wealth of educational, historical, and cultural content. A key question is how this typically long-form content can be treated so that it is accessible on a rudimentary mobile phone and can successfully compete with other day-to-day services available to users.

### 4. The Approach

Typically, digital libraries have contained primarily long form content, such as images, books, and long documents. These are not items that are optimal for consumption on a mobile device.

One way to get around this problem is to have curators assemble and produce relevant text-based content that can be easily transformed into smaller chunks. The images of historical and cultural documents also can be approached differently, for example by scanning them at multiple resolutions, including one that is optimal for low-end mobile phones.

Another factor to consider is that users of a WDL mobile site will not want to dig through a complex information architecture. This suggests that new and especially relevant content should be regularly featured on the home page.

There also should be an infrastructure that allows users to come back to information that they previously have come across. It is typical for people within rural areas to regularly make the journey into larger more popular cities to get services and supplies. If a mobile phone user from a rural area stopped to use a desktop computer at an Internet café, he or she should be able to quickly locate and get access to more information about items previously seen on the mobile phone.

SMS has quickly grown to be one of the most used features of the mobile phone. According to Portio research, by 2012, 3.7 trillion SMS messages will be sent every year. [7] SMS is very simple and easy to use. This suggests the importance of investigating how it could be utilized as a method of user input for finding and receiving information within WDL.

### 5. Other Factors for Development

There are other development factors that need to be considered for mobile WDL in the developing world. Literacy rates in these countries generally are lower than in the developed world. This needs to be taken into consideration in developing and collecting information for the digital library. Lower reading levels should not be an access barrier to the information that the WDL has offer. There are currently Web-based tools available that use algorithms to test the reading level of the content. These tools may be helpful, but ultimately further research is needed on how WDL can approach content development for mobile devices in ways that take into consideration low literacy rates.

Another issue is the diversity of languages in some countries. In India, for example, there are 23 officially-recognized languages, all of which are widely spoken. For example, Malayalam is spoken by 37 million people in India and is the official language of the Indian states of Kerala, Puducherry and Lakshadweep. The mobile platform could be utilized to deliver content that is in the language of the location where the user resides in order to give the user a more relevant experience.

### 6. Conclusion

Much more work needs to be done, before a mobile version of the WDL can reach its full potential in the developing world. It will be important to understand the types of phones that people are using so that the real capabilities and limitations of these phones can be applied in developing the user experience. It also is important to better understand how people use the Web so that content can be developed that is relevant to how users live their lives.

By moving forward with research and development of the mobile platform, World Digital Library has the opportunity to reach people within the developing world in a way never before possible. WDL can help to empower users with information and to help them see and understand a world beyond their own in ways that inspire hope and optimism.

### 7. Acknowledgements

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