



智慧城市与图书馆服务

第六届上海国际图书馆论坛论文集

Smart City and Library Service

The Proceedings of the Sixth Shanghai International Library Forum



上海科学技术文献出版社

SHANGHAI SCIENTIFIC AND TECHNOLOGICAL LITERATURE PUBLISHING HOUSE

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上海图书馆 编

上海科学技术文献出版社

图书在版编目 (CIP) 数据

智慧城市与图书馆服务 / 上海图书馆编 . — 上海 : 上海科学技术文献出版社, 2012.7

ISBN 978-7-5439-5470-0

I . ①智… II . ①上… III . ①图书馆服务—文集
IV . ①G252-53

中国版本图书馆 CIP 数据核字 (2012) 第 138811 号

责任编辑: 徐 静

封面设计: 徐 利

智慧城市与图书馆服务

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上海科学技术文献出版社出版发行

(上海市长乐路 746 号 邮政编码 200040)

全国新华书店经销

常熟市人民印刷厂印刷

*

开本 787 × 1092 1/16 印张 32.5 字数 1100 000

2012 年 7 月第 1 版 2012 年 7 月第 1 次印刷

ISBN 978-7-5439-5470-0

定价: 180.00 元

<http://www.sstlp.com>

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大 会 报 告

Conference Speeches

全媒体数字时代的全球合作与共享： 图书馆面临的挑战

陈钦智

(美国西蒙斯学院荣誉教授)

摘要 作者曾于 10 年前在首届上海国际图书馆论坛上做过主旨发言。为了契合本次大会主题,本文首先对上次的发言和本次的发言内容做一下简单比较,看看近 10 年来令人目不暇接的技术变革。在此之后,我们将对今后 10 年图书馆的走向做一个展望。本次大会以“智慧城市”为题,本文将探讨“智慧城市”的定义、愿景、模型以及案例。本文将介绍具有划时代意义的“新世纪城市”发展计划以及在此计划下针对麻省理工学院及其周边环境的案例研究。在此基础上,我们将去探究如何将图书馆信息服务机构与这些充满魅力的发展项目相联系。

文章最后将对图书馆如何在智慧城市这一图景下打破传统模式,更为进取地转向基于知识服务的全球合作与分享展开更深入实际的论述。以全球数字图书馆的发展为例,我们正处于智慧城市所描绘的通过开放和用户驱动的方式去验证未来内置互联网功能的服务的创新环境中。面对时代所带来的纷繁复杂的挑战,图书馆远未抓住发展机遇。互联网使所有人位于同一起跑线上,任何有创新想法的个体都可以进行各种实验,图书馆员和信息专业人员理当成为其中的一员,抓住这些令人振奋的机遇。

Global Collaboration and Sharing in this Omni-Media Digital Age: Challenges to Libraries

Ching-chih Chen

(President, Global Connection & Collaboration, Professor Emerita,
GSLIS, Simmons College, Boston, MA, USA)

Abstract In line with the theme of this conference, this paper will first discuss the unimaginable speed of technological changes in the last decade by making a quick comparison on a keynote speech presented by the author at the first Shanghai International Library Forum at Shanghai Library in 2002 with what is to be presented now 10 years later, and followed by a quick speculation on where we are going in the next 10 years. Given the theme of this conference, Smart City will then be presented with its definition, vision, model, followed by describing some of the cutting-edge New Century Cities developments with specific elaboration on a case study on MIT and Environs. Questions will be asked on how library and information services can be linked to these fascinating open developments.

The paper will end with more down to earth discussion on how and why, in the Smart City landscape, libraries needs to break down the traditional typecasting and moved to knowledge-based provision services with aggressive global collaboration and sharing. A quick sample discussion on global digital library development will be made. It will be clear that in the environments of open and user-driven innovation for experimenting and validating the future Internet-enabled services as seen in Smart Cities, libraries are far from catching up this development to respond to the complex and difficult challenges of our exciting time. The Internet has leveled the playing field and has empowered individuals with ideas for innovation to all kind of experimentation. Librarians and information professionals are certainly included to grab these exiting opportunities ...

Introduction

I am delighted to be at Shanghai Library again at this special occasion celebrating the 60th birthday of this wonderful library. On July 16, 2002, also at the kind invitation of Director Jianjun Wang, I gave a keynote speech entitled “International Collaborative Digital Strategy: Promise for Libraries in a Knowledge-Based Society” at the *First Shanghai International Library Forum*, celebrating the Library’s 50th birthday^[1]. This reminded me how time has passed in the past decade, and also how much our way of getting, consuming, and distributing information has changed dramatically.

In ten years, how our world has been transformed politically, economically and intellectually in a kind of speed simply unimaginable ten years ago. This is why so interesting for me to be here sharing with you on the new challenges facing us in this new landscape of Smart Cities with Smart Libraries in responding to the new political, economic, intellectual, and cultural developments risen from the global infrastructures and networks we began to discuss more than ten years ago. Hopefully that at the end of this talk, we will be further motivated with a new sense of purpose and direction.

I am also intrigued to note the theme of this 6th *biennial Shanghai International Library Forum* (SILF) is “smart cities and library services.” As stated by the Conference brochure, it is “devised to maximize libraries’ functions of distributing knowledge, underpinning social and economic development and promoting human civilization, the SILF offers an opportunity for scholarly communication and professional cooperation among libraries and information institutions in the world”^[2]. For those of you who know of my background, you know that these topics are very close to my heart.

It was lucky that in looking back to my own extensive digital archive, I still have the PowerPoint of my keynote in 2002^[1], so in the beginning of this Plenary Talk I shall share with you with a comparison on what I said in 2002, and what I want to say in 2012.

Then(2002) and now(2012)

Let me revisit just a few slides of what I presented in 2002, and see how far we have come ten years later. It is a “no brainer” that we can see how our predictions 10 years ago fell short miserably of the speed of technological changes occurred in the last 10 years. It is mind-boggling that this change will continue to forge ahead with unimaginable innovations and advances in this coming decade ...

General landscape in 2002	General landscape in 2012
<p>10 critical “National challenge Transformations” identified by PITAC^[3]:</p> <ul style="list-style-type: none"> IT is transforming <ul style="list-style-type: none"> ■ the way we communicate ■ the way we deal with information ■ the way we learn ■ the practice of health care ■ the nature of commerce ■ the nature of work ■ how we design and build things ■ how we conduct research ■ our understanding of the environment ■ how we govern. 	<p><i>“2011 is an exciting time to be alive and living your life. Day after day there are discoveries that justify the science fiction movies and the trend does not seem to be slowing down. Not a day passes when fictional technologies aren’t translated into facts of the real world. Today we take a look at 10 such discoveries or inventions that will make the coming 10 years mind blowing.”</i>^[4]</p> <p>http://realitypod.com/2011/04/10-ways-the-next-10-years-are-going-to-be-mind-blowing/</p>
<p>In the past decade, information technology advanced the sciences and transformed the economy. In this decade, information technology will serve all of society and transform our daily lives.</p>	<p>The current technology is so awesome that allows us to make more breakthroughs even faster. Our ability to innovate is increasing exponentially as time goes by, and all has transformed us politically, economically and intellectually.</p>

续 表

General landscape in 2002	General landscape in 2012
<p><i>"I believe we are now entering the Renaissance phase of the Information Age, where creativity and ideas are the new currency, and inventions is a primary virtue, where technology truly has the power to transform lives, not just businesses, where technology can help us solve fundamental problems."</i>^[5]</p> <p>Carly Fiorina, Chief Executive Officer Hewlett Packard Corporation</p>	<p>The internet has been continually leveling the playing field so that as long as one has creativity and ideas, one can have his/her ideas, creations and business into the spotlight without needing millions in capital or marketing. The success and popularity is within reach to anyone anywhere in the world.</p>
<p>Arising from LC's own "sense of its vulnerability and uncertainty at the dawn of the information age and attempts to respond closely to the institution's own sense of its mission, LC asked to have a study conducted to provide strategic advice concerning the information technology path that LC should traverse over the coming decade"^[6]. <i>LC21: A Digital Strategy for the Library of Congress</i>. Washington DC: Library of Congress, 2000.</p> <p><i>"The current transition to digital content calls for extraordinary, unprecedented collaboration and coordination," and LC needs to be "more proactive in bringing together stakeholders as partners in digital publishing and digital library research and development"</i> (p. 153).</p>	<p>In the library field, while we have seen the great increase of popularity for all "digital" projects in this decade, we are still short of bold innovation. Libraries are still heavily database driven, and they have been still handling all digital activities much based on the traditional frame works.</p> <p>As the whole world going viral to expand its community for cooperation and collaboration, most world projects in libraries and information fields are still strongly based on the traditional organizational structures. Further elaboration will be make later.</p>
<p>Vision of PITAC's <i>Digital Libraries: Universal Access to Human Knowledge</i>:^[7]</p> <p><i>"All citizens anywhere anytime can use any Internet-connected digital device to search all of human knowledge. Via the Internet, they can access knowledge in digital collections created by traditional libraries, museums, archives, universities, government agencies, specialized organizations, and even individuals around the world ..."</i></p>	<p>We are still a long way to go ...</p>
<p>For the libraries in this knowledge-based digital age, what lies ahead is a real jump for us toward universal information access via the globally connected distributed information and knowledge systems.^[8]</p>	<p>We are witnessing the surfacing of some connected distributed digital library and information systems, but the scale continues to be limited. Most digital library applications are still institution based.</p>
<p>Chinese Memory Net was presented</p>	<p><i>Global Memory Net</i> was launched in 2007. (http://memorynet.org)</p> <p><i>World Heritage Memory Net</i> was launched in May 2011. (http://whmnet.org)</p>

Looking at where we are now, seeing what has happened even just in the last few years or even last few months, we know that in the Internet world, things are going viral.

In the hardware and infrastructure area, we see how the rare legendary and visionary person like Steve Jobs who was able to innovate and leverage on the technological network environment to give the world the kind of experience no one could expect even a decade ago. In one decade, Jobs oversaw the development of the iMac, iTunes, iPod, iPhone, and iPad, and on the service side, the Apple's Apple Retail Stores, iTunes Store and the App Store. The success of these products and services, excites the entire world and no wonder he has been described as the "Father of the Digital Revolution", a "master of innovation", and a "design perfectionist"^[8].

In the social media areas, despite of the ups and downs of the stock price of Facebook, it has over 900 million user accounts since 2004, and talking about leveling the playing field, it is truly unimaginable that a young college student at Harvard in 2004, Mark Zuckerberg, has been able to make his company the largest

in the IPO history with over \$20 Billion worth just a few years later in May 2012. Yet, for him, the only thing he cares is not status, big fortune, but “user experience,” as reported in many recent CNN and other media interviews.

The awesome thing is that aside from these two obvious examples, there are many others—known or still unknown—who have bold and great ideas. Thanks to the open innovation environments of today, their visions, ideals, abilities, knowledge and motivation can all be effectively fed into the smart economy—a key component of Smart City—of the world. Thus, talking about Smart City and library services, we do have a lot to engage ourselves in soul-searching dialogues, and ask ourselves how we—library and information professionals—can fit in to this open environment?

Where are we going in the next 10 years?

In the literature front, we see endless publications on so many interesting topical areas speculating the technological future. For example, just in multimedia technologies, books and articles are abundant on literally any topics we want to find regarding navigating the universe of new media opportunities etc. ; and in social technologies areas, emphases on interaction with technology’s human dimensions attracted my attention immediately while so many others were not even in my radar of thoughts. I googled the phrase “where the technology is going?” and found over 371 million results. While some are nerdy and insignificant, yet the one on the top of the posting is a good one: “10 Ways the Next 10 Years Are Going To Be Mind-Blowing”^[9].

In it, the author said, *“we are living in an extremely exciting time in terms of science and technology. Things that have always been considered science fiction are becoming normal day-to-day components of our lives. And while we have been seeing invention after breakthrough over and over in the last couple of decades, this next ten years is going to blow everything else out of the water.”*

“The awesome thing about all these scientific discoveries is that they create technology that allows us to make more breakthroughs even faster. Our ability to innovate is increasing exponentially as the years go by.”

He then lists the 10 amazing innovations to different sectors of life yet they can all be interwoven and integrated in one. These 10 same innovations can truly offer us a wonderful preview on what will be by 2020. The areas listed are:

- 1) Bio Technology
- 2) Architecture
- 3) Computer Speed, Size and Usability
- 4) Cars and Fuel
- 5) How we interact with the world*
- 6) Energy
- 7) Health
- 8) Success and Popularity Accessibility*
- 9) Robots
- 10) Clothing—with nanotechnology

All the technologies described are truly intriguing and worth our close exploration, and has great relevancy to our topic of Smart City. However, due to limitation of page space and presentation time, let me only share with you the two areas indicated with “*”. For “how to interact with the world,” the video introduced by an early concept of Google/Goggles(Figure 1) in 2009 is mentioned^[10].

Google Goggles is a downloadable image recognition application created by Google Inc. that can be currently found on the Mobile Apps page of Google Mobile. It is used for searches based on pictures taken by handheld devices. For example, taking a picture of a famous landmark would search for information about it, or taking a picture of a product’s barcode will search for information on the product. This shows that “the way in which we

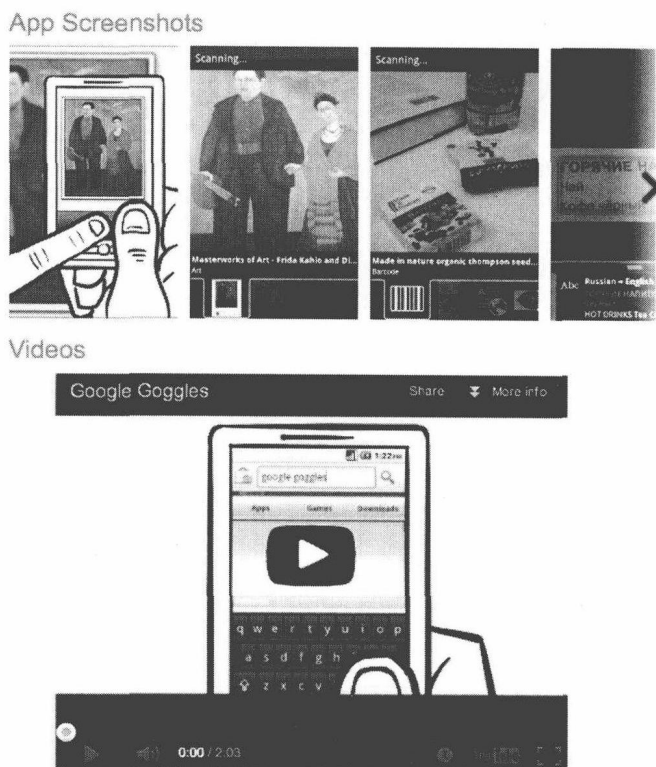


Figure 1 Google Goggles

interact with the outside world has changed SO much since the introduction of the Internet, smart phones, etc. In the very near future, another huge jump will be made; integrating the information on the Internet with our surroundings.” This means that one can take a picture of whatever he/she is looking at and instantly receive info about it on one’s smart phone, such as Android phone. Yet, Goggle is only the beginning.

As to “Success and Popularity Accessibility,” I have already alluded to the fact that now the ideals and ability of a person can come from nowhere and suddenly gain recognition and become well-known in no time in the current Internet environment. This person can be a child, a poor person, a citizen from far remote undeveloped area anywhere in the world ... Yet the Internet has truly leveled the playing field. These totally unknown persons can become well known in no time. We have witnessed this on a daily basis literally in every aspect of our lives.

Smart city and inspiring cases

The concept of smart cities is a response to the complex and difficult challenges to meet objectives regarding socio-economic development and quality of life, faced nowadays by cities. Smart cities are mostly environments of open and user-driven innovation for experimenting and validating the future Internet-enabled services^[11].

The definition of smart city and smart library varies greatly and a simple search on the Web yields abundant interesting as well as less relevant pieces of information. *Wikipedia* offers a simple and manageable definition as:

Smart cities can be identified (and ranked) along six main axes or dimensions. These axes are: a smart economy; smart mobility; a smart environment; smart people; smart living; and, finally, smart governance. These six axes connect with traditional regional and neoclassical

theories of urban growth and development. In particular, the axes are based—respectively—on theories of regional competitiveness, transport and ICT economics, natural resources, human and social capital, quality of life, and participation of citizens in the governance of cities.

A city can be defined as “smart” when investments in human and social capital and traditional (transport) and modern (ICT) communication infrastructure fuel sustainable economic development and a high quality of life, with a wise management of natural resources, through participatory governance.^[12]

The six axes described in Wikipedia have been presented as the Smart City Model by Giffinger, Rudolf et al^[13] in Figure 2, which we will elaborate in later session on how dynamic library services can fit into this kind of “smart” landscape.

The smart city model

A Smart City is a city well performing in 6 characteristics, built on the ‘smart’ combination of endowments and activities of self-decisive, independent and aware citizens.

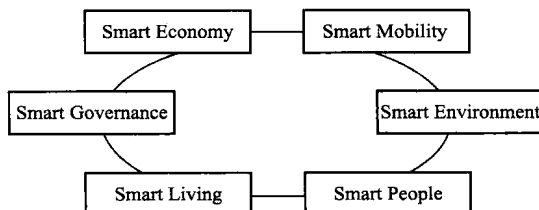


Figure 2 The Smart City Model. Taken From <http://www.smart-cities.eu/>.

Simple literature search on “Smart Cities” can result in a wide variety of articles and books on the topic. Many do not fit well with the characteristics as stated in Figure 2. Yet, one of the most dynamic and cutting edge Cities has to be MIT’s New Century Cities^[14], which I shall use here as a good example on how the 6 components are interwoven into this progressive “smart city”.

New century cities, <http://web.mit.edu/cre/research/ncc/ncc.html>

As stated on the MIT Center for Real Estate’s Website, the following introductory statement provides a good introduction:

“New Century Cities (NCC) is a joint research initiative among the Center for Real Estate, City Design and Development in Urban Studies and Planning, and the Smart Cities Group/Media Lab which focuses on a new generation of development projects.

“These very large-scale projects are deliberately located at the intersection of technology, urban design, and real estate development. They can be found in New York City, Cambridge, Massachusetts, Belfast, Helsinki, Copenhagen, Seoul, and Singapore. In addition, projects are on the drawing boards in places such as Florianopolis, Brazil, and Zaragoza, Spain. These projects vary in size and in how their development is organized and led.

“... As mixed use projects, they are home to technology enterprises, including enterprises that leverage information technology, and to creative workers who both live and work in the development zones.”

What all New Century Cities(NCC) have in common are:

- They promote innovation to achieve significant social and economic value for their host cities (and, in some cases, countries). These projects lead to development of highly creative, cutting edge, value-