Building An Information Society For All: The Library Environment and Stakeholder Roles

Schubert Foo
Division of Information Studies,
Wee Kim Wee School of Communication and Information
Nanyang Technological University, 31 Nanyang Link, Singapore 637718
Email: sfoo@pmail.ntu.edu.sg

Abstract

An analysis of the topics presented at the ICoLIS conference was carried out to derive the interests of authors and participants. From an initial list of 39 topics, they were subsequently grouped into 11 larger topics. Of interest was how these were related to the LIS field in the context of the organisation, namely, the library, or more generally, a non-profit information agency. Using the classical management model of the mega environment, task environment, and the organisation, this paper attempts to identify key factors of constituent elements of these environments to explore salient features and challenges to provide an overall understanding of the library operating in today's information society. As such, a broad and non exhaustive treatise is given to these factors to create a big picture view of the library which is often overlooked when we delve into specific research issues. The conference topics identified previously are also mapped as they occur along these dimensions to reveal the main areas explored by researchers in this conference. The paper concludes with examining the roles of a number of stakeholders of this environment, namely, library professionals, library associations, library managers and administrators, educators, researchers, government, users, and proposes what the author considers are important areas for thought and action to shape the information society.

Keywords: Mega environment; Task environment; Libraries; Information society; Challenges; Stakeholder roles

1. Introduction

Out of initial curiosity, the papers in the ICoLIS 2007 programme was analysed to derive the interest of researchers and authors. From an initial list of 39 topics as shown in Table 1, they were subsequently grouped into 11 larger topic areas as shown in Figure 1. The categorisation was done without consultation to authority lists, subject headings or other established LIS (library and information science) knowledge organisation tools as the aim was to get an overall indication of the main areas covered in the conference.

Of particular interest is the mapping of these topics in relation to the environment that the library operates in. As such, the paper first examines the library environment using the classical management framework of the organisation's external and internal environments. It identifies the major forces in these environment and the main challenges facing the organisation.

Major topics found in Figure 1 are mapped accordingly to these factors as they arise. This allows us to paint a picture of the focus of current research (in the context of ICoLIS). Implications of this picture are discussed by examining a range of different stakeholder roles that include library professionals, library associations, library managers/administrators, educators, researchers, government, and users. This paper therefore focuses on broad management perspectives to draw awareness and attention to the reader of the complexity in building an information society for all.

Table 1.   Topics Covered in ICoLIS 2007 Proceedings

|	
User satisfaction	Information Access
Library promotion	Ontology
Assessment measurement	Search engines
Cost	Knowledge sharing tools
Evaluation	Knowledge Management readiness
Metadata	E-Publishing
E-documents	Learning organisations
Quality assurance	Bibliometrics/Citation Analysis
Digital libraries	Organisation Development
Policy	Information Literacy
Key Performance Indicators	Social responsibility
Emerging technologies	Information Seeking Behaviour
User education	Information needs
Scholarly publications	Library programs and services
Scholarly trends	Gender studies
LIS education	Minority studies and issues
Mobile technologies	Information ethics
Human resource management	LIS research trends
Preservation and Access	Social Network Analysis
Usability	
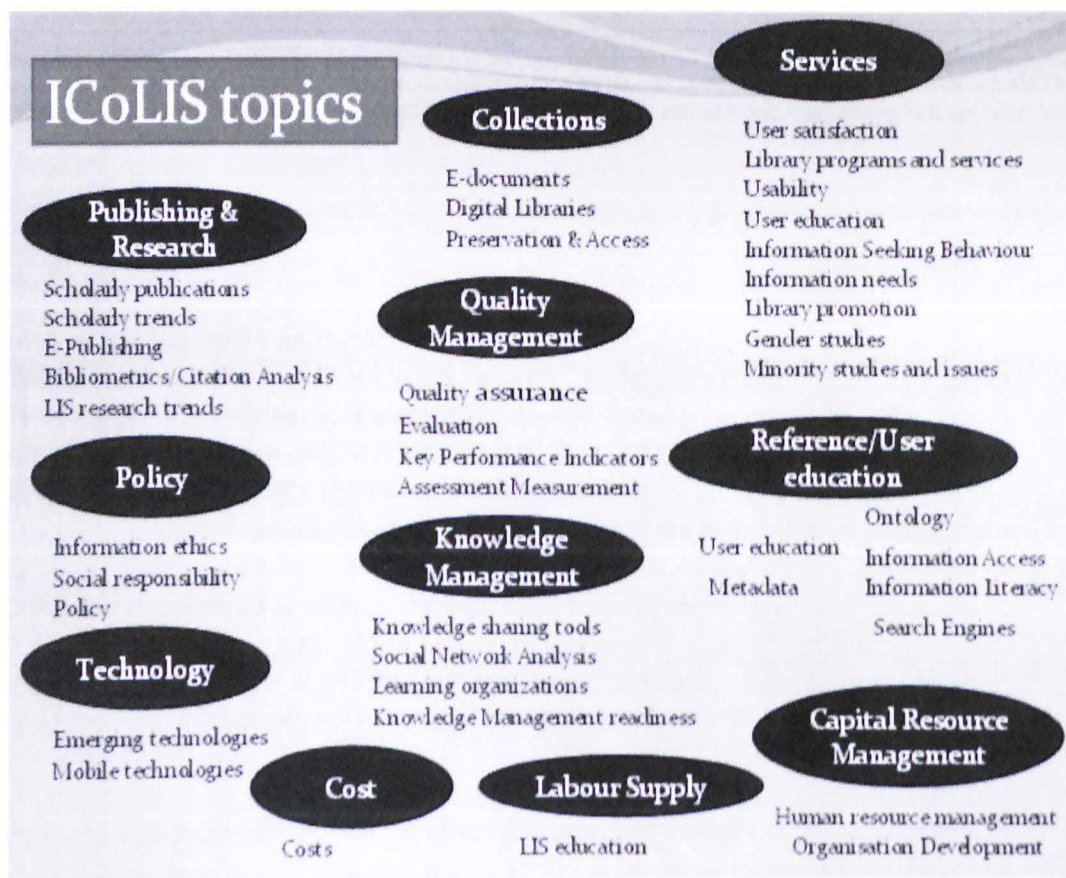
Figure 1. Major Topics Covered in ICoLIS 2007 Proceedings

2. The Library Environment in Today's Information Society

The library (or a non-profit information agency) environment in today's information society is complex as it interfaces with many multi-faceted factors, some of which it has

more control, some of which it has little control, and some of which it has no control. The advent of ICT has dramatically changed the way the library operates. The growth of digital information fuelled by the ease of publishing, coupled with very high user expectations poses significant headaches for today's library managers and administrators. New research areas and questions spanning from library and information science, to computer science, to telecommunications, offer much opportunities and excitement for what is to come.

In order to better understand the library in the information society, we employ the classical management framework of the external and internal environment of the organisation to systematically examine various factors that impinges on the organisation. Figure 2 shows this environment (Bartol & Martin, 1991). The systems view of the organisation stresses the importance of the ability of the organisation to monitor, interact and influence its task and mega environments.
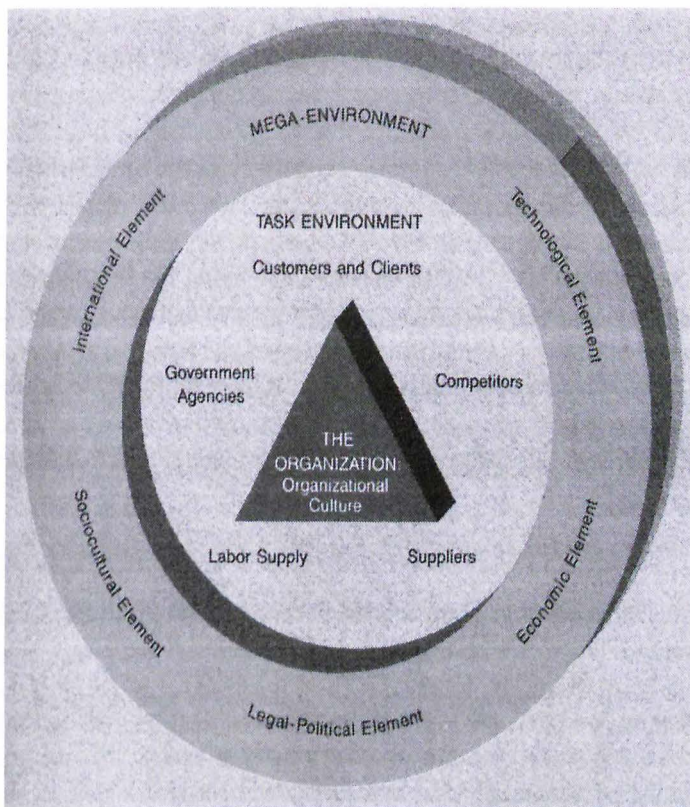

Figure 2. Internal and External Environments (Source: Bartol & Martin, 1991, p.79)

The outer mega environment are the areas that reflect the broad conditions and trends in the societies in which the library operates. These areas typically include five major factors: technological, economic, legal-political, socio-cultural, and international. Generally, the organisation by herself, has little or no control over these factors.

The task environment, on the other hand, comprises specific outside factors that the organisation interfaces in the course of running its business. These factors typically include customers and clients, competitors, suppliers, labour supply, and government agencies. The organisation has better chance and can typically have an influence on these factors.

In the following sections, we will examine each environment in turn, and highlight what the author deems are important trends and challenges facing the library.

3. The Mega Environment

(a) Technological Element

The technological element reflects the current state of knowledge in regards to the production of products and services. The most salient development is in the area of rapid ICT advances. This is clearly evident from the rapid evolvement of telecommunications in terms of mobile (wireless) computing with every increasing bandwidth to cater to the use, transmission and delivery of multimedia information. Internet technology is evolving to its next generation of protocol (IPv6). The semantic Web is beginning to register research achievements and one can expect more intelligent information linkages to be made possible in future. Internet search engines, dominated by Google, Yahoo, Microsoft and America Online, dictate how information can be searched and easily made available to users today. This comes at the huge cost of sieving through volumes of redundant information, misinformation and disinformation.

The library faces the tall challenge to keep up with technological advances in its automated systems. Information architectures and platforms must be chosen to allow for seamless upgrades to take place. Open standards are rapidly been embraced as the way forward. As digital libraries are populated with more content and endowed with more functionalities and features, information discovery becomes more challenging.

The D-I-Y (do-it-yourself) user, while not being particularly more information literate than before, is faced with the false perception of drawing the best information out of the information society. Through the interconnectivity provided by Internet, users are able to use and compare different systems through freeware, shareware, and software trials. The onslaught of various media advertisements and sustained new IT products launches in this era of the consumer world raises their expectations rapidly and places severe stress in the delivery of the library's products and services. Nothing seems to satisfy the users fully anymore.

(b) Economic Element

The economic element encompasses the systems of producing, distributing and consuming wealth. Regardless of whether we live in a world of a capitalist or socialist, or hybrid economies, we have witnessed increased levels of inflation, taxes and interest rates rises. This has resulted in higher prices for commodities including information which is not spared. With higher costs, the tension between free versus fee paying information and services is amplified considerably.

Financing large library projects is no longer so straightforward as in the past. For example, the Singapore government has moved into a model of debt-equity financing for her agencies, including the national and public libraries. They have also levied small percentage annual cuts in budgets in an effort to boost productivity. Budget constraint has given the management nightmares to balance the books, yet provide a level of product and service mixes acceptable to her customers. Customers, who now pay increasing higher taxes, are naturally fuelled to raise their level of expectations of publicly funded institutions. To overcome budget shortfalls, the library today has to increasingly look for sources of external funding, institutional endowments or philanthropy to raise its level of finances. Donations in kind or money, naming of rooms and buildings, are increasingly evident and are likely to grow further in future as budgets continues to remain tight amidst burgeoning operating costs.

(c) International Element

The international element concerns developments in countries outside the organisation's home country that have the potential to impact the organisation, including the collective

impact of globisation. In this global arena of business, we see constant swings in exchange rate fluctuations that we have little control over. We witness the formation of global companies through a spate of mergers and acquisitions. In accounting, the Big Eight firms have now become the Big Four firms. In information, we see the recent 2007 acquisition of Reuters by Thomson for a whopping £8.7bn (or US$17bn) that will create the world's biggest financial news and data firm (http://news.bbc.co.uk/2/hi/business/6656525.stm). Such activities will almost for certain lead to the situation of oligopoly where a few major players dominate the market and dictate the terms of doing business including prices for information.

The information industry is highly governed by standards. It has to do so in order to make this commodity of information easily transportable and useful. We are more acquainted with large standardisation bodies like NISO, ANSI, ISO, W3C and DC. Collectively, they established important yardsticks for document description (such as metadata, AACR2, DC, OAI and EAD), knowledge discovery (ontologies, semantic Web), and digital preservation (medium, form, format) to highlight a few.

On our part, it implies the need for the library to keep up, to ensure that we remain interoperable. To do so, open standards is becoming a *de facto* requirement in designing and implementing new systems and technologies. Open source is also beginning to gain popularity, especially for the small and medium enterprises and agencies, as proprietary systems and software, with its rapid obsolescence cycle, poses significant financial strain to the organisation.

The key to provide quality information is through appropriate and adequate description of information objects through metadata. Cataloguing of retrospective, current and future information objects will be demanded by the information society, to serve disparate users, including users who discover new relevance to information that they may have never used before.

(d) Legal-Political Element

The legal political element refers to the legal and government system within which the organisation functions. No organizations are spared from the country's politics which has implications arising from the level of government stability, government funding, government legislations (such as Acts and Statutes). Government aspiration is another key aspect of this environment as the government attempts to cultivate their countries in niche areas. Countries tout themselves as economic hubs, education hubs, cultural hubs, medical hubs, media hubs, and so on, in a relentless bid to gain competitive advantage for survival and growth.

Such different levels of emphasis basically translate into economic terms of funding and policies. Depending on the "flavour-at-that-time", libraries may be thrust into the limelight, given generous support to develop its collection and services, or pushed into a less prominent corner of the economy. Regardless of the situation, libraries are acutely aware of its own value, and therefore have the responsibility to make its value proposition and educate the government and public of this key institution in the economy.

(e) Socio-Cultural Element

The socio-cultural element encompasses attitudes, values, norms, beliefs, behaviour and associated demographics trends. They define the characteristics of society. ASEAN is a good example in demonstrating the rich diversity and differences of its culture, language, and customs among these countries.

The information society serves a disparate crowd of baby boomers (those born between 40s -60s), X generation (60s -80s), Y generation (70s-90s), and Z generation (>90s) population, who are brought up so differently and whose exposure and experience are so diverse. Indeed each has their own values towards learning and research, education, information sharing, what constitutes fun, and what is worth doing and what is not.

These generations of library users translates into different stakeholder groups with their distinct set of user expectations. Institutional goal setting and outcomes are in a constant variance to appease their varying and often conflicting needs and behaviour.

4. The Task Environment

(a) Government Agencies

This refers to agencies that provide services and monitor compliance with laws and regulations at different levels (local, state, regional or national). Typically these agencies are involved in setting legislative mandates, copyright laws, intellectual property, licensing laws, policies and governance regulations that needs to be adhered by the library.

The library therefore operates within this "government bubble" constraining them within defined limits. Constraints are basically barriers of differing extents. This can pose challenges especially when libraries work beyond their own boundaries with international partners and collaborators, and attempts to deliver value and services to her customers.

(b) Customers and Clients

This refers to individuals or organisations that purchase or use the organisation's products and services. In public libraries, we divide and categorize users groups in children, young adult, adult and senior users. Other forms of categorisation are possible. Such categorisation helps the library to ensure that the needs of these constituents are adequately addressed. Additonally, the library typically creates and identifies target groups of users for specific purposes, for example, to cultivate reading or develop knowledge communities.

The need to serve these groups in turn creates multi-faceted pull factors for library managers and administrators who develops structures and organizes the library to serve them. The range of products and services portfolio managed by different individuals and departments often give rise to internal politics and territorial protection in an attempt to outdo each other in the organisation.

(c) Competitors

This refers to other organisations that either offer or have high potential to offer rival products and services. For the library, competitors come in the form of information providers, information aggregators, direct competing agencies, and even the larger competitor in the form of the Internet. In a somewhat unusual situation, a number of these competitors often become part collaborators to the library due to their inter-dependency on each other, and the advocacy of certain norms in this information society, such as to promote knowledge sharing, information reuse, and improve the literacy level of the world. Positioning of the library becomes an important aspect of library strategies to ensure uniqueness or niche areas to be developed and sustained for the future.

(d) Suppliers

This refers to individuals and organisations that supply resources to the organisation to run its businesses. For the library, this includes publishers and content providers, authors of information (either internal or external to the library), vendors, and outsourced

organisations. Outsourcing was particularly popular in the last few years in the face of declining budgets to find viable solutions to trim down the organisation, and to focus on core competencies. Nonetheless, the risks and perils in such a move has somewhat retarded the growth of this industry of late. Another category of supplier that should be borne in mind is that of the donor or sponsor. As the information society becomes more affluent, we witness more generous individuals and organisations doing their part by contributing back to society, often in the area of education and welfare. Obviously, government tax incentives and allowances are useful motivators for them to take such actions.

In this scenario of consumers and suppliers, the library's challenge is to be able to define its niche, and accordingly develop her product and service mix, and to find a means to build, maintain and manage relationships with a range of stakeholders.

(e) Labour Supply
This refers to individuals who are potentially employable by the organisation. In the library context, this includes para-professionals, professionals, administrators, managers, subject specialists, contract workers, and others (such as adjunct staff, part timers, research associates, and students).

For those who are directly employed, training and competency development are important issues to be addressed to ensure that the library's manpower resources are able to fulfill its goals and objectives, and to get the work done to an acceptable level of quality. Collectively, these individuals form the profession, and determine the image of the profession.

5. The Organisation

Most, if not all of us, are familiar with the organisation and its main structures and functions. The library organisation can typically be divided into four main components as shown in Figure 3: products, services, leading and supporting infrastructure / resources /services, and management. Table 3 shows the typical constituents of these larger components.

Figure 3. The Library Organisation

Table 3. Typical Components of the Library Organisation

Products	Services
• Collection (Books, Serials, E-docs, AVs) • Specialised Collection (Legal Deposit, Dissertations, Theses, Project Reports, White Papers, etc.) • Commissioned Research	• Circulation • Reference Services • User Education • Knowledge Discovery • Programs, Promotions, Events • Cultivation of COPs/Outreach • Publishing and Research
Leading/Supporting Infrastructure, Resources and Services • Cataloguing/Bibliographic Services • Acquisition/Development Projects • Technologies (DLs, Portals, SEs, Subject gateways) • Electronic Resource Management • Logistics • Facilities • Collaborative Services (ILL, Other Agencies) • Innovation	**Management** • Policy Development • Social Responsibilties/Ethics • Risk Management • Human Resource Management • Corporate Communication and International Relations • Partnerships/Collaboration • Knowledge and Quality Management • Finance

Enveloping this whole myriad of products, services, functions and features, is the corporate culture. Culture refers to shared values, assumptions, beliefs, and norms that create the character of the organisation and unites members of the organisation together. Culture is manifested through symbols, rites and ceremonials, and stories. Much has been written about organisational culture, but it is still worth iterating that culture can help shape or break an organisation, and affects organisation's effectiveness considerably.

6. Spread of Papers in ICoLIS

By revisiting Figure 1 and fitting the major topics of the ICoLIS proceedings into the framework of the library environment, we noticed that most work reported tends to focus on the organisation. This should not be too surprising as we are generally more in touch and interface more closely with the organisation and the immediate task environment. Library research tends be more out-flowing with libraries writing, talking, defining and engendering the areas of research, and scholars picking and working on these areas of applied research. For example, when one converses with librarians and seek their inputs on what are important issues for research, common themes like user needs and usability usually comes to mind. Nonetheless, as researchers, we should be mindful that it is good and essential to extend the arms of research influence towards the larger environments as a means to enhance the image of profession.

7. Stakeholders Roles

The information society is created and shaped by all for all. This implies that there are roles for all stakeholders in various forms. In this section, we will examine a number of these roles along with some recommendations of what can materialize in order for us to continue develop the information society.

Prior to that, it is worth reviewing a study carried out by the North Central Regional Educational Laboratory in the US on 21st century skills. The study posits the need to negotiate the complexities of the information society through the attainment of proficiency in science, technology, culture, and to gain a thorough understanding of information in all its forms. To be successful, we need four ingredients: digital age literacy, inventive thinking, effective communication, and high productivity as shown in Figure 4. Sounds familiar?
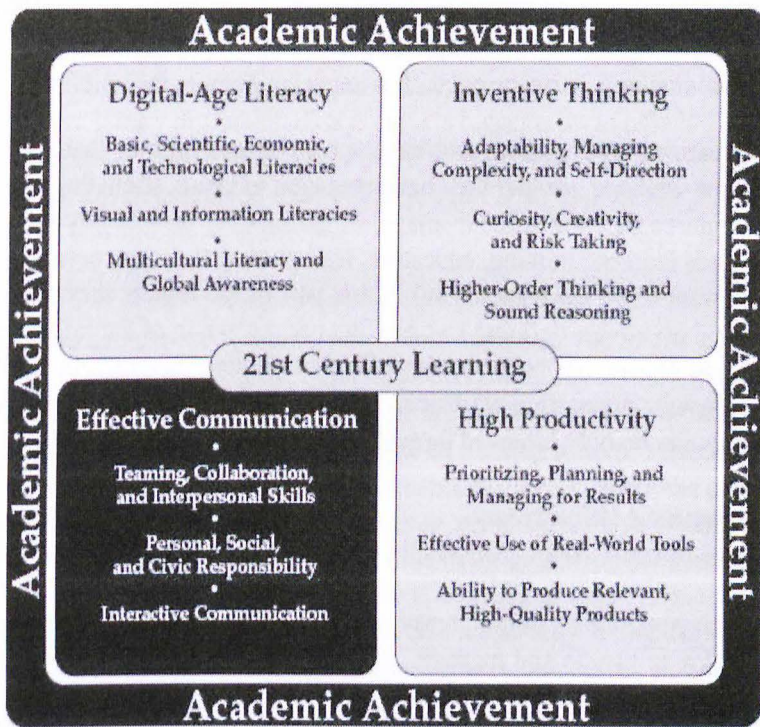

Figure 4: 21st Century Skills according to Learning Point Associates
(Source: http://www.ncrel.org/engauge/skills/engauge21st.pdf)

Digital age literacy includes a number of areas: basic literacy (language), scientific literacy (scientific concepts and processes for decision making), economic (identify economic problems, offer alternatives, do cost-benefit-analysis), technological literacy (what and how technology works and to using it effectively), visual literacy (ability to interpret, use and appreciate visuals), information literacy (define, seek, evaluate, package, and use information), multicultural literacy (understand and appreciate similarities and differences between cultures, values, beliefs), and global awareness (interrelationship between international organisations, public and private economic entities, and individuals across the world). Digital literacy is an area where the library is poised to play an ongoing significant role in future.

Other ingredients are rather self explanatory. An acquisition of these proficiencies cannot be done overnight, but requires a clear path of education, sustained retraining, garnering experience and getting "burnt" along the way. Nonetheless, the proposition of these ingredients is a timely reminder of the higher expectations we need to place on ourselves in moving ahead.

We now examine a number of stakeholders in the information society:

Library Professionals
Library professionals should continue to do what they do best – to continue eliciting and meeting different user group needs by providing a suite of products and services. This calls for them to be pro-active and innovative, thinking out-of-the-box to test out novel ideas with good chances of success. They need to find means to make libraries relevant

and desirable, both physically and virtually – a tall order with today's high users' expectations, and the competitive nature of search engines and Internet.

They can take opportunities to instill literacy such as those discussed previously (Figure 4). They can source, collect and organize such literacy information, develop subject gateways to support better research and reference work in these areas, and tailor them to groups of different literate level users. The establishment of such foundational and essential knowledge is one good form of contribution by libraries towards the information society. Professionals can be part of the larger professional body (association) to support each other in different areas of the information industry.

Library Association
Library associations around the world have successes and failures that vary. For those who have done well, we see that they have managed to create strength by having a clear agenda to improve the professional image, in addition to their ability to serve diverse members' needs (careers, training, education, resources, facilitation, networks). If library associations want to be more successful in this part of the region, they need to be more visible and authoritative – defining and spelling out the vision of the information society, and learning to engage the larger environments, including government. They need to write factually with supporting evidence. In other words, the quality of scholarly must improve. This can be only achieved through more rigourous research without shortcuts.

Library Managers/Administrators
They are the strategists, implementers and managers of library initiatives and operations. Their greatest challenge is to find a means to strike a balance in the array of multi-faceted and multi-facing operations in the library whose environment, both internal and external, is very complex to handle and manage. They need to maintain a big picture, know the limits of the organisation and cultivate niches. They would want to move towards a higher level of managerial excellence by embracing the concepts of the Learning Organisation (LO) and Knowledge Managemenet (KM) to improve competency building and sustaining higher productivity. Their roles and success rates will certainly have an impact on the quality of information content, information access and information use.

Library Educators
As educators, we acknowledge the big spectrum of knowledge, skills and competencies that we need to impart on our students in a limited time. We need to plan well what to teach as time and resources are finite. We should attempt to include as many, if not all, aspects of holistic training through innovative means of inclusion in the curriculum.

We need to teach well what is planned by not doing it alone but by involving professionals and industry, working with real life cases, and utilising problem-based learning as the real world is about problem solving. By working hand-in-hand with the profession, educators can help forge partnerships and collaboration – locally, regionally, internationally, and to cultivate initiatives with other universities. We can explore forming educational consortia such as the I-School concept in the United States, consider accreditation with the primary aim of knowledge sharing and joint learning. Lastly, as educators, we remember that we take on the important role to educate and train the next generation of information professionals that will shape the information society

Researchers
As researchers, we should rightfully acknowledge the usefulness and necessity to carry out both basic and applied researches. Both are important. With time being limited (how many PhDs can we supervise in our lifetime?), we need to focus our energies to do value-added and/or impactful research that has far and further reaching consequences on our information society. By equipping ourselves with the tenets of research and a number of

small successful research projects, it becomes timely to move on to develop and champion larger interdisciplinary research agenda that would influence the larger environments, through external funding and recognition. In these situations, we need to address the critical value propositions of the research, a practice that is in fact worth doing from the first day of our research lives.

Government

The government has significant and important roles to play in the information society. As our future economies are information and knowledge driven, they need to value the commodity of information and knowledge, and acknowledge the key functions played by the library and other information agencies and support them. It augurs well for them to cultivate and give library professionals and experts bigger roles to play in government and society. Governments should periodically examine their priorities, and pay close attention to socio-cultural developments in their country, and derive appropriate plans to cultivate values for a tolerant and graceful society

Users

As end users, we can choose to learn to enjoy and appreciate the information society and be less demanding and critical of the library and everything else. To do well in future, we need to discharge our own responsibility to ensure that we keep up-to-date, be educated, learn and be more self reliant by doing. Instead of running to some reference librarian as the first step of a natural process in information seeking, we can adopt the motto of "think, seek and do". Thinking helps us put things in perspective, lays out the big picture, consider alternatives, evaluate choices prior to coming to making a valued and informed decision. As users, we can provide constructive feedback to improve situations, and find ways to contribute knowledge back to society. We are already seeing the effects of blogs, social information sharing, censorship, factual data authoring in an example such as wikipedia (http://www.wikipedia.org/). Wikipedia is currently the biggest multilingual free-content encyclopedia on the Internet with over 7 million articles in over 200 languages, contributed and managed by authors that can be anyone of us.

8. Conclusions

This paper has attempted to provide an external and internal factor assessment of a library's environment. The aim is to systematically paint the big picture of the library in today's information society. It is no doubt that running a library or an information agency is extremely challenging and complex today. We have basically little control over the mega and task environments, which impinge operations significantly. Maintaining a careful balance of products, services, initiatives, and attempting to achieve the pre-defined performance indicators requires the cooperation and commitment of the whole organisation. While we face challenges, we realize that challenges also provide opportunities for us to make a difference. As stakeholders, all of us have roles to play. The paper has proposed a number of such roles for different stakeholders and provides some recommendations for us to take away and ponder. While they are no means complete or authoritative, it is hoped that these can fuel our awareness of the tall order in building an information society for all.

References and Selected Works

Balachandran, J., & Foo, S. 2002. Implementing KM in an information technology environment: A practical approach. *Journal of Information and Knowledge Management*, 1(2), 187-196.

Bartol, K.M., & Martin, D.C. 1991. *Management*. McGraw Hill: New York, MaGraw-Hill series in management.

Chennupati, K.R., Foo, S., & Heng, P.C. 2006. Trends in electronic publishing. In Ching, H.S., Poon, P.W.T., & McNaught, C. (Eds.), *eLearning and Digital Publishing (Computer Supported Cooperative Work),* 33, Springer, 111-132.

Foo, S. 1999. Media resource libraries in Singapore schools: Challenges and opportunities. *Singapore Journal of Library and Information Management,* 28, 73-85.

Foo, S. 2006. Enhancing e-journal access in a digital work environment. *Journal of Library and Information Management,* 34, 31-40.

Foo, S., & Theng, Y.L. 2005. A snapshot of digital library development: The way forward in the Asia Pacific. in Theng, Y.L, & Foo, S. (Eds.), *Design and Usability of Digital Libraries: Case Studies in the Asia Pacific,* Idea Group Publishing, Hershey, PA, 351-370.

Foo, S., Sharma, R., & Chua, A. 2007. *Knowledge Management Tools and Techniques* (2nd ed.), Pearson Education South Asia Pte. Ltd.

Goh, D., & Foo, S. 2007. *Social Information Retrieval,* IGI Global, Hershey, PA (forthcoming)

Majid, S., Chaudhry, A.S., Foo, S., & Logan, E. 2003. Accreditation of Library and Information Studies programmes in Southeast Asia: A proposed model, *Singapore Journal of Library and Information Management,* 32, 58-69.

Mokhtar, I. A., Foo, S., & Majid, S. 2007. Guide me, show me: Personalised coaching as a means of entrenching information literacy competencies in students. Accepted for publication in *Library and Information Science Research Electronic Journal (LIBRES).*

Mokhtar, I. A., Foo, S., & Majid, S. 2007. Bridging between information literacy and information technology in Singapore schools: An exploratory study. Accepted for publication in *Journal of Education, Knowledge & Economy.*

Nanyang Technological University. 2006. *Asia-Pacific Conference on Library & Information Education and Practice 2006 (A-LIEP2006):* Preparing Information Professionals for Leadership in the New Age. Available at: http://www.ntu.edu.sg/sci/A%2DLIEP/

Lee, C.K., Foo, S., & Goh, D. 2006. On the concept and types of knowledge. *Journal of Information & Knowledge Management,* 5(2), 151-164.

Liew, C. L., Foo, S. & Chennupati, K. R. 2001. A proposed integrated environment for enhanced user interaction and value-adding of electronic documents – An empirical evaluation. *Journal of the American Society for Information Science and Technology,* (Special Topic Issue: 'Still the Frontier: Information Science at the Millennium'), 52(1), 22-35.

Lim, E.P., Foo, S., Khoo, C., Chen, H., Fox, E., Urs, S. & Costantino, T. 2002. *Digital libraries: People, knowledge and Technology,* 5th *International Conference on Asian Digital Libraries, ICADL2002, Singapore, December 2002 Proceedings,* Lecture Notes in Computer Science (LNCS) 2555, Springer.

Tan, G., & Foo, S. 2006. Realising its future through collaboration with government, industry and community: The experience of Singapore's National Library Board, *Journal of Library and Information Science,* 32(1), 34-42.

Tan, P.L., & Foo, S. 1999. Service quality assessment: A case study of a Singapore statutory board library. *Singapore Journal of Library and Information Management,* 28, 1-23.

Theng, Y.L., & Foo, S. 2005. *Design and Usability of Digital Libraries: Case Studies in the Asia Pacific,* Idea Group Publishing, Hershey, PA.

Theng, Y.L., Foo, S., Goh, H.L.D., & Na, J.C. 2008. *Encyclopedia of Digital Libraries,* IGI Global, Hershey, PA (forthcoming)

Yit, C.H., & Foo, S. 2002. Development of Libraries of the Congress of Southeast Asian Librarians (CONSAL): 1996 to 1999. *Library and Information Science Research Journal (LIBRES),* 12(1).