

The IFLA Trend Report¹ and Library Horizons²

El Informe de Tendencias de IFLA y los Horizontes de la Biblioteca

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Resumen: El Informe de Tendencias de IFLA se publicó en agosto de 2013 para proporcionar a los profesionales bibliotecarios y de información con una panorámica de los futuros posibles para la sociedad de la información. Expertos de todo el mundo se unieron para explorar temas sociales y tecnológicos que podrían estar conduciendo a la sociedad en el futuro. Sin elegir desde el mundo de las bibliotecas, pero a partir de una gama de diferentes disciplinas y organizaciones, estas personas le dieron a IFLA una visión más amplia del entorno global de la información. Las tendencias identificadas incluidas en las nuevas tecnologías fueron: la educación en línea, privacidad y protección de datos, las sociedades hiper-conectadas y la transformación del entorno global de la información. Aquí los resultados de estas deliberaciones se exploran y analizan para desarrollar una mejor comprensión de lo que podría deparar el futuro para la sociedad de la información. El informe de tendencias, junto a otros documentos pueden proporcionar a todas las bibliotecas con la información una necesitan para moverse sin problemas y rápidamente una nueva versión de la sociedad de la información.

Palabras clave: IFLA; Federación Internacional de Bibliotecas; Asociaciones.

Abstract: *The IFLA Trend Report was published in August of 2013 to provide library and information professionals with a view of the possible futures for the information society. Experts from around the world were called together to explore societal and technological issues that might be driving society in the future. Chosen not from the library world, but from a range of different disciplines and organizations, these individuals provided IFLA with a broader view of the global information environment. The trends identified included new technologies, online education, privacy and data protection, hyper-connected societies and the transformation of the global information environment. Here the results of these deliberations are explored and discussed to develop a better understanding of what might lie ahead for the information society. The Trend Report, along with other documents*

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1. The full website of the Trend Report is available at <http://trends.ifla.org>

2. Conferencia impartida en el Congreso Internacional INFO2014, Palacio de las Convenciones, La Habana, Cuba, abril 2014, en la Mesa dedicada a la Biblioteca Nacional de Cuba José Martí.

from the area of higher education futures can provide all libraries with the information they require to move smoothly and swiftly into the next version of the information society.

Keywords: IFLA; Library Trends; Technology; Information Society

Introduction

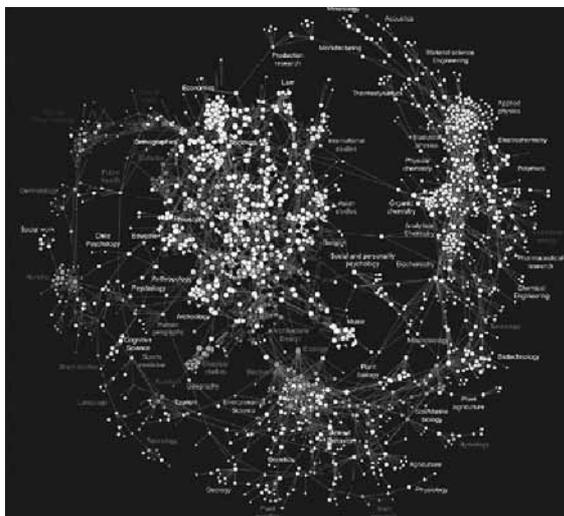
Riding the Waves or Caught in the Tide? (IFLA, 2013) is both the title of the insights from the IFLA Trend Report and an important question for all of us who are part of the library and information profession. The statistics that are mentioned in this report are impressive, especially with regard to the growth of information and the spread of information technology throughout globe. The environment in which we work has changed more in the last fourteen years than in the last seventy-five years of the twentieth century. We are more connected, more invested and more challenged by changes in information technology than ever before. It is therefore very difficult to remain on the crest of change and not to be dragged down by the undertow of change. The IFLA Trend Report can be a very useful way of looking at and preparing for the future of the information society.

One of my favorite ways of visualizing the interconnectedness of information comes from an article published in the open access journal PLOS One entitled "Clickstream Data Yields High Resolution Maps of Science." (Bollen et al., 2009). These researchers created this amazing visualization using log data from scholarly web portals. The fasci-

nating aspect of this project is the interdisciplinary nature of scholarly research in the pure sciences as it extends to the humanities and the social sciences. These connections could not be made without the technology that exists that allows research to be informed from many fields. Whether we are academic, public, government or special librarians, we live in an interconnected world, networked by the computers that sit on our desks and sometimes are held in our hands.

This highly connected, networked information society is both an asset and a challenge for information scientists. We have been pushed repeatedly by technology that is totally outside of our control. We wait for the next change and adjust to it. With the Trend Report, we have an opportunity to get ahead of the next wave of change in order to be prepared for it. The Trend Report is not the only study of futures for the library. For some of us, the *Horizon Report Higher Education Edition* is also a useful tool. (Johnson, Adams Becker, Estrada, & Freeman, 2014) This report explores key trends, challenges and important developments in technology that are affecting or will affect higher education on a one to five year timeline. It has been published in digital format under a Creative Commons Attribution for several years and is always surprising in the accuracy of its explorations. This year it explores the flipped classroom, learning analytics, 3D printing, games and gamification, the quantified self and virtual assistants as on the horizon for higher education. In the past it has looked at the impact of visual data analysis, e-books, open content, mobile computing, gesture-based computing, and simple augmented reality. (Johnson, Levine, Smith, & Stone, 2010) The predicted implementation of these technologies has consistently been accurate. However, the Trend Report is not limited to higher education, but looks at the broader issues that will apply to all libraries that are brought on by technology and the changing information society.

Figure 1. Clickstream Map of Science.



Trend 1: New Technologies Will Both Expand and Limit Who Has Access to Information

"An ever-expanding digital universe will bring a higher value to information literacy skills such as basic reading and competence with digital tools. People who lack these skills will face barriers to inclusion in a growing range of areas. The nature of new online business models will heavily influ-

ence who can successfully own, profit from, share or access information in the future.”

The Digital Divide has been a topic of discussion for many years now. Bandwidth and the ubiquity of the Internet have an impact on the information society and society as a whole. In turn, these aspects of information technology have a major impact on health and education systems well beyond the social, political and economic systems in the countries of the world. Even as the information world expands, we wonder who can effectively use it and benefit from it? The importance of digital literacy skills is emphasized in this first part of the Trend Report. Just as we try to teach our students of the importance of critical thinking skills, we need to emphasize the importance of recognizing the authoritative voice on the Internet for all users.

The growth of ownership of mobile phones, tablets, and electronic readers is predicted to be astounding in the next few years. Information professionals recognize this trend and are beginning to adjust to it accordingly. On my campus, an organization called Scientific Animations Without Borders (SAWBO)³ provides three to five minute videos that can be accessed on handheld devices with brief lessons in cholera prevention, malaria prevention, Teff row planting, producing natural insecticide from Neem seeds, shea butter processing, and the solar treatment of cow peas, among other topics. The videos, available on YouTube, can be easily accessed with a mobile device. They are narrated in a wide variety of languages and dialects of these languages for use by individuals in developing countries. This is the type of information that can have a huge impact on society, providing information where and when it is needed.

The ubiquity of the Internet and the growing presence of mobile devices have also challenged the concept of ownership of intellectual property. The legal systems in many countries just cannot adjust quickly and effectively to the demands of open access and information networking. In many cases, the governmental structure of the country and the power of the commercial sector within a country are used to push back against expanded freedom of access to information. The report proposes that “new business models that harness public enthusiasm for consuming, sharing, creating and modifying [information] offer a broad range

of content across different platforms and devices” which will eventually cause conflict with outdated means that prevent access to copyrighted content. The report also alludes in this section to the capture of personal information by commercial concerns and the ability of these businesses to become empowered with tools that can prevent individuals from accessing, sharing or owning information equally. Indeed, net neutrality has become a major issue of concern in the U.S. and elsewhere.

Trend 2: Online Education Will Democratise and Disrupt Global Learning

“The rapid global expansion in online education resources will make learning opportunities more abundant, cheaper and more accessible. There will be increased value on lifelong learning and more recognition of non-formal and informal learning.”

Massively Open Online Courses (MOOCs) as well as Online Open Education Resources (OER) are two developments that have great importance for the future of the information society. At the level of formal education for example, the University of Illinois at Urbana-Champaign has been successfully offering an online degree in Library and Information Science for some time now. The number of online degree programs in all fields has mushroomed in the past five years. One of the greatest benefits of these programs is to enable the person who works full-time to take advantage of the opportunity to improve their skills and understanding in the fields that interest them, and to obtain a degree that can further advance their careers. Generally more economical to attend, these programs are beneficial to the participant and society as a whole.

Beyond formal degree programs, the development of the MOOC provides the opportunity for individuals to become lifelong learners. The Massachusetts Institute of Technology was the first major university in the U.S. to put a vast amount of its curriculum online in open access. More recently, non-profit concerns such as Coursera have begun to offer a wide variety of courses taught by experts from a number of high profile universities. Coursera’s mission includes the statement that “We envision a future where everyone has access to a world-class education. We aim to empower people with education that will improve their lives, the lives of their families, and the communities

3. SAWBO: <http://sawbo.illinois.edu>

they live in.”⁴ Whether they will achieve their goals is yet to be proven, but it is one of the first steps to open, online higher education on an organized basis. The Kahn Academy is another example of a non-profit educational open access site that provides access to learning.⁵ The courses here are as basic as third grade mathematics or as complex as computer programming. Students do not receive credit for taking the video tutorials. These are, however, powerful resources for individuals who might want to learn something new, or refresh older skills. The effect of these open access learning tools may at some point change the way education is not only delivered, but also recognized. Formal and informal learning may both be factors in the future of educational certification.

The broad adoption of open access for scientific and scholarly publishing poses some real challenges to commercial publishers and also to the institutions of higher education. The discussions about how individuals can undergo evaluation for promotion and tenure has been ongoing and frequently heated since the advent of open access journals. This of course refers back to the first trend discussed related to digital literacy. How do we know what is truly authoritative research? The Trend Report does not address this directly, but does indicate that “Innovations in health, infrastructure and commerce are born” from the collaborations between the authors of articles in the peer-reviewed journals available in open access repositories. The other advantage to open access is to provide access to individuals who are not part of the same scholarly system. Researchers in Cuba, in Kenya, in the United States and in Cambodia all have an equal opportunity to discover useful information, freely available on the Web provided that they have equitable bandwidth and access. The traditional methods of commercial scientific publishing have been disrupted and as a result, information is more affordable and accessible.

Trend 3: The Boundaries of Privacy and Data Protection Will Be Redefined

“Expanding data sets held by governments and companies will support the advanced profiling of individuals, while sophisticated methods of monitoring and filtering communications data will make tracking those individuals cheaper

and easier. Serious consequences for individual privacy and trust in the online world could be experienced.”

This is the most chilling part of the report for librarians and others interested in maintaining the ethical conduct of governments and commercial enterprises. In the book *Big Data: A Revolution That Will Transform How We Live, Work, And Think* (Mayer-Schönberger & Cukier, 2013), the authors pay particular attention to the possibility of sophisticated profiling of individuals speculating that governments might employ the same tactics that are currently used by Amazon, Facebook, and other online tools in making assumptions about individuals based upon various algorithms derived from their purchases and internet searches. Would it be possible to preempt crimes and incarcerate individuals on the basis of their virtual activities? The exposure of the PRISM program and other NSA activities in the U.S. are the most well-publicized evidence of the power of collecting information on private citizens, but is not confined to one country by any stretch of the imagination.

Beyond government surveillance of the information uses of the individual, commercial entities including large multi-national companies, telecommunications companies, and large retailers commonly gather information about personal interests through browser cookies, mouse clicks, and other means. The report speculates that emotional metering through social networks and even retinamovement analysis may provide companies with the ability to employ discriminatory pricing based upon various activities on the Internet. At the other end of the spectrum, some companies are now advertising privacy as an added advantage to using their sites in order to protect individuals from monitoring.

Always strong proponents of the right to privacy, the librarians in the U.S. have become concerned about the digital trail left by individual library users through journal downloads, access to e-books that are registered and recorded as events, and the log data that we use to improve our services. Surveillance by individuals with wearable technologies is providing a great deal of food for thought on the part of the administration at the University of Illinois. We do not allow photography in the Library without written consent. How will we handle individuals entering the Library with Google Glasses and other types of discrete recording equipment in the future?

4. Coursera: <https://www.coursera.org>

5. Khan Academy: <https://www.khanacademy.org>

Once again we can look back to the concept of digital literacy as being increasingly important in the information society. The individual's digital footprint is no longer an aspect of individual choice, but a matter of public knowledge, or at least the knowledge of a select number of commercial and government agencies. Do our users really understand this? How can we help them to become better informed consumers and users of information? How do we as library and information professionals protect our users from those institutions and entities that want to invade their digital privacy?

Trend 4: Hyper-Connected Societies Will Listen To And Empower New Voices And Groups

“More opportunities for collective action are realized in hyper-connected societies - enabling the rise of new voices and promoting the growth of single-issue movements at the expense of traditional political parties. Open government initiatives and access to public sector data will lead to more transparency and citizen-focused public services.”

The report states that “The size of the digital universe is predicted to double every two years.” This will have both positive and negative impact on society. In some preliminary research, this author has found that citation behavior has been heavily impacted by the access to materials on the Internet. The use of government documents and materials from non-governmental organizations frequently referred to as fugitive or grey literature is expanding every year. In an effort to provide more transparency many governments have placed large quantities of documents online so that all citizens can have access to information about policies, statistics and resources provided by the government. In addition, the number of non-governmental organizations (NGOs) has experienced exponential growth, with the vast majority of NGOs placing reports, news, videos, and other resources on the Web. Open government is clearly a great advantage to societies, both within and outside of any individual nation and the easy access to the reports of NGOs is extremely helpful to underline developing issues and problems in any society. The concept of “bit rot” —the inability to access information due to changes in the technology required to access it— is a threat to much of this material. Additionally, in both of these types of organizations it is

essential that information is not only made available, but made usable and understandable as well. Frequently, particularly in public libraries, mediation of this information to empower individuals by knowledgeable professionals is essential.

Three positive aspects of hyper-connected societies recognized in the report are the empowerment of women, the provision of a global voice related to injustice, and the ability for individuals in migrant and diaspora communities to connect with each other. Some aspects of the collection of big data can also have a positive effect on governmental decision-making. The interesting challenge is the development of single-issue movements best represented by the growing number of NGOs and the ability of political systems to deal with these issues. This can be seen as an increasing problem for traditional, established political parties as new coalitions develop, corruption is uncovered and new technologies mature. However, the Internet also provides a powerful tool for commercial lobbyists attempting to mobilize popular public sentiment for or against specific issues.

Trend 5: The Global Information Economy Will Be Transformed By New Technologies

“Proliferation of hyper-connected mobile devices, networked sensors in appliances and infrastructure, 3D printing and language-translation technologies will transform the global information economy. Existing business models across many industries will experience creative disruption spurred by innovative devices that help people remain economically active later in life from any location.”

As mentioned earlier, mobile technology devices, including phones, tablets, and other yet to be developed tools, will grow in number in the coming years. The development of artificial intelligence attached to these devices is already advancing. Voice recognition software, the built-in GPS program, and the implementation of translation applications are already quite common on many mobile devices. It is easy for one to “ask” your cell phone to find a specific restaurant, look at the menu, call for a reservation and find the route to its front door. One can easily search online to discover the symptoms of many illnesses and receive advice on a variety of treatments. Banking services are offered that allow an individual to deposit funds, check balances and pay bills from the mo-

mobile phone. All of these have an impact on the way we lead our lives.

The latest technology of 3D printing is promising to change the way manufacturing and art is done. This has a highly disruptive potential for manufacturing both in the number of employees needed to produce a good and in the educational requirements of the employee. Beyond production, the concept of “showing up” for work may change as more individuals actually work from their homes, digitally commuting to all parts of the world through conferencing programs. The report indicates some speculation that in about fifteen years the majority of the world’s population is expected to live in cities. This trend may be reversed, however, by technologies that allow individuals to live in smaller communities and enjoying the ability to telecommute to their jobs.

The Internet of Things, that is devices, appliances and infrastructure with networked sensors embedded within their activities, will provide more data. Perhaps this will lead to more experiential and empirically based decision-making on the part of governments and commercial entities within the next ten years.

Activities

The Trend Report is not meant to be a static document, but rather a dynamic process that encourages information professionals to become engaged in developing the future of the information society. There are many resources on the website that are available to anyone interested in the issue of the future of the information environment. Some of the documents that are available have been translated into several languages for ease of use. The Insights Document is just the beginning of what is hoped to be an ongoing process and dialogue with library and information professionals throughout the world. There are several ways in which you can become involved in the process and have your voice heard.

Learn to become more informed about the issues related to the Trend Report, a bibliography of related documents exists. Over 170 reports are available here including journal articles, academic papers, other trend forecasts and studies. These materials come from diverse organizations and individuals such as the World Bank, UNESCO, the Open Society Foundation, Lawrence Lessig, Jorge Contreras, and the Pew Research Center. The reports are tagged so that you can go to your particu-

lar area of interest, and more information is being added to this part of the site as new publications are discovered. If you wish to see something added you can find the email address in the footnote on the first page of the bibliography.

In addition to the bibliography, the site includes a literature review which summarizes and analyzes the materials found in the bibliography. This is broken down into four chapters - Cross-cutting Political and Regulatory Trends, Social Trends, Economic Trends, and Technical Trends. The original documents reviewed are linked in each of these chapters. The Expert Papers tab will lead you to submissions from the ten experts who engaged in the discussion of the issues in March of 2013 in Mexico City. This includes summaries of the submissions received as well as the unedited original submissions. Finally, a document entitled the Mexico Synthesis brings together the recorded discussions of the individuals who gathered in Mexico City. Foreshadowing the final Insights document, the synthesis of the discussion was divided into five areas of concern including copyright and new business models; the disruptive democratization of education; online activism, governance, privacy and security; economic and demographic trends; and technological trends.

Engage

This section of the site can keep the user up-to-date on past and immediately upcoming events that will reference the Trend Report. Under “Host a Discussion” you will find suggestions for initiating and engaging in discussions about the report including how to access an event tool kit, promote your event, use the discussion form and provide a report on the event.

Conclusion

The Trend Report is both a product and a process. The individuals who were called upon to contribute to its initial development came from a variety of organizations and institutions including ICANN, the Association for Progressive Communications, the Université Sorbonne Nouvelle, the Intel Center for Social Computing, Victoria University, the Bill and Melinda Gates Foundation, Spot One Global Solutions, UNESCO, National Autonomous University of Mexico, the Pew Research Center, BBC, OECD, DataWind Ltd., American Public University System, Google, and the Global Intelligent Com-

munity Forum. The next steps are up to you. Get involved in the Discussion Forum, participate in a workshop or seminar, talk about these issues with each other and share the results of these conversations. Moving forward, catching that wave depends upon you, as information professionals, to share your knowledge, your opinions, and your

foresight to enable our profession to avoid the stasis that will allow us to be pulled under by the current of the forces of technology. As we say on both coasts of the U.S. - Surf's up! ■

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